THE PEDAGOGICAL LIFE OF EDIBLE VERGE GARDENS IN SYDNEY:

URBAN AGRICULTURE FOR THE URBAN FOOD IMAGINARY

A dissertation submitted to the University of Hawaiʻi at Mānoa

in partial fulfillment of the requirements for the degree of

Doctor of Philosophy (Urban and Regional Planning)

MAY 2018

By Jesse P. Hsu

Dissertation Committee:

Luciano Minerbi (Chairperson)
Karen Umemoto
Daniele Spirandelli
Hannah Tavares
Dongping Zheng

# Acknowledgements

It has been an unexpectedly a long and winding journey academically and personally across three countries, numerous living arrangements, and three new wondrous children. Many people along the way have enriched and have shaped this experience of so many years.

I would also first like to thank my immediate family for whom I dedicate this research. Firstly, the hugest thank you to my wife Sari for many years of patience and support through this seemingly endless process. To Zion, Jubilee, and Shalom, for allowing my life not to be oriented around my research—you are my daily source of immense joy and meaning. To my parental family, I would like to thank you for providing me with the model of life-long learning and researching from an early age, as well as for all your love and support all these years.

I am indebted to my committee members: Dr. Luciano Minerbi for his wise counsel and steady prodding, Dr. Karen Umemoto for helping me get enculturated into research and the planning field, Dr. Daniele Spirandelli for her direction with urban ecology and the landscape, Dr. Hannah Tavares for her constant support from the very beginning to guide me through various educational themes, and Dr. Dongping Zheng for helping me build bridges between applied linguistics and planning.

I am also grateful for the tremendous support I have had from Sydney-based academics. Their input has profoundly influenced my research direction. I would like to thank Dr. Louise Ravelli at the University of New South Wales for her mentorship in learning to be a semiotician, Dr. Abby Lopes at the University of Western Sydney for drawing me to and helping familiarize me in Sustainability Transitions, and Dr. Elayne Swan at the University of Sussex for all the convivial discussions around food pedagogies (not to mention the restaurant introductions).

I would also like to thank all my Sydney-side research participants who went above and beyond with welcoming me into your work and lives. I hope that your participation will in a small way eventuate into verge gardens becoming a bigger part life everyday life in Sydney and beyond.

*Soli Deo Gloria*

**Abstract**

Re-integrating agriculture into the city is an essential task of planning for urban

food systems.  Despite efforts to stimulate the expansion of urban agriculture (UA) in

cities, it remains a secondary concern for many local governments and residents.  One

critical barrier in establishing UA as a vital infrastructure in cities is that the vision of an

agriculture-infused city not being shared with the wider culture.  The struggle over UA's

appropriateness can be viewed as a clash between differing spatial and material

expectations of the city food system, or urban food imaginaries. Food systems research

suggests that UA is often viewed as regressive, 'out of place', and better as a temporary

land placeholder. As a form of visual culture, UA spaces are 'pedagogical' or have agency

to mediate discourse and practices and therefore potentially influence urban food

imaginaries.

This dissertation explores how UA spaces may act as 'public pedagogy' and

potentially contribute to shift the urban food imaginary through the case study of edible

verge gardens in Sydney, Australia.  I employ a three-part approach to guide this inquiry.

First, I formulate a theoretical model for understanding UA spaces with respect to public

pedagogy and the urban food imaginary, applying it towards a single verge garden case.

Second, I focus on the representation frame of public pedagogy, utilizing multimodal

discourse analysis (MDA) and walking ethnography to over a hundred gardens to

understand the pedagogic potential of the verge garden form.  Third, I focus on the social

practice frame of public pedagogy to understand the extent to which gardens enable food-

oriented practices and the dynamics undergirding maintenance of those practices,

considering qualitative data that includes 29 in-depth interviews with gardeners, local council staff, food movement leaders, and residents; and four months of diary entries by four best-case garden owners.  I propose policy interventions targeting the dynamics of verge garden practice that can guide the development of gardens that are more aesthetic, productive, and community-oriented. Findings elucidate the tremendous potential of verge gardens to influence urban food imaginaries, but only if design consideration is given to overcoming the hostile growing environment of the footpath.

# TABLE OF CONTENTS

# LIST OF FIGURES

# CHAPTER 1: INTRODUCTION

## 1.1    Urban Food Imaginaries and Urban Food Systems Planning

Planning for cities has always involved a vision for its food system.  This has been the case since the emergence of the first recorded city, Uruk of Mesopotamia, where an integrated system of agricultural countryside and networks of urban gardens were created through irrigating desert from levee-stored floodwater (Steel, 2009).  More than three millennia later, preindustrial cities in Europe continued to feature livestock and small-scale farming; they were so prominent that elites desired their removal due to undesirable smells and filth (p. 23).  A modernist paradigm emphasizing progress through mechanized efficiency gave rise to industrial agriculture in the eighteenth century which solidified in the next centuries into a high-volume system oriented around large-scale agriculture, extensive transportation networks, refrigeration infrastructure, and supermarket-based procurement, cities continued to be supplied by agriculture, only at far greater distances (p. 38).  As all the food cycle processes, production, processing, transportation, distribution, food waste management—save for consumption—began to disappear from the public life of cities, the vision of cities integrated with agriculture began to be conceptualized by modern urban planning in its early years.

Some of the most iconic early thinkers of planning considered food in their utopian vision of the city.  Ebenezer Howard's Garden City purposely integrated town and country into a self-contained area allowing for the ecological and relational interdependence of farmer and city dweller expressed through the

"exchange" of food for consumption and urban waste for soil enrichment (Pothukuchi & Kaufman, 1999).   Patrick Geddes, also considers food as a vital aspect of the larger urban-rural region expressed through his "Valley Section" diagram which includes the "farmer", "shepherd", and "fisherman" among the principal occupations that engage with the urban-rural environment.  However, these visions were not adopted by the wider culture.  Instead, each period of modern planning brought different emphases to the city leading to different material and spatial outcomes for its food system.

Visions of the city in relation to its food system during the City Beautiful movement at the end of the 19$^{th}$ century, during which morality was promoted through the built environment's aesthetics meant that public food markets needed to be either beautified or relocated into industrial districts due to their visual perception of disorder and uncleanliness (Donofrio, 2007).  Planning's concurrent vision of a hygienic city effectively removed animal agriculture in the city at the expense of waste management and local food supply benefits (Brinkley & Vitello, 2013). Though early American cities were dependent on livestock for "waste management, transportation, and food supply", and were central to urban life leading up to the early twentieth century, these expectations of the ideal city drove the removal or restriction of cattle, swine, poultry, slaughterhouses, and dairies (Brinkley & Vitello, 2013, p. 1).

From post-World War I to the 1960s, though American planning favored regional planning and envisioned a decentralized, regional food system

characterized by urban and rural interdependence, the wider culture of "urban consumers had come to expect—indeed, to take for granted—the diversified and dependable year-round bounty of the global food system" (p. 38). The larger cultural (and economic) shift of the nation's foodscape to monocrop agriculture and high-volume supermarkets did not allow for city-level planning intervention, entrenching them as central components of urban food system which has persisted until the present.

Social expectations of the spatialities and materialities of the urban food system and its activities—the urban food imaginary—have always played a key role in determining the shape and nature of food, especially how food is supplied and procured in the city. When planning's vision of the city aligned with dominant urban food imaginaries, as with the period during the City Beautiful movement, it culminated in a visible shift of 'cleaning up' the city food system. When planning's emphasis on regional planning did not meet cultural expectations of a food system oriented around convenience, volume, and selection, its efforts were ineffectual. For example, planning efforts, during the post-World War I period, to develop an urban food system supplied by regional agriculture and community markets were at odds with urban shopper expectations of a "diversified and dependable year-round bounty of the global food system" that was embodied by supermarkets (Donofrio 2007, p. 38). A departure from the industrial system of large-scale farms and high-volume supermarkets "seemed impossible, not to mention undesirable" (p. 39).

In the past decade or so of resurgence of interest in reviving a localized city food system, a central task for planners is facilitating the renewal of agricultural spaces in cities. As with previous decades, cultural expectations of what is a desirable food system are often at odds with urban agriculture (UA). By UA, I am referring to the expansive array of emergent spaces and activities that have gained popularity in recent years, including community gardens, urban farms, edible food forests, farmers markets, urban foraging, pickling workshops, "the keeping of chickens in suburban and urban bee hives, front yard planting, …wild flower meadows, guerrilla gardening and the like" (Morgan, 2015, p. 1385). Perceptions and meanings of UA are frequently cited impeding its acceptance and implementation in cities. UA may be viewed suspiciously because of its agriculture's association with slavery or hard labor (Figueroa, 2015); rural culture (Colasanti et al., 2012); or unaesthetic spatial forms (Sprecht et. al 2016). UA often lack comprehensive support from local governments or key stakeholders because these and other perceptions. Many local governments are closed to the notion of adopting UA-supportive zoning and ordinance changes, and allowing UA activities, such as livestock keeping (i.e. chickens, goats, bees, and etc.) and edible front yards, leading to legal clashes between residents and local councils (Galasso, 2017; Belz, 2017). Mengual et al. (2016) determined that key stakeholders of agriculture in Madrid, Spain were unsupportive of UA because it was seen as mainly a social activity and/or not "real agriculture" (p. 108). In essence, the aspiration of city life that is intertwined with UA envisioned by those engaged in urban food systems work is not

necessarily shared with the wider culture.  This disparity of urban food imaginaries is potentially a critical obstacle to UA's normalization and progress in cities.  This is most evident in the lack of permanent land tenure that often accompanies UA spaces.  UA, in the form of community gardens and urban farms, are often seen as temporary land placeholders for land until future redevelopment (Horst, McClintock, & Hoey, 2017).

Even in American cities of Detroit and Cleveland, what many consider as preeminent examples of UA that is flourishing, land tenure is an issue due to perceptions of UA.  In Detroit, Pothukuchi (2017a, p. 1170) notes that:

> …individuals and grassroots groups interested in agriculture report having to struggle to gain long-term and secure access to land [and this is related to city official's] perceptions of urban agriculture as inimical to the definition of a vibrant city and preemptive of it.

In her final assessment, she concludes that as Detroit's governance reflects a "growth-first perspective" (p. 1182), with "much work is still needed to mainstream an agenda for the city's redevelopment that weaves urban agriculture into its fabric" (p. 1184), which suggests that even with the success of UA in Detroit, is still considered not a permanent priority of the city because city officials wondering "*if agriculture even belongs in a city and worry that it could hinder much-desired growth and development*" (p. 1176, italics mine).  In Cleveland, Pothukuchi (2017b) similarly found an urban agriculture movement that has been intertwined with the city's community development industry; its dependence on the community development corporations (CDCs), nonprofit organizations, and grant funding have essentially encouraged UA have the functions of "land stabilization" and "social

service provision", and not a permanent infrastructure for the city, it the city's UA

strategy ultimately having "resistance to the idea of an enduring agriculture as vital to

the sustainability of urban neighborhoods" (p. 14-15). Pothukuchi similarly

concludes:

> when urban agriculture is not treated as a permanent complement to urban redevelopment and when it is not planned for as such, it can manifest only in limited and tenuous ways (p. 15).

Both examples of Detroit and Cleveland illustrate how dominant urban food

imaginaries—for instance, notions of UA as only temporary land placeholder and/or

community development—can impede the normalization of UA as a permanent

infrastructure of cities. In other words, UA must be normalized as an everyday space

intrinsic to city and neighborhood life, as is other infrastructure, such as transport,

water, and energy, and this process of "normalization" requires, in part, that a shift in

the urban food imaginary occurs at the level of culture.

In recognition of the central role that urban food imaginaries play in effecting

food system change, this dissertation suggests that the nurturing of new spatial and

material visions for the food in the city is an essential, yet overlooked dimension to

bringing back urban agriculture (UA) into cities. Along with the current suite of

planning approaches for UA, including conducting urban land inventories, offering

programmatic support, and updating policy and codes to support for certain forms of

urban agriculture (UA) (i.e. community gardens, farmers markets, chickenkeeping,

and etc.), and building collaborative partnerships with food system agents (i.e. public

health officials, food policy councils, food activists, and etc.), other frameworks and

strategies are also needed for encouraging shifts in the dominant urban food imaginary.  Clearly articulated visions of an agriculture-infused city can be powerful mobilizers for systems change (Sengers, 2016).

There are many factors that lead to the changing of cultural values related to UA over time.  In addition to shifting demographic characteristics (Tibbs, 2011) or the confluence any combination of salient events, popular media, and influential actors (Kennedy et al., 2013), the spatial form of UA itself has a certain degree of agency to affect the urban food imaginary.   Interdisciplinary literature on visual culture stress the increasing role that everyday encounters with "images, objects, [and] sites" has in mediating cultural discourse and values; contemporary society is progressively more dependent on images rather than words (Tavin, 2003, Gaudelius, 2004).  UA spaces, likewise, can be innately confrontational to conventional notions of urban space and the urban food system through its public nature and "visceral materiality"; the array of colors, textures, and aromas associated with the composition and activity in UA spaces can be qualitatively different compared to other urban landscape forms (Morgan, 2015, p. 1385).  UA spaces, therefore, as a form of visual culture, are also 'pedagogical' or have agency to mediate discourse, values, and practices (Hall, 1997); through their representation and arrangement of spatial elements, UA spaces potentially influence cultural meanings around food and the food system.

This agency of UA spaces is reflected in the process of a space being embedded in the everyday life of the urban fabric.  This means that its pedagogy is reflected

through firstly, its spatial representation, which means its overall design and its compatibility with the surrounding urban landscape will mediate the degree that it is understood and appreciated by the wider public; and secondly, its capacity to enable everyday social practices around food.  In other words, UA spaces must be able to eventually be normalized as an accepted form in the urban landscape as well as in the mundane activities of daily life of a neighborhood.

In terms of its representation, though UA spaces potentially have a wide range of benefits, including providing a range of ecosystem services or environmental contributions to human well-being (Lin, Philpott, Jha, 2015; Orsini et al., 2014; Barthel, Folke, Colding, 2010) and improving food security (access and availability to a diversity of nutritious foods) and resilience (the ability of communities to withstand and recover from events affecting food supplies) (Zezza & Tasciotti, 2010; Barthel, Parker, Ernstson, 2015), these meanings are not necessarily clearly conveyed through its space.  Nassauer (1995) contends that ecologically-rich landscapes need "translation…into cultural language" due to the fact that they are often considered as unaesthetic or 'out of place' according to cultural expectations of everyday landscapes.  Translation refers, in part, to "invisible ecological function [being] actively represented for human experience" (p. 163).  UA spaces therefore must be able to convey its multifaceted value in socially understood ways in order to be appreciated by the wider culture.  This requires, firstly, an understanding of potential design affordances and constraints that each specific spatial form of UA has in relation to its place-specific context, which can inform this process of cultural

translation.  For example, a community garden may adopt a design that is more visceral and visually appealing through its inclusion of certain design choices (i.e. signage, materials, colorful flowers, etc.), rather than a plainer design in order to communicate its ecological value to the wider public.

UA spaces act as spatial intermediaries for social practices around food to emerge and be sustained.  They therefore allow for the reproduction of 'bundles' of interconnected practice; activities such as food cultivation, foraging, cooking, and socialization exist in relation to each other.  It is through a space's range of social practices that a UA space becomes embedded in the social life of a community. Social practice therefore becomes a second pathway for UA spaces to be accepted by the wider public, provided that the spaces enable practices to be formed and maintained.  The field of sustainability transitions (Geels 2011; Shove et al., 2012), which examines the process of integration of environmental sustainability into societies, provides an approach to analyzing the dynamics of social practice.   From this lens, UA spaces can be considered a niche space with emergent activities that interact with a range of dynamics that influence its stabilization.  *What is brought into focus is the extent that a space is able to enable shifts in social practices around food in a community, and what are the range of factors that support or constrain the formation of the practices.*

Having a thorough understanding of how UA spaces act pedagogically through their representation and social practice to interface with cultural sensibilities and encourage or discourage new urban food imaginaries is a critical to their implementation

and proliferation. Without comprehending the educational potential of UA spaces to pass on discourse, meaning, values, and practices to interact with and change dominant urban food imaginary, UA might remain a niche entity, relegated to the margins and temporary spaces of the life of the city.

## 1.2   AIM OF DISSERTATION

The overall aim of this dissertation is to explore the broad question of how UA spaces, through their public pedagogy, contribute to the shifting of the urban food imaginary by examining the verge gardens in or near the urban core of Sydney, Australia. By "public pedagogy", I refer to sum of in/formal teaching and learning processes associated with influencing food knowledge, practices, and values at the cultural level. Public pedagogy is also one the primary frameworks in which I situate my research which asserts that cultural change is contingent on flows of knowledge and learning (Giroux, 2000). Through my dissertation, I argue that that education—in all of its structured and unstructured forms—is a primary mechanism for shifting the urban food imaginary; and further, the more visible forms of UA due to their public nature and unorthodox use of urban space, themselves have agency through their pedagogical processes to influence the urban food imaginary. There are other artifacts and spaces that also contribute to the urban food imaginary (i.e. food retail spaces, websites, social media, and etc.), but my focus is solely on the "pedagogies" found in and through the UA space, itself.

The verge (space between the residential lot and road, typically containing a footpath) gardens have received much local attention due to, at least, their dramatic

transformation of urban sidewalk space, and the friction that they cause between gardeners, other residents, and overseeing councils. The spaces, having symbolic value to the local urban agriculture movement due to their extreme publicness and easy access to residents and passerby.  Their distinctiveness lies in their unique location—the convergence of public space (footpath) and "everyday life" space (extension of household space) (Certeau, 1998), which potentially generate more keenly a "public pedagogy" for food.  In comparison to UA projects in less visible and accessible locations, the knowledge, discourses, and practices surrounding food present in those spaces may more easily enter and engage public discourse on food.

In focusing on Sydney's verge gardens, my research questions are:

- How do verge gardens act as public pedagogy, through its spatial representation and enabling of social practices, for the surrounding residents and passerby?

- What is the role of verge garden's public pedagogy in shifting the urban food imaginary?

- With regards to a verge garden's representation, what are the range of spatial representation characteristics of the verge garden form and their affordances and constraints for generating pedagogies?

- With respect to a verge garden's enabling of social practice, what specific practices emerge in and through the garden, and what are the various social and structural dynamics that support the maintenance of the practices?

It should be noted from the onset that this research is thoroughly interdisciplinary. Though this research is situated in urban planning, it draws heavily, from first and

foremost, educational theory, and in fact, encourages planning approaches to consider broadly how urban narratives, discourse, and values are mediated through flows of learning and knowledge, much of which takes place locally and translocally through a multitude of everyday physical and virtual spaces. The role of educational theory, especially strands of which explore the relationship between informal learning and culture, has been elevated in this research because of it allows for a radical reframing of the city and city planning in terms of the learning processes situated in everyday life routines and spaces. This research has been, secondly, guided by the approaches of social semiotics and sustainability transitions with the former allowing for an accounting of the 'educational agency' or pedagogy of a food-oriented space, and the latter, how that learning can potentially culminate in shifts in the overall culture of "how food is done" in the city.

## 1.3 RESEARCH CONTEXT

The city of Sydney, Australia, as with many large urban centers in the world are engaged in improving their local and regional food system through encouraging policy and programming. These efforts are framed with a range of overlapping normative discourses, including food security, resilience, climate change adaptation, environmental sustainability, agricultural land protection, multiculturalism, and cultural heritage (James, 2009; Docking, 2009; Klocker & Head; Lonard, 2012). Community-based efforts have led a movement to relocalize Sydney's food system, challenging the forces that threaten the region's agriculture—urban sprawl, the convenience oriented food (supermarkets and fast-food), and the globalization (Mason & Knowd, 2010). The city government support for the local food system

is most prominent through their *Green Villages* program that seeks to "nurtures and celebrates

sustainable living", which food-oriented resources, workshop/event opportunities, and project

grants, all facilitated through a slick "online magazine"-styled website; the development of

Sydney City Farm, launched in late 2017, which is set to be a central community food

education hub for the city; and comprehensive planning support for new community gardens,

including design, implementation, and financial assistance (to add to the already twenty

functioning gardens in Sydney proper (*Green Villages*, 2014; City of Sydney Community

Gardening Policy, 2014).  Though community gardens have been in Sydney since the mid

1980s, they became a key component of the city's local food landscape in the 1990s, through

the creation of *Community Garden Network Sydney*, a grassroots organization that provided a

collaborative mechanism for existing gardens (Thompson et al., 2007).   However, most

unique to Sydney's urban food system ethos is the proliferation of citizen-initiated street

"verge" gardens, referring to the cultivation of interstitial road and sidewalk green spaces,

such as curb strips and road easements.  There is a precedent for verge gardens in Sydney as

immigrants from the Mediterranean region utilized curbsides for olive and other fruit trees; as

well as local city councils planting edible native trees (*Farmers of the Urban Footpath—

Design Guidelines for Street Verge Gardens*, 2010).  More recently, verge gardens have

exploded in popularity over the past decade with many residents often adopting a "asking

forgiveness, rather than permission" approach to their projects. One local council reported

having assisted residents plant 267 verge gardens within the first year of their Sustainable

Streets program (Nyers, 2013).

Verge gardens have risen in popularity due to not only the transformation of dull urban

streetscape, but also the resulting social interaction that is afforded through the spaces (Nyers,

2013).  Furthermore, the verge gardens, as with community gardens, provide a space for gardening—a "commodity" which will be increasingly scarce, as 60-70% of new housing construction in Sydney is projected to be high density (Bunker et al., 2005; Thompson et al., 2007).  Many verge gardens are created though the cutting and replacing of concrete with soil and plants, which contribute a range of ecosystem services, including absorbing runoff, increasing biodiversity, reducing the urban heat island effect, and cutting lawn mowing emissions (Nyers, 2013).  Also, the verge gardens free the councils from having to maintain the grass "nature strips", which translate to economic savings and less noise pollution.

Some residents, however, complain that the gardens are either an eyesore (if they are not properly cared for), a public safety hazard (for pedestrians who might trip on them), or a nuisance (for those trying to get into their car parked next to one).  Furthermore, local councils were concerned that residents, while constructing gardens, would inadvertently damage water, gas, and sewage pipes that are often located underground. (Nyers, 2013).  Years of friction with gardeners and local councils culminated in City of Sydney releasing an official "Footpath Gardening Policy" that not only provides guidelines for constructing verge gardens that are amenable to foot and vehicular traffic, but also encourages their expansion through submitting an online checklist that indicates compliance with city guidelines.  Other local councils have chosen to implement a permitting process, or have altogether prohibited verge garden development.  Councils that are more progressive in their support for verge gardens encourage community partnership in developing and maintaining verge gardens, including providing financial support, construction help (with even cutting through sidewalk concrete), and community liaison staff.

The verge gardens represent an intriguing case where public, private, and community interests converge in a manner that in/formal management of the spaces must be continually negotiated (Lopes & Schumack, 2012). Verge spaces exist on public land governed by local councils, whose responsibility is to care and assume liability for the spaces (Nyers, 2013). Verge gardens are therefore public entities even though they are cared for by the adjacent property owner(s). Though homeowners would naturally assume responsibility and "ownership" over the gardens as they care and maintain them, both homeowners and frequenters of the sidewalk may feel more inclined to make the garden more of a community resource because of it is situated in public space. This dynamic is amplified in cases where neighbors have decided to turn every available verge on their whole street into a garden, transforming the streetscape into a vibrant community greenspace. In short, the verge gardens are a fascinating case study where public, private, and community interests converge in creative participatory space that produces vibrant greenspace centered on community and food at its best, and at its worst, become unkempt nature strips that add to neighborhood blight.

Sydney is an exemplary case for investigating the emergence and potential impact of verge gardens. The expansion of the spaces is being promoted not only by the City of Sydney, but also many other local councils that govern areas outside of the city proper. The convergence of grassroots interest and council policy support has contributed to verge gardens becoming an emerging component of the Sydney's urban food system of local and regional farms, community gardens, farmers markets, and local eateries. As the verge gardens become more commonplace in the urban streetscape, Sydney provides a compelling case to examine how the spaces are integrated into the everyday life of streets and neighborhoods.

## 1.4 RESEARCH OUTLINE

This dissertation research takes the form of three distinct studies. Each of the studies have overlapping theoretical orientations, but address different aspects of the research aims. However, because all three studies address the same overall research objectives, some sections of each study are reiterated in the other two studies. This is to say that the single dissertation document is the result of weaving together three self-standing studies with common research themes.

Chapter 2 formulates an initial streamlined theoretical model for understanding urban agriculture spaces with respect to public pedagogy and the urban food imaginary and applies it to analyze a single verge garden case. Multimodal discourse analysis (MDA) is employed as one method to analyze the single case. For the purposes of maintaining the narrative of the chapter, only the summary of the analysis is provided in the chapter with the step-by-step spatial analysis provided in Appendix A. The next two studies each incorporate an additional theoretical frame with the layers of representation and social practice within this initial theoretical model, respectively. Chapter 3 focuses exclusively on the spatial representation frame of a verge garden's public pedagogy and utilizes MDA and walking ethnography to survey the overall landscape of verge gardens in Sydney and understand the overall pedagogic potential of the verge garden form. Over a hundred gardens are considered in drawing out the range of spatial representation characteristics and subsequent affordances and constraints for generating pedagogies. Chapter 4 also examines the overall landscape of verge gardens in Sydney, but instead focuses entirely on

the social practice frame of a verge garden's public pedagogy to understand the extent in

which the gardens enable social practices and the dynamics that undergird the

maintenance of the practices. I analyze, through a blend of grounded theory and case

study approaches, a range of qualitative data including 29 in-depth interviews with verge

gardeners (see Appendix B for semi-structured interview questions), local council staff,

food movement leaders, and residents; and four months of diary entries by four best-case

verge garden owners (see Appendix C for diary-keeping prompts).  This range of data is

sufficient to more than adequately provide a sense of understanding of the various

dynamics surrounding the verge garden case, while giving voice to those involved with

the governance, maintenance, and usage of the gardens which corroborate the theoretical

constructs and findings of the prior two studies.

I also suggest a range of policy interventions targeting the verge garden practice that

that can encourage more verge gardens characterized by aesthetics, productiveness, and

community use.  Lastly, Chapter 5 provides a synthesis of all three studies, and discusses

implications and future directions for this research.

**Chapter 2: Urban Agriculture Spaces and their Public Pedagogy: Cultivating the Urban Food Imaginary**

**Abstract**

Re-embedding agriculture into the spaces and practices of everyday life in cities is an uneven struggle of competing visions of the future city.  Much of the policy, planning, and political hurdles inherent in establishing urban agriculture (UA) as a dominant structural form in the city stem from entrenched cultural expectations of the city and how its food system should be structured.  These tensions are reflected in UA spaces being a divisive urban form (Colasanti et al., 2012) seen simultaneously as inspirational and regressive by local governments, key stakeholders, and residents.  UA spaces are therefore primary sites for mediating new cultural expectations of 'how food should be done' in the city—the urban food imaginary.  Innovative approaches need to be developed for assessing how UA spaces act as "public pedagogy" as to contribute to better spatial design that more effectively cultivates alternative urban food imaginaries.  In this study, I develop a conceptual model for uncovering the various in/formal learning processes within specific UA spaces and their role in cultivating new urban food imaginaries.  To accomplish this, I draw on multiple theoretical perspectives that explore the dynamics of cultural change (Giroux, 2000; Hall, 1997; Watkins, Noble, & Driscoll; Jasanoff and Kim, 2009).  Lastly, I apply this model to the case of a single edible verge garden in Sydney, Australia, to illustrate how the garden, on a micro-level, influences the urban food imaginary through its public pedagogy.  I argue that more attention is needed on the spatial and

programmatic design of more public forms of UA, such as urban farms, community gardens, and farmer markets, as they may structure learning that cultivates different expectations of the urban food system.

## 2.1 INTRODUCTION

Reintroducing agriculture into the life and rhythm of the city is an essential task of planning for urban food systems.  Beyond the range of procedural tools employed for this endeavor, such as policy intervention, programmatic support, urban land inventories, and community food assessments, this study suggests that nurturing new spatial and material visions for the food in the city is a critical, yet overlooked dimension in bringing back urban agriculture (UA) into cities.  By UA, I am referring not only to sites of cultivation (i.e. community gardens, rooftop gardens, urban farms, front yard gardens, and etc.), but the myriad of spaces and activities that have emerged in this trend, including farmers markets, edible weed tours, pickling workshops, "the keeping of chickens in suburban and urban beehives, front yard planting, …wild flower meadows, guerrilla gardening and the like" (Morgan, 2015, p.1385).  This range of mundane and sometimes 'exotic' spaces and practices are the substance of evolving u*rban food imaginaries*, which I define as the social expectations of the spatialities and materialities of the urban food system and its activities, including how food is grown, procured, processed, exchanged, cooked, consumed, disposed.  Clearly articulated visions of the city are powerful mobilizers for advancing urban sustainability (Sengers, 2016), and it is often assumed that the urban food imaginary encouraged by UA is desirable by the wider public which is not always the

case (Poulen & Spiker, 2014; Lindemann-Matthies & Brieger, 2016; Colasanti et al., 2013; Thibert, 2012; Kate, 2011).

Cultural meanings of UA—the substance of the urban food imaginary—is repeatedly mentioned in scholarly literature as a significant barrier for UA's progress (Figueroa, 2015; Colasanti et al., 2013).  Those involved in or appreciate food systems work—urban growers, health officials, planners, food activists, restaurateurs, foodies, and so on— certainly welcome this vision of an agriculture-infused city because of its important links with any number of ethical concerns, including environmental health (Orsini et al., 2014), food-related social justice (Horst et al., 2017), food security (Zezza & Tasciotti, 2010), and resilience (Barthel, Parker, & Ernstson, 2015).  Morgan (2016) describes the urban food system as having an intrinsic "kaleidoscope" and "multifunctional character" because of its intersection with an array of normative interests (p. 1380).  Despite the tremendous potential of a city that more thoroughly integrates UA spaces and practices, some residents have been found to view UA unfavorably due to its link with past histories, such as legacy of slavery or the memory of hard labor (Figueroa, 2015; Colasanti, Hamm, & Litjen, 2012); or simply cultural sensibilities of agricultural activities not being suitable for the city because of their rural and/or unaesthetic connotations (Sprecht et. al, 2016). Local governments also have mixed responses with some cities adopting UA-friendly zoning and ordinance changes (Voigt, 2011), while others adamantly prohibiting UA activities, such as front yard gardens and livestock keeping (i.e. chickens, goats, bees) which sometimes result in drawn-out legal conflicts between residents and local councils (Galasso, 2017; Belz, 2017; Mclintock, Pallana, Wooten, 2014).  Even when local governments who

support UA through a range of policy incentives and planning use UA as only a temporary use; UA spaces in these cases do not hold land tenure exacerbating their already precarious identity (Horst, McClintock, & Hoey, 2017; Pothukuchi 2017a, 2017b).  Key stakeholders, such as local government officials, farmers, and NGOs in Sanye-Mengual et al.'s study of UA perceptions (2016) were found to dismiss or not fully support UA because of it was viewed as either not "real agriculture" or simply for social purposes (p. 108). Furthermore, the agrarian ethics that are taken up at least in part by UA while often stressing wholeness, health, and virtue (Berry, 1992) are also sometimes associated with a tainted historical past related to land dispossession, minority group oppression, and class discrimination (Mayes, 2009) which is reproduced in contemporary manifestations of a local food movement predisposed towards "whiteness" (Slocum, 2007), as well as UA contributing to neighborhood gentrification (Morgan, 2015).  In many instances, key actors involved in city governance are more motivated by any amalgamation of urban imaginaries that are at odds with their image of UA (Pothukuchi 2017a, 2017b), most notably, visions of cities that are 'entrepreneurial' (i.e. city as economic 'growth machine') (Harvey, 1989; Madureira and Baeten, 2016), 'global' (city with worldwide economic and cultural influence (White 2014), and/or 'smart' (i.e. city as a high-tech and networked hub) (Vanolo, 2014).  These are not only divergent visions of the city, but also of idealized uses of urban land.  While imaginaries of UA proponents would likely aspire towards a view of land that integrates of urban life, agriculture, and ecology, dominant economically-oriented imaginaries view land as a tool for the creation of capital or for processes (i.e technology, information sharing, creative industries, and etc.) that translate into capital.

In short, the vision of a city integrated with agriculture is not shared by many local governments, residents, and key stakeholders because of conflicting culturally-embedded meanings associated with UA and their 'threat' to dominant imaginaries. The struggle over the appropriateness of urban agriculture can be viewed as a clash between competing visions of how food should be done and appear in cities.  More focused attention is needed, therefore, in cultivating urban food imaginaries that include UA in ways that engage the wider public.  I am not suggesting that all residents must view UA as desirable, but rather that a wider cultural acceptance of UA is a necessary step for its proliferation (Sengers, 2016).

While the evolution of cultural values over time is influenced by factors as demographic patterns (Tibbs, 2011) or synergies of events, media, and actors (Kennedy et al., 2011), in the case of cultural expectations of agriculture in the city, change might also be mediated by the more public forms of UA spaces themselves.  Because of their sheer visibility and degree of exposure via regular traffic in and near them, sites such as urban farms, community gardens, front yard gardens, and kitchen gardens attached to restaurants potentially contribute to perceptions of UA as a whole.  For example, studies on community gardens as sites of a potential form of public learning have suggested that the gardens act sites to impart food movement values (Walter, 2013) and learning not only around the agriculture and social cohesion, but also with "the politics of space" which refers to issues related to the insecurity of community gardens in relation to urban redevelopment (Bendt et al., 2013, p. 26).  Bendt et al's study also observed that the ability of community gardens to attract more participation both in terms of numbers and

diversity of demographics was tied to specific garden characteristics, including the degree of public foot traffic nearby the spaces.  This seems to suggest that spaces that are highly accessible, frequently visited, and are permanent may have more cultural influence that spaces that are inaccessible, rarely used, and transient.  Cushing and Penning's work (2017) point to another space of high visibility—public art in public parks—as potentially contributing to social change through possessing various degrees of physical, emotional, and intellectual affordances which enabled certain activities, place-based attachments, and the stimulation of awareness of social issues, respectively.  Their work suggests that not only do public space entities have salience for social change, but also that there is a possible relationship between their design and the degree of agency they possess afford cultural influence.

From these perspectives, UA spaces possibly act as "urban coordination tools" (Macfarlane, 2011) or physical structures that direct knowledge and learning to move and circulate throughout the city, while also conveying a certain representation of the city which can "stimulate [or limit] the imagination" of how cities should be (Macfarlane 2011, p.13).  The spaces therefore potentially generate a 'public pedagogy'—a range of knowledge, discourse, and activities through an array of learning processes, much of which is unconsciously embedded in the flow of the urban life.  In other words, UA spaces have pedagogical potential through their production of new meanings and practices (Hall, 1997).

Though cultural meanings therefore potentially play a role in impeding the

normalization and scaling up of UA in some urban contexts, with there being some speculation that the more public forms of UA, themselves—such as community gardens, urban farms, edible landscaping, and edible food forests—possibly having a key role in this process according to literature which explores the pedagogy of public-oriented spaces (Walter, 2013; Bendt et al., 2013; Cushing et al, 2017), there is little scholarly attention on either understanding this process of shifting cultural expectations to accommodate UA, nor on the influence of UA spaces themselves to encourage urban imaginary change. Many UA spaces may be regarded as an important form of "insurgent public space" whereby residents organize and remake space in an attempt to re-incorporate agricultural practices in the city (Hou, 2012, p. 89-91), but more theorization is needed concerning the role of particular UA spaces, in terms of the degree of agency they possess, in influencing the food imaginaries of the wider culture. Two bodies of literature do explore overlapping themes, but do not focus on UA specifically. First, literature on ecological landscapes examine the tensions between social and cultural aesthetic preferences in 'vernacular', or everyday landscapes, such as residential yards and urban greenspace, and their relationship to environmental health (Uren et al. 2015; Head & Muir, 2006) and the need for ecologically-rich landscapes to be designed and presented to the public in a way that aligns with cultural expectations (Nassauer, 1995, 1997, 2012; Nassauer & Raskin, 2014; Gobster & Westphal, 2004). The research from this literature implicitly suggests that cultural preferences for ecologically-rich landscapes, such as UA spaces, can be mediated through design. A second set of literature examines various case studies of the process of 'societal embedding" or forming cultural legitimacy for new technologies or

sustainable practices, including nuclear energy (Geels & Varhees, 2011; biogas (Raven & Verbong, 2004), potable water reuse (Lovett et al., 2015), and urban cycling (Sengers, 2016). From this lens, UA is an emergent sustainable practice or spatial innovation that must be embedded in "societal rules, norms and conventions" to achieve widespread use (Lovett et al., 2015, p.7553). Though these two literature bases do explore the dynamics of various landscape types, technological artifacts, and practices related to sustainability, there needs to be more theorization of the process of shifting cultural expectations specific to UA spaces as to be able explore the various tensions that impede UA spaces in their journey of becoming culturally normalized and even dominant entities. By having a more in-depth understanding of the potential agency of the UA spaces to pass on certain discourses, values, and practices around food, some of which inspire, challenge, and/or cause friction with the surrounding communities and culture, the relationship between the spaces and new urban food imaginaries can be better ascertained. To explore this omission, this chapter aims to develop a conceptual model that explores the broad question of how UA spaces through their public pedagogy might contribute to shifting the urban food imaginary. By "public pedagogy", I am referring to the agency of UA spaces to potentially transmit discourse, knowledge, practices, and values for the wider public.

I will map out the conceptual model through three steps. I will first review the concept of public pedagogy, highlighting its salient features and suggesting a focus on the analytical frames of r*epresentation* and *social practice* which draw from literature on ecological landscape aesthetics (Nassauer, 1995, 2012) and the nature of learning within everyday settings (Watkins, Noble, Driscoll, 2015), respectively. This reflects that for

folding UA spaces into the urban fabric require attention to firstly, its spatial representation; and secondly, its capacity to enable everyday social practices around food. In other words, UA spaces must be able to eventually be normalized as an accepted form in the urban landscape as well as in the mundane activities of daily life of a neighborhood.  I will then articulate the theoretical underpinnings of the concept of the urban food imaginary which views expectations of the urban food system through a socio-technical lens.  Together, this theoretical framework forms a broad and flexible basis for exploring the potential relationships between food spaces and urban food system change. I will conclude by illustrating this conceptual model's application with the case of a single edible verge garden in Sydney, Australia, describing how pedagogy might be generated, and their relationship to the urban food imaginary change.  My argument is that considering the pedagogy of UA spaces is essential for cultivating a vision of cities provisioned through urban agriculture, which in turn, is crucial to the wider transition of the urban food system.

I situate my research within the framework of public pedagogy, which asserts that cultural change is contingent on flows of knowledge and learning (Giroux, 2000).  I contend that education—in all of its structured and unstructured forms—is a primary mechanism for shifting the urban food imaginary.  Furthermore, due to the public nature and "visceral materiality" of UA which can be confrontational to mainstream notions of urban space (Morgan, 2015, p.1385), this study contributes to a better understanding of how the spaces of UA, themselves, through their educational processes, have agency to influence the urban food imaginary.  While other flows of knowledge and learning beyond the space of UA (i.e.

websites, social media, sociocultural trends, and etc.) also contribute to the urban food imaginary, my focus in this article is solely on the "pedagogies" found in and through the UA space, itself. Also, it is worthwhile to note that public pedagogy's expansive notion of what education entails, not only the structured learning occurring in formal institutional settings, but also the casual learning experiences in daily life and in everyday spaces in consistent with the etymological roots of education. The word, 'education', is derived from two Latin words, *educare* and *educere,* with the former meaning to train, mold and nourish; and the latter, to lead (Bass & Good, 2004). Both Latin words do not necessarily imply a structuration of learning, but more so, suggests both an acquisition of a body of knowledge through guidance (that is not necessarily human) that is simultaneously holistically (i.e. intellectually, practically, spiritually, and etc.) transformative. This wide view of learning can account for more conventional understandings of education as a formal learning process, as well as more broad notions such as that of public pedagogy that view education as continually occurring in potentially multiple life spheres and experiences.

## 2.2 PUBLIC PEDAGOGY, REPRESENTATION, AND SOCIAL PRACTICE

### 2.2.1 Public Pedagogy Concept

Public pedagogy has emerged as a viable frame for exploring the educational activity occurring outside the formal education system. Its central focus is on the learning that occurs in the everyday spaces outside the formal educational system. The notion that casual settings are educationally salient, even more than formal classroom settings, have stimulated investigation to an array of physical or virtual spaces of everyday life, such as

museums (Ellsworth 2005), zoos (Taylor, 2010), television programs (Rich 2011), video games (Hayes and Gee 2010); and grassroots engagement events (Biesta 2012). In regard to urban contexts, public pedagogy has also been applied to understand the learning present in public art projects (Cushing & Pennings, 2017), protest rallies (Earl, 2016), and community gardens (Walter 2013). One of the draws of public pedagogy as a theoretical frame is its attention on everyday spaces having educational salience to the degree of influencing the wider culture. In this sense, the public pedagogy lens allows for a focus on the educational processes and outcomes of a given space, and how those micro-level dynamics translate to macro-level cultural narratives, beliefs, and values. Furthermore, this type of analysis suggests that the design of everyday spaces can be assessed and incrementally improved on in terms of their affordances (and constraints) for learning. However, because both "public" and "pedagogy" as conceptual terms can be regarded as conceptually ambiguous, many have observed the "fabulous haze"—the appealing yet diffusive nature of the construct (Savage, 2010). Without delving deeply in the scholarly debate, I focus on three key features as being essential to public pedagogy.

Firstly, public pedagogy implies that for a given space, *there is an in/formal teaching and learning process between the space (or synergies of spatial elements, including design features, objects, people, and activities) and users of the space.* Spaces are viewed as potentially having pedagogical force (Sandlin, O'Malley, & Burdick, 2011) by acting to "transfer" certain types of knowledge and values. In this perspective, the primacy of culture is considered within sites "where people actually live their lives and where meaning is produced, assumed, and contested" (Giroux, 2000, p. 355), which

28

again, draws on the notion of culture being an ongoing struggle involving conflicting normative discourses and representations (Hall, 1997).  From this perspective, spaces in the city can be viewed as having agency to form narratives and values.  With respect to food, this can include the more conventional food-oriented spaces (i.e. farmers markets, restaurants, food retail markets, and etc.) and other mediums that are implicit in urban culture that sometimes convey food discourse and values, such as film, food events, art installations, social media posts, and television programs.  Pedagogical processes within spaces can be subsequently analyzed in terms of their role in educating visitors or users of the space.

Secondly, *the pedagogy may challenge an existing cultural discourse, maintain an unjust one, or simultaneously accomplish both*.  In various re-articulations of the construct, theorists clearly communicate the need for public pedagogy to be clearly oriented towards challenging, pushing against, or provoking some established norm, rather than being morally ambiguous (Giroux 2000, Gatambide-Fernandez and Matute, 2013; Hicky-Moody, Savage, and Windle, 2013).  In contrast to socialization, or the "adaption from individual to society through developmental experiences", Hickey-Moody, Savage, and Windle (2010) contend that public pedagogy connotes challenging cultural norms; public pedagogical spaces should persuade one to re-examine some dominant value.  (p. 229). Similarly, Gaztambide-Fernandez and Matute (2013) emphasize deliberateness and morality when they state that pedagogy "seeks to provoke a particular kind of change or different kind of experience", drawing from its original usage of Greek slaves who were responsible for teaching children basic morality (p. 58).  In this vein, much of the public

pedagogy's application has been in challenging structural norms, for example, through activist activities (Sandlin and Milam, 2008) or the redesign of policy materials (Mansfield and Rich, 2013). However, Giroux's usage (2000) of the term is more expansive in that it also encompasses pedagogies that maintain unjust political or social structures. In other words, spaces—and the people, social practices, and artefacts associated with that space—are considered as more nuanced entities that either challenge, support, or simultaneously do both in respect to a given cultural narrative. This is a critical distinction in that it recognizes the complexities and multiplicities of the emergence and flow of knowledge.

Thirdly, *the pedagogical processes are experienced by the public.* Public can assume a range of meanings in the public pedagogy literature, including a more politically-oriented public referring to nation-state identity; a "cultural" public that preferences everyday spaces and practices; and a "physical" public that applies to specific physical spaces and can take the form performance/art events and formal institutional spaces (Savage, 2013). For the public space of the footpath, public also historically has assumed an important political meaning in terms of first, being a space for protest and exercising free speech for any number of social issues; and second, as a space that establishes and challenges culturally-accepted public behavior (Loukaitou-Sideris et al., 2004, p.149). In terms of the first role, the footpath became the important setting for union strikes and mass protests for civil rights, racial issues, and transnational economic agreements (p. 145). In regard to the second role, examples of public activities that have been contested include street vending, panhandling, loitering, public drunkenness,

sleeping, and child labor (p. 146-149).  Beyond these perspectives, I suggest that the

vernacular reading of public—the quality of being accessible and/or visited by a wide

range of people—is useful when applied to bounded spaces.  This definition considers the

relationship between space usage and cultural change. Some privatized spaces may then

be considered public, such as shopping malls or supermarkets—both of which experience

a wide swath of people on a daily basis are therefore relevant to cultural discourse.  This

reading might also disregard spaces that may be legally defined or perceived as public,

but exert minimal influence because of its location, size, or temporality.  Examples of this

would be a garden on a remote cul-de-sac, or a one-day art exhibition that is poorly

attended. This definition considers the variables of accessibility, traffic, and temporality

and their relationship to the degrees of influence over cultural norms. Ascertaining a

space's degree of cultural influence is an important consideration when considering

spaces of learning.  Spaces that are highly accessible, frequently visited, and are

permanent may have more cultural influence that spaces that are inaccessible, rarely used,

and transient (Bendt, Barthel, and Colding, 2013).

### 2.2.2  Two Layers of Public Pedagogy: Representation & Social Practice

The public pedagogy construct offers a broad lens for exploring the learning that

occurs in UA spaces and their potential for exerting cultural change.  For the purposes of

interpreting UA space, however, the construct can be enriched through drawing out two

analytical frames or layers: *representation* and *social practice*, which follows from Hall

(1997) and his conception of culture being the interplay between "shared meanings"

generated and circulated (representation) and "sets of practices" (social practice) (p. 2).

UA spaces are culture producing entities primarily through making meanings through their

representation as well as by enabling certain social practices.  *Representation* in this case

refers to the notion that urban space is its own 'language', or a meaning-making system

based upon one's multisensory engagement with the space.  Meaning is therefore

"produced and exchanged" through the visual and physical arrangement of the UA space

(p. 1).  While meanings may differ depending on the person experiencing a given UA

space, the range of possible meanings are more or less bounded by one's culture and

positionality.  The frame of *representation* includes, but is not limited to the area of urban

aesthetics.[1]   Literature from urban aesthetics suggest that for ecologically-vital urban

landscapes to be appreciated, their visual design must incorporate popular landscape

aesthetic preferences.  (Nassauer, 2012; Lee et al., 2007).  Similarly, a UA space's

representation has to convey certain aesthetics in order to be accepted and valued by the

wider public.  The famous phrase from McLuhan (1964), the "medium is the message", is

relevant to UA; UA spaces, unlike rural agricultural spaces whose form follows the single

function of productivity, must also account for a second function—translating its

importance and legitimacy for the urban public (Nassaeur, 2012).

  For the frame of *social practice*, I am referring to the array of learning forms situated

in practices associated with the UA spaces (i.e. gardening, cooking, socializing, and etc.),

---

[1] The distinction between representation and aesthetics is that representation does not only deal with visual perceptions of space related to beauty, orderliness, harmony, and care, but also any other meanings (functional, ontological, normative, and etc.) signified by arrangements of spatial elements.

based upon the notion of "cultural pedagogies" (Watkins, Noble, Driscoll, 2015), which

assumes the process of learning to be "cumulative, a continuous but uneven set of

routines and recalibrations" (p. 13).  This widely expansive view of pedagogy asserts that

learning is occurring "potentially everywhere, and at any time", and is not caught up with

distinctions of formal and informal learning (p. 13).  From this perspective, learning does

not only consist of articulations of "social learning" which emphasize the collaborative

learning associated with social or socio-ecological change (Reed et al., 2010) or situated

learning (Lave & Wenger, 1991) which highlights the learning taking place through

participating with others in a "community of practice", but also the tacit knowledge and

incremental learning that takes place in embodied immersion into any environment.  For

example, learning the practice of gardening takes place in any number of forms, such as

participating in workshops, gardening with others, experimenting with new plants and

techniques (trial and error), consuming media about gardening.  Though a UA space might

spur participating in the social practice of gardening, this learning continues beyond the

UA space in a myriad of formal and everyday configurations.  The outcome of this wide

view of pedagogy includes not only intellectual, practical, or tacit forms of knowledge

(Brown & Duguid, 2001), but "cultural capacities", which are the literacies needed to

navigate the gardening subculture, "affects" which are the intuition and sensory-based

formative experiences tied up with gardening (Ellsworth, 2005), and "practices", which

are not only the continued formation of gardening, but all the other practices that result

from it (i.e. cooking, pickling, socialization, and etc.) (Watkins et al. 2015, p.14).  While I

single out the gardening as an example, this conception of pedagogy and learning can be

applied to any social practice that is enabled through UA spaces.  Multiple social

practices converge in any given UA space, the *social practice* frame is focused on

articulating the relevant practices and multifaceted learning afforded through the

practices.
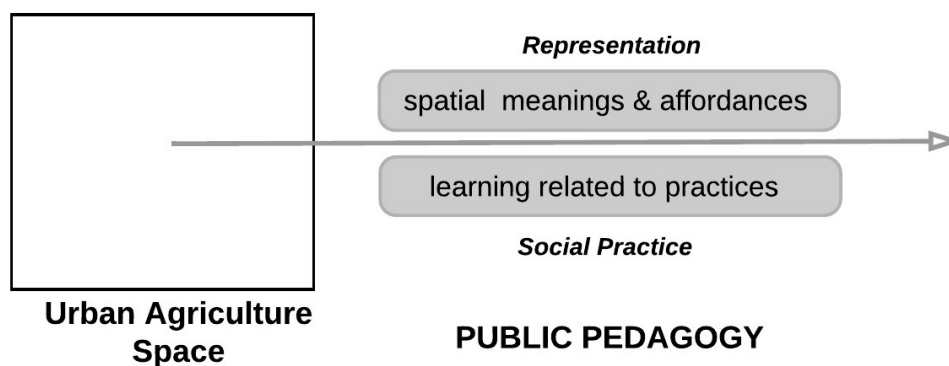


**FIGURE 1**.  Public Pedagogy of Urban Agriculture Space

Overall, viewing public pedagogy as having the layers of *representation* and *social*

*practice* allows for structured analysis of a range of learning configurations occurring in

and related to urban food spaces and their relationship to evolving food imaginaries (see

Figure 1).  Rethinking the nature of public pedagogy of UA spaces through the frames of

*representation* and *social practice* adopts the view that knowledge and learning is, firstly,

mediated through "meaning potential(s)"—the range of social and culturally-situated

meanings that are communicated through synergy of design elements in a given UA space

(Van Leeuwen, 2005); and, secondly, is situated in the activities that are part of everyday

life experience (Lave and Wenger, 1999). Both of these dimensions of public pedagogy

contribute to the production of culture which potentially shifts the urban food imaginary.

## 2.3 THE URBAN FOOD IMAGINARY AND PEDAGOGY

### 2.3.1 Urban Food Imaginary

Donald (1999) poignantly states that "ways of seeing and understanding the city inevitably inform ways of acting on the space of the city, with consequences which then in turn produce a modified city which is again seen, understood and acted on" (p. 27). The development of cities can be viewed as a tension between the "imagination" and "reality" (p. 27) in that dominant paradigms and their accompanying visual and linguistic discourse steer how urban spaces are designed, constructed, and understood.  Because of the potency of symbolic to eventuate in new urban processes, spaces which potentially become stabilized, I propose the use of the concept *urban food imaginary* which I broadly defined as the expectations of the spatialities and materialities of the urban food system and its activities, including how food is grown, procured, processed, exchanged, cooked, consumed, disposed.  To make the concept more manageable, I identify three primary components of the urban food imaginary:  spaces, practices, and material/technological infrastructure.  Figure 2 describes elements from both the pervasive urban food imaginary which reflecting the current industrial food system, as well as the emergent urban food imaginary which is a vision of a 'post-industrial' food system.  By post-industrial, I am referring to alternative food system commonly envisioned by local food movement actors as eventually superseding the present conventional food system (Morgan, 2015). Examples listed for each of the urban food imaginary components are by no means comprehensive, but only serve to describe the character of each food imaginary.

**URBAN FOOD IMAGINARIES**

|  | Industrial | Post-Industrial |
|---|---|---|
| **PRACTICES** | supermarket/big box shopping<br>industrial farming<br>processed foods consumption<br>(noncomposted) foodwaste disposal | 'ethical' procurement (farmers markets, CSA, DIY growing, foraging, etc.)<br>'ethical' food growing (local farms, households, schools, etc.)<br>food preparation (cooking, preserving, etc.) with less reliance on industrial sources<br>communal practices (food sharing, preparation, feasting, etc.)<br>"biodiversity" practices (seed-saving, recovering/scaling up marginalized foods)<br>food composting        animal keeping (chicken, bee, goat, etc.)<br>food knowledge sharing        ethnic & indigenous practices |
| **SPACES** | supermarket/big box retail<br>fast/convenience food oriented retail<br>household spaces as consumption | interstitial agriculture (rooftop, park, landscaping, etc.)<br>community & institutional (restaurant, schools, businesses, etc.) gardens¥<br>household spaces as production (backyard, frontyard, balcony, kitchen, etc.)<br>urban farms        local food retail & cooperatives |
| **TECH/MATERIAL INFRASTRUCTURE** | industrial food processing techniques<br>food supply chains<br>transport network & technology<br>big agriculture policy<br>biotech/gene-modified organism (GMO)<br>meanings of convenience/speed/efficiency/scale and etc. | urban foodscaping (engineering of rooftop & green wall etc.)<br>high (social media; device) & low (print) tech-based food-related information sharing<br>community-based engagement<br>local food system policy frameworks<br>edible built environments/streetscapes<br>vertical farm technology        smart farming<br>meanings of community, history, ecology, authenticity, 'handcraftedness' |

**FIGURE 2. Urban Food Imaginary and its Components**

My conception of urban food imaginary is based on Taylor's articulation of a "common understanding that makes possible common practices and a widely shared sense of legitimacy" (2002, p.106). This view of imaginary emphasizes the role of imaginaries in structuring social life through determining the social conventions that govern whether specific conduct is un/acceptable. With regards to the urban food system, what food practices are considered as legitimate evolve over time. Components of the modern food system that now is taken as normality because of their ubiquity, such as supermarkets and canned food products, were at their inception historically viewed with suspicion (Vilesis, 2008). Social expectations of what food space and practices are normal, novel, or inappropriate are therefore formed by culture and history which mean that the urban food imaginary is dynamic and continually negotiated and renegotiated in part by the horizontal reproduction of practices and the vertical interaction of regimes and landscape pressures outlined previously. The emergence of UA spaces, in particular, have triggered a wide spectrum of reactions with some viewing them as progressive through their "re-naturing" of cities, while also perceiving them as regressive because their allusion to ruralism or peasantism (Colasanti et al, 2012). This demonstrates the influence that urban food imaginaries possess to guide urban food systems towards un/sustainable trajectories.

I also conceptualize urban food imaginary as a "sociotechnical imaginary" which in aligning with sustainability transitions literature is oriented towards a vision of a future city and urban food system (Jasanoff and Kim, 2009). Sengers (2016) stresses three aspects of urban imaginaries that proceed from viewing the city as a sociotechnical system.

Firstly, a future-orientation to urban imaginary implies a transformation spaces and places (Pont & Birch, 2014). While urban food systems change has been understood as an effort of top-down policy and planning and bottom-up grassroots organization and collaboration processes, this perspective stresses the spatial component of this transition in that there is a "re-envisioning" of spaces and places by the wider culture (Hodson & Marvin, 2009, p. 520 as cited by Sengers, 2016, p.4). By 'culture', I am referring to the notion of a continuous, dynamic struggle of power between competing ethical discourses and representations (Hall, 1997). Secondly, urban imaginaries involve a legitimization of new social practices which follows directly from Taylor's articulation of social imaginaries (2002) which has been expanded on previously. With regard to UA spaces, this may mean innovative processes from any stage of the food cycle (i.e. new cultivation, food waste management techniques, distribution schemes, or food products); as well as practices that were previously dominant that have become marginal or lost (i.e. eating and preparing regional/indigenous foods, preservation techniques, and etc.). Thirdly, urban imaginaries are linked to specific arrangements of technological and material infrastructure. In terms of the urban food system, this means that expectations and notions of a future food system are ascribed to specific spaces (i.e. rooftop gardens, local food restaurants, farmers markets, and etc.) or practices (i.e. smart agriculture, hydroponic systems, permaculture, and etc.). There is political dimension to this envisioning as the urban imaginary not only suggests a specific future city but validates certain tools, infrastructure, and projects associated with that vision (Senger, 2016). The orientation of socio-technical imaginaries assumes a sense of agency. Applied to the urban food

imaginary, this highlights the potential of niche food spaces to break through to the mainstream and reconfigure existing food regimes.  From this vantage point, the urban food imaginary is a "first step" towards change and allowing the "mobilization of the capacity of change agents" (Senger 2016, p. 5).

As a concept, the urban food imaginary holds value by bringing attention to niche food spaces and practices that may lead to, or be at odds with a sustainable, ethical, and resilient urban food system as well as elucidating negative cultural perceptions of emergent place-based food spaces and practices.  The urban food imaginary also accentuates the visioning work of key actors, such as policymakers, planners, local food activists, and key stakeholders in the sociotechnical system and considers them a crucial step within the process of urban food system change.  Lastly, this construct highlights the role of "material and symbolic landscapes" of the urban food system as they transmit discourse that influences established and emergent spaces and practices (Zukin et al., 1998, p.63).  New urban food spaces and practices can be easily dismissed as novelty or faddish, but they should be regarded as having cultural salience indicative of shifting macro-level trends (i.e. climate change, migration patterns, environmental degradation, food safety incidents, and etc.), unstable food regimes (i.e. supply chain vulnerability, changing consumer food preferences, and etc.), and evolving everyday social processes (i.e. shifts in patterns of food procurement, commuting modes, work-life patterns, and etc.).

**2.3.2 The Public Pedagogy and the Urban Food Imaginary**

The urban food imaginary encapsulates the expectations, desires, and prospects of the urban food system and its orientation and functioning. It is a perpetually evolving as landscape activity which include macro-scale trends (i.e. climate change, globalization, urbanization, market prices, disaster events, etc.) and accompanying food systems discourse (i.e. food security, food justice, food sovereignty, etc.) pressure in-place food regimes (policy-market-technology-culture-user infrastructure complex) and stimulate new niche food spaces and practices. What factors contribute to niche food spaces and practices (and objects[2]) become stabilized or not in the urban food imaginary? As the urban food imaginary is in constant flux, certain spaces and practices become enshrined (i.e. supermarkets), while others become marginalized or disappear (i.e. community bartering). I contend that pedagogy is a primary influence for spaces and practices to be the established in the urban food imaginary, with the notion of pedagogy as the agency of assemblage of spaces, artefacts, people, policies, and discourses to express knowledge and afford learning. In this sense, the urban food imaginary is iteratively cultivated through a constellation of mediating structures, such as food system spaces (i.e. supermarkets, farms, gardens, eateries, and etc.), popular media sources, policy exchange forms (i.e. documents, meetings, conferences, etc.), and material culture artefacts (i.e. new kitchen contraptions, cookbooks, exotic produce, and etc.) with varying degrees of agency and influence contingent on its "publicness". Within the various configurations of pedagogy, I am focusing on those associated with the specific entity of the UA space and its potential to influence the urban food imaginary. The conceptual model illustrating these relationships is

---

[2] Objects refers to specific foods (produce or meat) or nonfoods (kitchen contraptions) going into vogue.

shown in Figure 3.  The spaces enable a re-envisioning of spaces; legitimize new food-related

social practices; and reconfigure existing material and technological infrastructure.  Through

these three domains, they have pedagogic effect as "framing devices for our imaginative

mapping of urban space"—in other words they teach or prime us for what urban (food) space

should be and not be (Deriu, 2001, p.798).  By "us", I am referring to the shift in the wider

culture irrespective of demographic characteristics, and not to specific individuals or

demographic groups that change their expectations for the urban food system.

**NEW URBAN FOOD IMAGINARY**
Re-envisioning of Spaces

Legitimizing New Social Practices

Updating Technological/Material Infrastructure

**URBAN FOOD IMAGINARY**

Spaces

Social Practices

Technological/Material Infrastructure

*Representation*
spatial meanings & affordances

learning related to practices
*Social Practice*

**PUBLIC PEDAGOGY**

**Urban Agriculture Space**
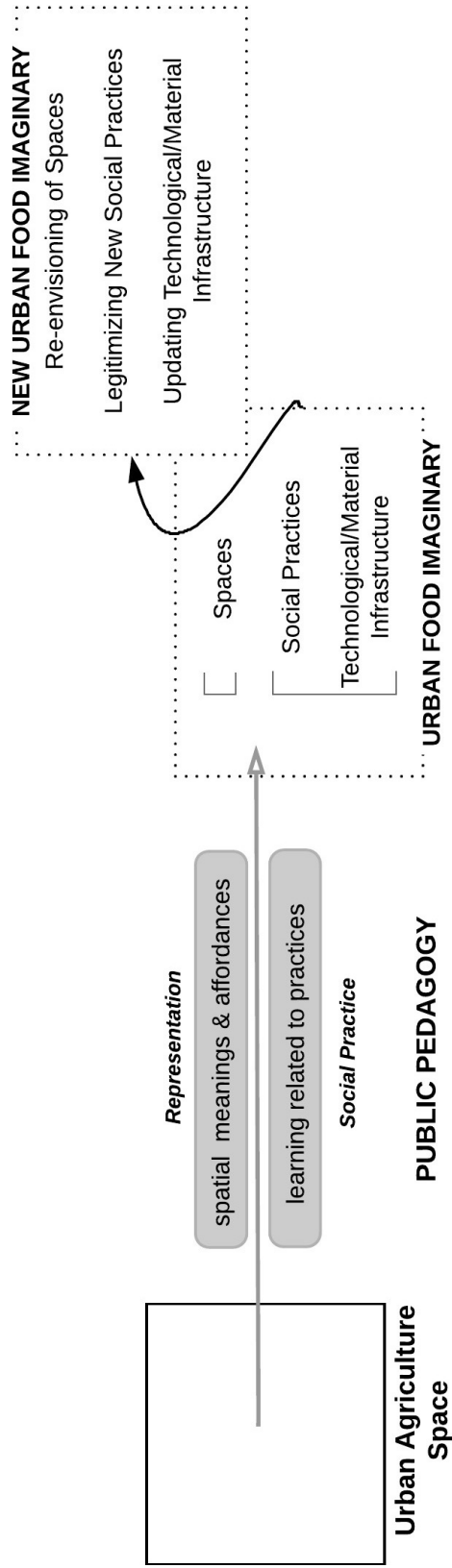
FIGURE 3. The Shifting of the Urban Food Imaginary through a Space's Public Pedagogy

## 2.4 THE CASE OF EDIBLE VERGE GARDENS, SYDNEY, AUSTRALIA

The resulting conceptual model can be used to explore a range of pedagogical components of any given UA space and their efficacy for influencing the urban food imaginary.  In this section, I demonstrate its use through analyzing a single UA space in Sydney, Australia: an edible verge garden. Through this case, I describe the public pedagogy of this space through its *representation* and *social practice* layers and its influence on the urban food imaginary.  It should be noted that the both *representation* and *social practice* layers each exert pressure on the technological/material infrastructure dimension of the urban food imaginary.  As new or renewed instances of spaces and practices emerge and become established through UA spaces, they serve to update the technological/material infrastructure alongside new technologies, tools, projects, and policies.  Because I am using this conceptual model to a single case, the impact to this dimension is minimal.  However, if edible verge gardens are scaled up, its influence on the technological/material infrastructure can be surmised through what is observed at the micro-scale of the street.

In order to operationalise the *representation* layer of the public pedagogy construct, I utilize multimodal discourse analysis (MDA), based on the perspective of social semiotics, which views communication as performed through meaning-making systems of symbols or "signifiers" that are situated in sociocultural context (Dicks, 2013).  Because my unit of analysis is the actual UA space and the pedagogy it generates and I am trying to capture the 'front-end' delivery of the learning, MDA is able to glean the "communication-in-context" initiated by the UA space (Dicks, 2013, p.3). Multimodal discourse refers to

the notion that any given learning medium—artifact, linguistic text, multimedia material, three-dimensional space—has a unique set of semiotic resources (elements that have communicative potential) occurring in multiple modes (i.e. visual, aural, color, etc.) that express meaning in concert (Kress and Van Leeuwen, 2006).  Each semiotic resource communicates discourse embedded in culturally-situated conventions. I will only review essential aspects of the approach for the sake of clarity.  Analysis is performed by attending to how a space is arranged in terms of three types of meanings: *representational* meanings (what is contained in the space?  How is one's experience with the space expressed and constructed?); *interaction*al meanings (what is the social relationship between the user and the space; how does it unfold?; what is the nature of the interactions that user has with a space?;  what "roles and relations" are formed between the users of the space?, and *organizational* meanings (how are the spatial elements arranged together?  What is foregrounded and backgrounded?) (Ravelli and McMurtrie, 2016; Ravelli, 2000, 2008).  For each of the three types of meaning, there are various categories or "semiotic resources" (categories of symbolic expression) which provide key areas of analysis.  For example, with *representational* meanings, one can consider what spatial elements denote and connote; the presence of movement; and the setting of the space.  The end result of applying MDA to UA space yields an account of the space that describes how its spatial elements, together, convey a range of meanings.  For the case study garden, for the purposes of focusing on articulating how various meanings are conveyed through the space's constituent elements and design choices as a whole, and not on describing each analytical step of MDA, I will provide only the last step of the analysis which is the

summative social semiotic description of the garden, and will not document the detailed step-by-step analysis in the body of this study.  The detailed analysis, accompanied by a visual summary of the analysis (Figure 37) can be found in the Appendix A.

For the *social practice* layer, in order to uncover the range of practices and associated learning that emerged from the gardens, I rely on analysing qualitative data consisting of two semi-structured interviews with the household owners (a couple) and an acquaintance of the owners that sometimes looks after the garden and participant observations of garden activity during multiple visits to the space over two years.  The observations helped to confirm and enrich themes that emerged from the interviews. Interview data was audio-recorded, and later transcribed and coded according to thematic categories related to social practice and learning using data analysis software. It should be noted that analysis of the social practice layer of the case study relies only on interviews with the owners and owner's acquaintance as well as participant observation of the garden.  A fuller picture of the social practices associated with the garden could be gleaned by collecting data from the perspective of residents and passerby. In addition to potentially uncovering other practices associated with the garden, having this additional layer of data would likely provide more detail especially about why the garden is *not* taken up into some residents' everyday routines.   However, for the purposes of illustrating the application of the theoretical model, this limitation can be overlooked.

### 2.4.1 Background

Edible verge gardens—also known as nature strip gardens, footpath gardens and road

gardens— are a distinct element within urban food system in Sydney, as well as other Australian cities.  They refer to the cultivation of edible gardens in the interstitial spaces in around usually residential street and sidewalk. Due to their public and ambiguous location, the verge gardens are a compelling case of the convergence of public, private, and community interests and elicit a spectrum of reactions.  Some view the gardens with disdain because of their unorthodox location, impediment to mobility, and/or aesthetics while others praise them for their provision of edible plants, social benefits, and overall cheerfulness.  City councils have primarily responded by either forbidding their construction or allowing them given their compliance to strict guidelines.

I have chosen one garden, the 'Carter Street Herb Garden', located in the upscale suburb of Cammeray in Sydney, to analyze using my conceptual model.  The garden was located through council staff referral and selected because of its prominent design features and frequent community use.   It was installed in 2011. The footpath surrounding the garden receives a steady flow of morning and late afternoon foot traffic as predominantly work/school commuters or children and their care givers travel to the nearby shops two blocks away.  Various perspectives of the garden can be found in Figures 4 to 6.

**FIGURE 4. Verge Garden in the Cammeray Suburb in Sydney**
The larger photo shows the entire garden and surrounding streetscape. The smaller photos show the two faces of the signage. The signs have been intentionally arranged so that pedestrians approaching from either direction will read the same sequence of signage: First, "Community Herbs on Carter Street" and then, "Pick on your way home".

**FIGURE 5. Design Elements**
The French-style water pump features a goldfish, protective screening, and watering cans for children to water the garden (top left & bottom left and right). The wooden wheelbarrow of herbs sits in the background (top right).

**FIGURE 6. Pedestrian's Perspective**
This photo shows the sidewalk view of a pedestrian when about to pass by the verge garden. The water pump fountain and water cans can be seen along the white fence on the right.

### 2.4.2 Representation

I will identify this garden's prominent design elements and then proceed to discuss how the elements work together to communicate certain discourses as well as enable certain types of social relationships and activities. The garden consists of seven circular half wine barrel containers of various herbs dug into the ground of an expansive nature strip, between the footpath and the street, and placed directly in front of the owner's house. Prominent features of this garden include 'bidirectional' signage made out of stone tiling that have purposefully been arranged as to read "Community Herbs on Carter Street" and "Pick on your way home", sequentially, no matter which direction the garden is approached (See Figure 4); two small pastel blue and pink colored metallic watering cans hanging nearby on the fence fronting the house; a 'water pump' fountain which combines a French-style metal water pump with a 'pumping' handle that continually drips water into a wine barrel filled with water and a single goldfish whereby passerby can fill watering cans to water the garden; and a

49

separate wooden wheelbarrow full of herb terracotta pots placed on the front porch behind the verge garden.

The garden communicates through its signage and location that it is an herb garden for community use, especially for the passerby who transit to and from home. The adjacent sidewalk leads to a central street of shops and bus stops and is therefore used frequently throughout the day especially in the mornings and late afternoons by those commuting by foot or public transport to work and school. The presence of signage indicating function is not trivial as most edible verge gardens in Sydney do not include signage which is an omission that indirectly conveys ambiguity for passerby whether a garden is available for community use.

Specific design choices also create social relations with and within the garden. The inclusion of interaction points—signage, water pump fountain with water and fish, and watering cans—means that passerby can engage with the garden in multiple ways, such as reading the signage, observing the fountain and fish, listening to the dripping water, filling up the water cans, watering the garden, taking herbs from garden. The numerous interaction points and the expansive perimeter space around the garden afforded by the circular containers and spacious nature strip also means that multiple people can interact with the garden simultaneously and potentially in different ways.

The social relationship between potential users and the garden is both casual yet close. The atmosphere of informally is created through a number of elements: the garden's adjacent position in relation to a passerby, focal point of the wooden barrels being beneath the viewer, and circular shape of the barrels all set up the garden to be

visually invitational and not confrontational (as opposed to, for example, a fruit tree with a branch that protrudes into the sidewalk; a garden with great vertical length; and a garden more angular edges which have more industrial undertones) (Kress and Van Leeuwen, 2006; and cited in Ravelli and McMurtrie, 2016). The possibility for a close relationship with the passerby is created through the informal language of the signage as well as for the passerby to come into close contact with the garden through any of the aforementioned activities. The close social distance is also accentuated by the choice of high quality materials that convey an upper-class aesthetic, including aged wood, ceramic tiling, and antique metal, which would likely appeal to the residents of the surrounding higher-income neighborhood.

The garden's visual arrangement also serves to link and blur the spaces of the household and the street. The main section of the garden is directly in front of the owner's house yet fully on the public space of the nature strip; the watering cans are on the *outside* of house's fence which is virtually in the public footpath yet suggests they belong to the owner; the water pump fountain actually is in the owner's property yet one must reach over the threshold of the property line to fill the watering cans. Any confusion of whether the garden belongs to a private owner is resolved by the signage which clearly states that it is a "community herb garden".

**Hospitality & Community**
- warm countryside aesthetic of signage & all other objects
- garden as extension of house
- warmth, inviting, orderliness via materiality of signage (self-identifies as community garden) & barrels (large width, weightiness, earthy materials)
- free access via expansive perimeter space
- multiple interaction points (signage, watering cans, fountain, garden)
- well-maintained vegetation, free from litter

**Wholeness & Transformation**
- timeless aesthetic & materiality of barrels, fountain, signage, wheelbarrow
- goodness & simplicity via synergy of plants, water objects & various activity (dripping water; watering plants; picking herbs)
- juxtaposition of idyllic nature space & mundane streetscape

**FIGURE 7.  Discourses expressed through the Carter Street Herb Garden's representation**

In addition to design choices conferring the space with the identity of a community garden, enabling certain social relations, and connecting the private/home and public/street spaces, the synergy of spatial elements expresses two overlapping discursive themes: hospitality and community; and wholeness and transformation (see Figure 7).  The sentiment of hospitality is created firstly through the warm and invitational nature of the signage, as well as the quaint countryside aesthetic created through the selection of seemingly handcrafted historic objects:  wine barrels, signage materials, water pump fountain, and wooden wheelbarrow 'garden'.  Hospitality is also expressed through the aforementioned physical placement of the garden in front of the house; and its matching aesthetic with the items in the property (water pump and wheel barrow), which suggest that the garden being an extension of the house, yet being for the community use.  The space's orientation towards community is firstly, and most obviously expressed through the signage which plainly states that it is a "community herb garden", but also through

various elements which make the garden approachable.  This is also conveyed through the sense of order, permanence, and strong protection (especially from dogs and cats) created by the sets of wine barrels which appear as two continuous structures, its thick walls, and deep placement directly into the ground.  If cheaper materials and/or a more haphazard aesthetic were used, the apparent hospitality and promotion of community offered by the owner might seem more trivial; the decision to make a larger garden using high quality materials positioned in uniform fashion gives a sense that the garden is not a short-term experimental side project, but a permanent community site.  The garden being for community use is also supported by the possibility of unrestricted movement around the garden from all directions afforded by the expansive nature strip (as opposed to most verge gardens which have the street-facing side inaccessible due to cars or traffic); as well as the provision of the multiple interaction points which were previously mentioned. Lastly, community use is enabled through the garden appearing moderately clean, well-maintained, and free from litter.  Cultural notions insist that greenspaces, including gardens, must be well-trimmed to be perceived as a nature; chaotic gardens clash with these sensibilities (Nassauer, 1995; Lindermann-Matthies & Briger, 2016).  A garden displaying neglect might deter some to engage with the space, which would weaken its image of being for community use.

The discourse of wholeness and transformation is communicated though a number of overlapping features.   Wholeness is conveyed by the aforementioned chosen garden objects and their materiality.  The barrels, water pump, signage, and wheelbarrow allude to tradition and timelessness which is further supported by the

plants, (dripping) water, children-sized watering cans, all of which contribute to the sense that gardening is a wholesome and idyllic activity, and the garden is likewise somewhat of an idealized space. The discourse of transformation is generated through the juxtaposition of the garden and the urban environment. Beyond the garden, the mundaneness of the sidewalk, nature strip, utility poles, and signage make the garden appear more utopian; while the aesthetic quality of the garden brings out the urban environment's sterile character. In the area directly around the garden, the urban space has been changed into convivial space through the garden elements.

In summary, a summative description yielded through MDA highlights how explicit design choices lead to affordances for various activities (reading signage, watering plants, and etc.) and reinforce the notion that the space is hospitably constructed for community use, while simultaneously create and space that visually suggests a narrative consisting of the discourses of hospitality and community; and wholeness and transformation. As visitors to the space experience the garden, the selection and positioning of its elements guides learning to be situated in certain afforded activities as well as in the overall narrative of the space.

### 2.4.3 Social Practice

The garden was found to encourage mainly three types of social practices: watering, foraging, and social interaction. Residents of all age groups were found to engage with the garden *("it's a complete mix"),* with children and their parents most likely being the most frequent visitors. This was partially due to the garden's location on a

regular school commute route, and also because of the garden's child-friendly features, especially the opportunity to water through the provided child-sized watering cans and water pump fountain, attracted young children, school-aged children, and their parents. Watering the garden was, in fact, the most common social practice.  The garden was found to be *"watered absolutely every day"* and almost entirely by *"school kids or mothers with children"* as they walk past the garden multiple times on a daily basis to and from school or other excursions.  Watering normally last "*thirty seconds to a minute",* but sometimes goes longer depending on the interactions in the garden.  One of the owners observed that sometimes groups of mothers and children will stay longer because the children want to stay longer:

> *Oh, [the children] love it, they just love it.  And then they sit there.  "We've got to go now."  "No, I want to do one more."  "We got to go now, I'm leaving you!" [laugh].*

Watering is often a *"quite interactive"* with socializing happening between various combinations of children, parents, and even the owner's dogs. Whoever is gathered will naturally 'teach' each other how to water; through these interactions not only is watering incrementally learned, but also a range of other social skills:

> *the mothers today were saying how the bossy the children are and firstly they'll only water the plants they want to water and then the four-year old will tell the three-year old, "No, you mustn't water the it like that, you must water it like this."  [Watering entails] little language skills and all the stuff that happens around it.*

Watering also provides the opportunity to notice recent weather patterns which are considered, though not always acted upon during watering:

> *Sometimes they'll say, "Darling, it's been raining, we don't need to water."*
> *"I want to water." "Oh, okay." It's all very haphazard, we don't stress too*
> *much about it.*

Through the watering, visitors to the garden increasingly create a nurturing relationship to

the garden which is naturally linked to harvesting.

Foraging was another common practice found with the garden. Residents picked

from the garden *"at least a few times of week"*, especially popular items as *"thyme,*

*oregano, [and] bay leaf"* and most often *"on the way home from work"*. It was not only

pedestrians that take from the garden. Some arrive by car to take herbs:

> A man, or a woman, quite often a man will drive up in his car, come out and
> have a look and say *"Oops, I'm supposed to get oregano—which one is*
> *that?"* The women will do it as well. They'll actually drive, park, get their
> herbs, hop in and go again.

While this would seem to be a random occurrence, it actually happens somewhat

regularly (*"they pop up, drive up, double park"*) and has become a legitimate form of food

procurement for this street. Through foraging from the garden, visitors learn, firstly how to

identify different plants. This most naturally takes place in the context of social

interaction:

> But most people will pick and chat and say, "What's this?" and "Your basil's great
> and mine's not growing and what should I do about it?"

The above statement also illustrates the fluidity of conversations topics; in the above case,

plant identification is linked to growing tips. Identification requires multisensory

engagement. The owner reported that kids "*love the smell and they know [what herb it is],*

*and they proudly walk past, "And that's rosemary!"* In addition to identifying plants,

visitors are taught incrementally about observing the timing of harvesting. Children, in

particular, have to weigh the "ethical issues" involved with picking:

> *…the strawberries [in the garden] looked fantastic cause the children see them, and there's this interesting thing as sorta red but not quite ready.  Do I wait?  Or what happens if another kid gets it before I come back tomorrow?*

In addition to figuring out when a plant is ready to be picked, visitors also have to determine how much of the plant can be picked.  In the beginning of the garden, it was reported that people would sometimes "*overpick*" which contributed to the failure of some plants, as basil.  However, by the second year, "people were educated that you can just pick little bits and then let things grow."  Learning how to harvest in this way was largely the result of trial and error, and observing that "*it was there all the time, they didn't feel the need to pick more…they just picked the herbs when they needed the herbs.*"  Through the social practice of foraging herbs, residents gradually acquire the various skills related to foraging, but also learn to forage in the context of the garden being shared by the community ("*people have always been respectful—they only take a little bit.*").

A third practice that has emerged through the garden is social interaction. Because of its positioning in the middle of a popular thoroughfare, it has become "a nice focal point" as residents "*bump into each other there.*"  It was noted that, "*if people are walking in both directions…they stop to say hello, [especially] while watering is going on*".  These comments show the apparent synergy between location, watering, and socializing.  In addition to functioning as a stopover point for some pedestrians, it has also become a legitimate place to visit for some residents who like "to show [the garden] off".  The owner observed:

> S*o you'll have someone down there and she's got a friend over for coffee…then they walk back and they'll stop at the herbs and…talk about the herbs and how it works and then even if there's no children in sight, the person has explained to them how the watering cans work and how this works and how that works.  And they wait for*

*me and then when I go out, they say, and "this is...", and so I can't keep up with all the names. I've tried in the beginning, but there are an awful lot of people who walk past us.*

This exchange demonstrates the pride that some residents have for the garden which also leads to more social interaction not only between the residents but with the owners. The garden has enabled the owners to have "*met lots and lots of people*" to the extent that one owner has "*three conversations on most days just when…leaving the house or…coming back*." As indicated previously, social interaction is very much linked to various types of gardening social practices and knowledge.

Beyond the social practices of watering, foraging, and social interaction, there was also, to a lesser extent, the emergence of practices associated with neighborly conviviality. Residents will verbally express their gratitude the value of the garden to them to the owners for the garden:

*Lots of the parents say, "It's so fantastic that you do this—we just love it. We come and water the plants every day" …And alot of people will stop and say specifically, "You know your herb garden makes me feel really good. It makes me feel good about living in Cammeray that the people are so nice that they do this kind of thing. It makes me feel good about life. It makes me feel good about people." So you know, some of those people never pick herbs but it's just really a strong feel-good factor.*

Conviviality is also shown through thank-you notes given to the owners as well as sometimes kind actions. In one case, an act of appreciation was even shown by council street trimmers:

*The herb garden gives rise to…appreciation of generosity, and thus a desire to give back. So, when the trees on the verge were being trimmed so as not to interfere with the electric wires, I asked if the tree loppers would trim off a lightning-damaged branch from the church property next door. This was done. In response as to why from a fellow worker, the tree lopper said, "She gave me rosemary—how could I not help out?"*

Additionally, the garden has inspired the creation of two other verge gardens in the neighborhood which is another visible expression of the garden enabling neighborly conviviality.

### 2.4.4 Urban Food Imaginary

The Carter Street Herb Garden, through pedagogical processes related to how it is spatially arranged *(representation)* and what activities emerge through the space (*social practice)* work in concert to shift the urban food imaginary along the domains of space, practice and technological/material infrastructure (see Figure 8). In terms of space, the urban form of the sidewalk is reimagined as a neighborhood garden space primarily through the public pedagogies of its representation. This occurs through the garden effectively bridging the home, street, and garden to transform the "non-place" of the nature strip (Arefi, 1999) which has little meaning beyond its visual and physical buffering function to essentially a community nature space, or micro-space fostering appreciation for urban nature through interacting with "natural elements of the city in new ways" (Davidson and Ridder, 2003). It is also reinforced through the resulting spatial discourses of hospitality and community, and wholeness and transformation as a result of the spatial arrangement of garden elements. The resulting community food space which embodies conviviality around social interaction, food, and gardening starkly contrasts the normally functionalist character of adjacent footpath and nature strip. The garden also engages the urban food imaginary by legitimizing new practices.

**NEW URBAN FOOD IMAGINARY**

(Re-envisioning of Spaces)
**Footpath as Community Garden space**

(Legitimizing New Social Practices)
**Food & Relational Activity on & via Footpath**

(Updating Technological/Material Infrastructure)
**Verge garden as Legitimate UA Form**

*(Discourses)*
**- Hospitality & Community**
**- Wholeness & Transformation**

*(Affordances)*
- variation of 'roles' & activities within garden
- casual & close engagement between users, and users & garden
- bridging of home, street, gardens

*Watering*
development of collaboration skills, awareness of weather patterns (for children)

*Foraging (by pedestrians & drivers)*
learning plant identification; when & how much to pick in context of community use

*Social interaction*
development of informal meeting spot between residents, and residents & owners

*Acts of neighborly conviviality*
expressions of gratitude to owners; creation of other verge gardens

REPRESENTATION

SOCIAL PRACTICE

**PUBLIC PEDAGOGY**

**FIGURE 8. Public Pedagogy of the Carter Street Herb Garden**

The garden acts to legitimizes different social practices which is also part of a new food imaginary. Specifically, activity around watering, foraging, interacting, and re conviviality was determined to emerge from the garden. While these practices are not new in of themselves, the fact that they take place through and/or in the footpath is innovative. The practices have become integrated into the flow of everyday life happening on the footpath, alongside the other usual footpath practices (commuting, garbage collection, utilities placement, tree trimming, and etc.).

Lastly, the Carter Street Herb Garden's public pedagogy serves to update the technical and material infrastructure. While this particular garden was not found to significantly contribute to policy that supports verge gardens, it does play a role in validating verge gardens as a potential space type within the vision of cities integrated with agriculture. If this garden were designed differently in a way that created negative perceptions of edible verge gardens (i.e. neglect, disorder, danger, and etc.), it would not be considered a desirable space for the urban food imaginary. Because of the apparent positive community acceptance of the garden, this garden cultivates the notion of edible verge gardens being a legitimate urban form in the new urban food imaginary. Also, this garden ties the material infrastructure of the footpath and nature strip as potentially being part of the new food imaginary. Because the garden succeeds in transforming its footpath and nature strip, it points to the possibility of other footpaths and nature strips being changed for community agricultural purposes.

Overall this case garden illustrates the potential of a single UA space contributing

to a shift the urban food imaginary. Through public pedagogies associated with

*representation* and *social practice,* update visions of spaces, the practices, and

infrastructure enter the urban food imaginary which is an essential step towards food

systems transition. This case also demonstrates the usefulness in understanding these

layers of public pedagogy with regards to the two frames. It should be noted that this

specific case is not meant to be representative of other similar gardens, but rather, serves

to provide a tangible example of how verge garden's spatial design interfaces with

everyday rhythms, and how that translates into pedagogy which influence cultural

expectations for the urban food system.


## 2.5   CONCLUSION

In this chapter I have described a conceptual model for exploring the relationships

between UA spaces, education, and urban food imaginary. The core of my approach is

the broad concept of public pedagogy as interpreted through the frames of representation

and social practice through cultural studies and educational theory. These frameworks

assume everyday spaces, such as the edible verge garden in my case example, as having

agency to transmit discourse and values through mundane and often overlooked

interactions with the space. My emphasis here is being able to account for the variety of

learning configurations that are prevalent in and around the UA spaces and their

relationship to cultural expectations of UA and the urban food system.

While much scholarly attention has emphasized the role of policy (Mendes,

2008), local food systems actors, grassroots movement, and networks (Stevenson et al.,

2007, Wekerle, 2004), procedural food system assessment tasks and strategies (i.e. land

inventories, community food assessments, farm-to-school, and etc.) (Pothukuchi, 2004,

Campbell, 2004; Vallianatos, Gottlieb, & Haase, 2004), this research suggests that that

agency to engage the urban food system can also be found in the UA spaces, themselves,

and their ability to influence public expectations about how food-related activities should

take places in cities.  The case of the Carter Street Herb Garden illustrates how even a

single UA space can potentially serve to influence community notions of streetscape

aesthetics and activities.  Namely, though agriculture is an unorthodox use for the

footpath, the garden through its design choices and affordances for specific user activity

and relationships, enable it to seamlessly fold into the everyday neighborhood fabric.

I have chosen a 'positive' case that subtly aligns with aesthetic expectations of an

upscale neighborhood in Sydney while expanding cultural notions of sidewalk space.

However, there also exist many 'negative' cases of edible verge gardens that clash with

neighborhood streetscape aesthetics.  In these cases, verge gardens are simply considered

as undesirable for the urban food imaginary and undermine efforts to gain policy and

programmatic support.  Being able to determine the pedagogical affordances of a UA

space is crucial for tracing the evolution of the urban food imaginary.  As niche UA spaces

progress to become more deeply embedded, normalized, and legitimized into the social

fabric, the shift of the urban food imaginary becomes stabilized which in turn eventuates

in food system change.  More focused attention on the pedagogical dimension of UA

spaces and their capacity to exert cultural change is needed for UA to become a more

credible urban form.  Policy, planning, and programming around design standards that

encourage the contextualization of visual aesthetics and account for community use of the

spaces is needed to nurture UA spaces so that until they are established in cultural visions

for the food system[3].  Encouraging an urban food imaginary that includes UA spaces is

crucial step towards UA's progress in cities.

---

[3] Chapter 4 has suggestions of targeted policy intervention for steering verge gardening practices.

# CHAPTER 3:  Urban Agriculture Spaces, Representation, and Pedagogy: A Multimodal Look at the Verge Gardens in Sydney

## Abstract

Urban agriculture (UA) spaces are key sites in the struggle to make urban food systems more localized, environmentally sustainable, socially just, and resilient (Morgan, 2015). In addition to the social, environmental, and economic value associated with UA, this study highlights the cultural significance of UA in regard to shifting the urban food imaginary—the spatial and material expectations of the food system in cities.  One key concern, however, is UA space being dismissed by residents and local governments alike because of negative meanings associated with its cultural image, such as being 'messy', regressive, or inappropriate for cities.  Applying the theoretical lenses of public pedagogy, visual culture, and social semiotics, this study reconceptualizes UA spaces as pedagogical sites that, through their representation, act to "re-educate" cultural sensibilities around food (Petrini, 1997).  I investigate the spatial patterns of more than a hundred edible verge gardens in Sydney, Australia, using multimodal discourse analysis (MDA) and walking ethnography, as a case study of how edible verge gardens through their representation act as 'public pedagogy' in influencing cultural expectations of the urban food system. Specifically, I draw attention to the unique characteristics of the verge garden form and their tendencies to mediate both positive and negative discourses and meaning.  I argue that understanding each UA space's form in terms of its distinct affordances and constraints for exerting pedagogies is crucial for the UA spaces being widely accepted by

the public, as well as included in the urban food imaginary. Focused attention on UA spaces' representation can inform future design standards and guidelines for each space type.

## 3.1 INTRODUCTION

As urban agriculture spaces (UA) become increasingly a regular feature of cityscapes, urban dwellers are afforded with more opportunities to encounter and learn about food-oriented activity often absent in the public life of modern cities. The notion that food practices associated with the full cycle of food, from production to disposal, be fully visible and accessible to city residents is no trivial matter considering that for most of the past century, the global food complex and its industrialization of food have systematically veiled the growing, processing, and transportation processes of food (Vileisis, 2008; Steel, 2009). Cities since their inception more than five thousand years ago have universally been profoundly intertwined with their food system; it is only since the mid-nineteenth century have cities been systematically uncoupled from their local food processes and traditions through corporate will, persuasive media, and modern technologies (Steel, 2009). However, with the resurgence of interest in localizing urban food systems especially in the past decade or so, pockets of agriculture and regional food culture have returned to cityscapes via spaces that are interstitial or the overlooked "non-spaces" of the modern city that while having technical functionality are mostly devoid of conviviality (Arefi, 1999), such as rooftops, abandoned lots, and nature strips as well as the more readily socially-recognized spaces such as schools, restaurants, and parks.

Through these unexpected spaces, everyday activities related to growing food are rendered visible again.

The return of food practices to the public spaces of everyday life is an essential step towards challenging and transforming dominant cultural ideas about food and the urban food system. The high visibility of UA projects in public areas in the cities are what makes UA distinctive. Morgan (2015) point out that UA's "visceral materiality, the fact that it is palpable, tangible and above all visible [is a] contrast to the industrial food system, where food of doubtful provenance flows into cities from placeless foodscapes" (p. 1385). UA projects act as public pedagogy (Giroux, 2004)—a medium of educational communication confronting urban expectations around food. I am adopting a conception of pedagogy that fits squarely with the notion that "visual culture", or the everyday visual experiences with "images, objects, sites" act to mediate values and beliefs, which follows from an understanding of contemporary society that oriented more towards images rather than words (Tavin, 2003, p. 207; Duttman, 2016). UA spaces therefore have pedagogic salience—possessing agency through their representation and arrangement of spatial elements to influence our overall relationship with and around food (Garoian & Gaudelius, 2004). Therefore, as the number of UA spaces and spatial forms grow in the urban landscape, so do the opportunities for residents to be challenged in terms of their overall expectations surrounding the spatialities and materialities of the urban food system and its activities—what I term, the urban food imaginary.

Urban food imaginaries, as a shared and desirable vision of 'how food is done' in the city, are a key factor in driving systemic change in the urban food system (Sengers,

2011). Urban imaginaries, in general, wield power in shaping city priorities in terms of policy, programming, public expenditures, and land use (Jasonoff, 2009), and yet are grounded and formed through continually evolving place-specific spaces and culture-forming processes (Sengers, 2011). Expectations of UA integrated into the city as an essential infrastructure may be an urban imaginary of those in local food systems work, but for that vision to be normalized in the wider culture requires more focused attention by policymakers, planners, and other food systems actors.

One obstacle that may hinder UA from entering the urban food imaginary is associated with its aesthetics, which are the cultural perceptions of beauty, orderliness, harmony, and care (Crawford, Lee, & Beatty 2015). Because of the extreme publicness associated with many UA projects, their visual representation influences people's sentiments about UA, in general. It is UA's overall appearance that makes some residents consider it as backwards, messy, and/or incompatiable with urban life because of its rural overtones (Smit, 1996; Specht et. al 2016; Deelstra & Girardet, 2000). The assertion (Nassauer, 2012) that ecologically-vital urban landscapes must account for cultural aesthetic preferences to be valued is applicable here. UA's potential contribution to a host of city environmental and social concerns such as ecosystem services and biodiversity, (Lin, Philpott, Jha, 2015; Orsini et al., 2014; Barthel, Folke, Colding, 2010), food security (Zezza & Tasciotti, 2010) and resilience (Barthel, Parker, & Ernstson, 2015) is well-documented, but UA spaces need visual adaptations for the urban landscape that align with cultural sensibilities. Because of their tendency to be viewed as unsuitable for urban streetscape conventions, it follows that the visual design of each UA space requires

"translation" for the wider public, before it can be potentially considered as desirable for a city's urban food system (Nassauer, 1995). Through focused attention on UA space's representation from the standpoint of aesthetics, UA could be more readily normalized in the urban food imaginary. In educational terms, UA's spatial representation generates a public pedagogy through conveying discourse and meaning which potentially influence public acceptance of UA.

Within food systems related research, key sites within the food system have been readily investigated in relation to their promotion of discourse and values, including community gardens (Baker, 2004; Classens, 2014), farmers markets (Alkon, 2008a, 2008b; Spilková, Fendrychová, & Syrovátková, 2013), restaurants and cafes (Fantasia 1995; Warner, Talbot, & Bennison, 2013), supermarkets (Dixon & Isaacs, 2013; Seyfang, 2007) and house garden spaces (Christie, 2004; Kimber, 2004; Head & Muir, 2006; WinklerPrins & Souza, 2009). However, while these studies, through analyzing spoken discourse and ethnographic description, illuminate the experience of UA spaces from the user's end. There is also a substantial body of literature that focuses on the influence of food-oriented media such as social media, cookbooks, and television shows (Barnes, 2007; Johnston & Goodman, 2015; Bell, Hollows, & Jones, 2017) which certainly contributes to public imaginaries of UA space, but what is lacking in both sets of literature is a more thorough account from the perspective of the actual overall representation of the space itself, and the link between the organization of its salient features and its pedagogical effect.

As a contribution to this gap, this chapter investigates the case study of edible verge gardens in Sydney, Australia, with respect to how their representation through their spatial

design acts as public pedagogy.  Verge gardens, which is the cultivation of plants in areas

on and around public footpaths,[1] have gained popularity in Australian cities due to their

potential to transform dull urban streetscape, stimulate social interaction, increase

ecosystem services (Nyers, 2013), and provide economic savings for councils tasked with

their maintenance.   Beyond these benefits, verge gardens allow for the possibility that the

common resident, including those without prior horticultural experience, to encounter

basic food practices.  As such, the gardens can be conceived as a pedagogic text that

'instructs' the surrounding neighbors and passersby on recognizing, cultivating, and

harvesting edible plants.  While other UA spaces can function in this way, verge gardens

uniquely bring agricultural practices to arguably the most public of urban spaces—the

street.  The gardens, therefore, are positioned at the nexus of public, private, and

community life, and consequently are a constant agricultural presence in the everyday life

of residential areas, shopping districts, and alleyways.  In short, verge gardens are rich

spaces to conduct case study research on how UA spaces can act as pedagogy because of

their reconception of sidewalks (or "footpaths" in the Australian vernacular)[2] as spaces of

agricultural activity accessible to all, which directly confronts, in public fashion, notions

about the sidewalk and how it should be used, as well as more generally, the nature of

food being integrated with urban life.

---

[1] While some verge gardens are designed to be primarily native or exotic, rather than edible, this research uses "verge gardens" to refer to the edible type. The distinction between native, exotic and edible gardens is not entirely clear-cut considering that some native and exotic plants are edible and/or have medicinal values.

[2] The Australian term for sidewalk, "footpath" will also be used throughout the narrative of this article.

This study is concerned about the representational level[3] of verge gardens which views the gardens as a semiotic text that expresses multiple layers of meaning. Broadly speaking, the following questions are explored: (1) What is the relationship between the verge garden's design and its pedagogy?; (2) What are the overall semiotic features of the verge gardens?; (3) What are the range of meanings conveyed through the verge garden's spatial design that potentially challenge cultural notions of the urban food system?; and (4) How can the overall representation of verge gardens influence the urban food imaginary?

To explore these questions, this study draws heavily on two theoretical perspectives. First, public pedagogy (Giroux, 2000) is used as the overarching frame with which to view the nature and dynamics of learning. Public pedagogy focuses on the role of everyday spaces to impart education through transmitting discourse, knowledge, and values. Second, the perspective of social semiotics as applied to three-dimensional spaces (Ravelli & Stenglin, 2008; Ravelli & McMurtrie, 2016), is utilized to explore how representation of verge garden spaces forms pedagogy. This area of literature stresses the relationship between a given space's semiotic elements, design, users, and environment contribute to its "potentials for learning", or affordances and constraints which shape learning experiences (Bezemer & Kress, 2008). While there are studies employing social semiotics that have examined the link between space and pedagogy, they have centered on formal educational spaces as vocational training centers (Saint-Georges, 2004), high school classrooms (Lim, O'Halloran, and Podlasov, 2012), and libraries (Ravelli & McMurtrie 2016a). My research adds another account of space, representation, and

---

[3] Referring to representation in the broad sense—the concert of culturally situated meaning making systems (Hall, 1997), and not the representational metafunction of MDA.

pedagogy in respect to the more unstructured learning environment that typifies UA spaces. I will first review theoretical concepts from these areas before proceeding to describe the research site background and methodological approaches.

In addition to extending previous interdisciplinary work on food system sites and linguistic studies on the multimodality of spaces, this research attempts to fill the paucity of research on verge gardens. To date, only two published studies focus specifically on verge gardens: Lopes and Schumack's ethnographic account (2012) of one productive garden in Sydney which highlighted the continual negotiation and social learning processes that occur between private, community, and public interests; and Nyers' report (2013) of the overwhelming success of one council's verge garden program in Sydney in terms of its popularity, and resulting economic and environmental benefits. My research adds another perspective to these studies by reconceptualizing verge gardens as pedagogical sites that could influence cultural expectations of the urban food system, and seeks to uncover their potential for doing so through accounting for their representation based on spatial discourse analysis on a large set of garden spaces

## 3.2 THEORETICAL FRAMEWORKS

### 3.2.1 Public Pedagogy

The notion that UA spaces act as pubic pedagogy, through their representation is a perspective undergirded by theoretical public pedagogy as informed by perspectives in the literature on visual culture. Public pedagogy regards informal everyday spaces as having educational influence in that knowledge, discourse and/or values are transmitted through

one's experience with them.  With culture viewed as a continuous, dynamic struggle of

power between competing ethical discourses and representations (Hall, 1997), it follows

that everyday spaces are the primary arenas for this struggle of competing ideologies

(Giroux, 2000).  By ideology, I refer to the plain meaning of the term which signifies a

specific system of belief that has cultural influence.  Institutions and spaces, such as film,

events, and art installations, can thus be identified and analyzed for their educational

influence.  While some of the literature (Giroux, 2000; Sandlin, Burdick & O'Malley,

2001) focuses on how sites work to promote or resist dehumanizing ideologies, such as

neoliberalism, my utilization of the construct is more concerned with how UA spaces act

to mediate everyday discourse and values around food that are typically less nefarious (i.e.

healthy eating, sustainability, etc.) events, history, culture, and socially constructed ideas"

(37).  As an example, the power of pedagogical spaces such as public art performances

and museums to destabilize "individualized and also afford certain activities related to

food (i.e. gardening, cooking, etc.).

　　　　While different articulations exist regarding the nature of learning taking place in

everyday sites, most relevant to the scope of this article is the thread emphasizing learning

as a sensory and intuitive experience within these spaces (Ellsworth, 2005; Chappell,

2011.  For Ellsworth (2005), the outcome of pedagogy is not merely knowledge, but rather

a transformed self; learning spaces are "transitional spaces" between the old and new self

(2005).  These spaces of play, creativity, and cultural production have transformative force

through a "pedagogy's hinge", which is a specific design feature of the space that bridges

the "inner thoughts, feelings, memories, fears, desires" with the outside, which is includes

"events, history, culture, and socially constructed ideas" (p. 37). As an example, the power of pedagogical spaces such as public art performances and museums to destabilize one's own individual thinking because of their affective or intuitive power. Ellsworth's contribution in relation to UA is not that UA spaces should always achieve bringing about a new identity and/or an enlightened social consciousness to its visitors, but rather, a space's design acts as pedagogy to challenge and transform dominant social conventions around food.

Scholarship on visual culture notes the "increase in production, proliferation, and consumption in imagery" in society due to "technological, political, and economic development" (Tavin, 2003, p. 204). This shift places images, in all its manifold forms—two-dimensional imagery (i.e. movie posters, advertisements, graffiti, etc.), digital or moving imagery (computer graphics, music video, films, etc.), objects (i.e. hair dryers, furniture, toys, etc.), or three-dimensional spaces (interior design, shopping malls, gardens, etc.)—as playing a central role in the "construction of consciousness and the creation of knowledge" (p. 204). The emphasis is not solely on these artefacts and spaces themselves, but on the visual experiences and interaction with them, which in turn, forms culture. Zukin (1998) applies visual cultural perspective to urban landscapes in stating that "places develop special meanings that resonate with large scale social transformations" (p. 628). Places therefore change as new images emerge (or are manufactured) to broker social transformation. While Zukin's concern is centered on the construction of image and aesthetics related to neighborhood and urban branding for the purposes of economic development and gentrification, I suggest that the evolution of the culture of urban food

systems is also enabled through its own symbolic imagery.

In the case of encouraging an urban food system that aligns any number of normative expectations, such as localized, sustainable, healthy, and resilient (Morgan, 2015), UA spaces are arguably among the most salient images, landscape-wise, that act to facilitate or hinder this movement.  In sum, public pedagogy draws attention to the agency of informal sites, as is the case with UA spaces, through one's sensory interactions with the space, to impart discourse and values. Visual culture similarly stresses the pedagogic influence of all forms of imagery, including spatial forms such as UA, especially emphasizing the role of representation to contribute to cultural change.  Holding these two theoretical threads together, I am regarding UA spaces as having pedagogic salience through their representation to challenge cultural expectations of the food system in the city.

The public pedagogy construct is a useful frame for broadly describing the shape of learning associated with informal spaces.  In order to analyze in more detail how UA spaces, through their representation, enable educational processes, I consider the visual methodological approach of multimodal discourse analysis (MDA).
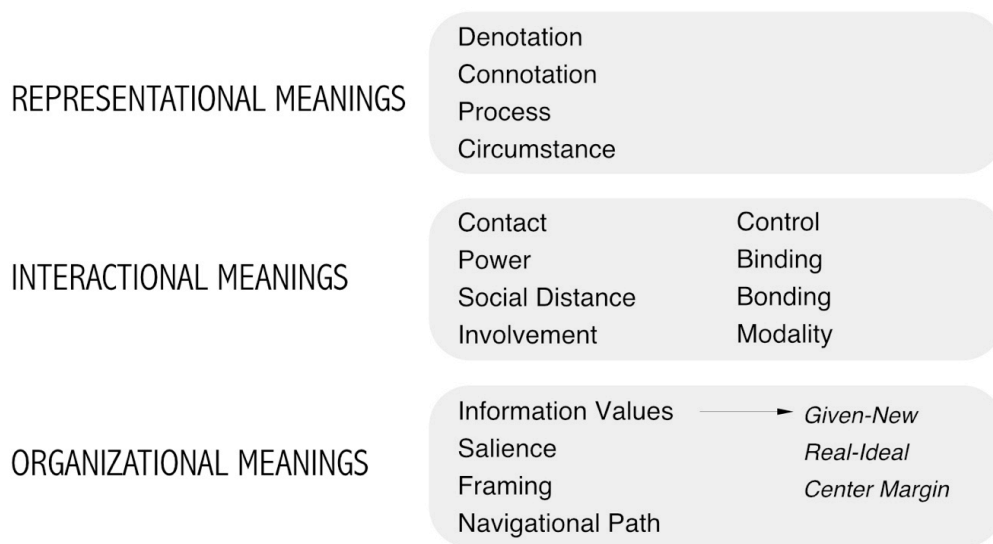
### 3.2.2 Multimodal Discourse Analysis

Multimodal discourse analysis (MDA) is a methodological approach for exploring two and three-dimensional structures, objects, and spaces, through viewing them as meaning-rich "texts". Instead of a single interpretation of any given text, MDA produces a rich description of the range of affordances and constraints connected with the text's

semiotic resources (elements that have communicative potential) and accompanying rules and social functions.  MDA assumes the theoretical perspective of social semiotics which focuses on the "social dimensions of all meaning-making practices" (Ravelli & Stenglin, 2008, p. 356).  In contrast to structural semiotics which treat sign-making or representational structures as determining meaning for people, social semiotics stresses that meaning is made by interacting with the representational structure.  From this perspective, communication through symbols or "signifiers" is situated in sociocultural context and interaction (Dicks, 2013).  If one assumes that a UA space is a semiotic system of various elements acting to convey meaning, the range of meanings are not precisely fixed, which would be the position of structural semioticians, but rather are negotiated by one's positionality and how that influences meaning, as well as the overall sociocultural context of the interaction with the space (Vannani, 2007).  For example, having urban spaces decorated by stylized graffiti art may express meanings at least related to youth culture and to low-income neighborhoods, or to urban innovation and vitality depending on the viewer and context.  MDA, therefore, is a suitable approach for uncovering the pedagogy of a UA space through its representation because of its shared emphasis with the visual culture theories that stress representation being vital to conveying and forming cultural meaning.

MDA assumes this perspective in understanding discourses present in "texts"—including print/web media, three-dimensional objects, and spaces—where multiple semiotic systems are present and interact. Central to the MDA is the concept of metafunctions which is based on the assumption (Halliday, 1978) that all semiotic systems

convey meaning in three ways: through a *representational* layer whereby the semiotic

system "constructs representation of human experience", an *interactional* layer which

focuses on one's participation and interactions with the meaning-making text, and an

*organizational* layer which is about the "organisation of a text as  meaningful whole"

(Ravelli & Stengin, 2008, p. 356-357; Kress and Van Leeuwen, 2006).  Figure 9 lists the

three layers of meaning and their analytical considerations.

REPRESENTATIONAL MEANINGS

Denotation
Connotation
Process
Circumstance

INTERACTIONAL MEANINGS

Contact          Control
Power            Binding
Social Distance  Bonding
Involvement      Modality

ORGANIZATIONAL MEANINGS

Information Values ———▶ *Given-New*
Salience                *Real-Ideal*
Framing                 *Center Margin*
Navigational Path

**FIGURE 9. Three layers of Meanings of Multimodal Discourse Analysis** (adapted from Kress & Van
          Leeuwen, 2006; and Ravelli & McMutrie, 2017)
          *Representationa*l meaning is concerned about the *denotation* and elements, in

terms of what a space and its element's overall function, as well as how those elements

express culturally-situated meanings and overtones. (Guijarro & Sanz 2008). Narratives

patterns are also observed through the presence of "vectors" (directional movement) in the

text.  A space with more vectors is more dynamic; one with less vectors is more static in

its aesthetic.  A space's materiality, in terms of the aesthetic quality of building materials

that are used is also observed.

Interactional meaning accounts for the relationship between the designer/creator of

the space, the visual elements of the space, and the user of the space. This concept

accounts for relational dynamics associated with firstly, a user's experience of *contact*

with a space (i.e. How is contact first made?); *involvement (*How long does the user

engage with the space? ); *social distance* with a space (i.e. At what distance does one

engage with the space?); and *power* (i.e. What is the relationship between a space's size,

position, and other features in relation to the user?); and *modality* (how closely does the

space meet the user's expectations of the space's genre?).

 *Organizational* meaning refers to the overall layout of a space in terms of its

*information values*, *salience, framing,* and *navigational path* (Kress & Van Leeuwen, 2006;

Ravelli & McMurtrie, 2016). *Information values* refers to the overall placement of

participants and design elements within the cultural notions of text organization such as

Given-New (new vs. old information) and Centre-Margin (objects are more important

placed in center rather than margins of composition). *Salience* is the hierarchy of

elements in terms of prominence within a composition. *Framing* concerns how strongly

an area of a text is bounded which is associated with thematic separation or

interrelationship. *Navigational path* pertains to the participant's route and manner of route

taken (i.e. the pace of the movement, the structure of the path, mode of transport, and etc.)

through a space (Ravelli, 2008).

 These three layers of analysis are the foundation of MDA and has served as a

springboard to understanding a wide variety of built environment spaces, including

museums spaces (Ravelli, 2007; Meng, 2004), merchandise exhibitions (Ravelli, 2000),

iconic buildings (Ravelli & Stenglin, 2008; Ravelli, 2008; O'Toole, 2004) shopping

districts (Alias, 2004), and luxury high-rise apartment lobbies (McMurtrie, 2011).  Studies

employing MDA use some or all of the aspects of the three metafunctions to generate a

description of how spatial elements convey context-specific meanings and affordances for

activity.


## 3.3    RESEARCH SITE BACKGROUND AND METHODOLOGY

### 3.3.1 Research Site Background

Sydney, Australia, as with many large urban centers in the world, is engaged in

improving their local and regional food system through encouraging policy and

programming, especially for the purposes of environmental sustainability and resilience

(Docking, 2009; Lonard, 2012). Community-based efforts have led a movement to

relocalize Sydney's food system, challenging the forces that threaten the region's

agriculture—urban sprawl, convenience oriented food (supermarkets and fast-food), and

globalization (Mason and Knowd, 2010). Verge gardens, as an emergent component in the

local food system, have grown in number in some neighborhoods in Sydney.   Often

adopting an "asking forgiveness, rather than permission" approach, resident's appropriate

small sections in and around the sidewalk to construct various configurations of typically

small-sized edible gardens.  Though the gardens may seem unusual because of their

unorthodox placement, there is an actually a historical precedent for edible plants on the

sidewalk in Sydney.   Curbsides have been used for years by immigrants from the

Mediterranean region for olive and other fruit trees, as well as by local city councils to

plant edible native trees (*Farmers of the Urban Footpath—Design Guidelines for Street*

*Verge Gardens*, 2010).  Though still an emergent structure, verge gardens continue to maintain their popularity in some areas of Sydney due to their transformation of dull urban streetscape and also the resulting social interaction afforded through the spaces (Nyers, 2013). Furthermore, the verge gardens, as with community gardens, provide a space for gardening— a "commodity" which will be increasingly scarce, as 60-70% of new housing construction in Sydney is projected to be high density (Bunker, Holloway, and Randolph, 2005; Thompson, Corkey, and Judd, 2007).

In terms of policy, local councils have a spectrum of responses for verge gardens. For the very few councils in Australia that do promote verge gardens, they can also be viewed as an economic opportunity, to recover millions of dollars and manpower hours required for having council-hired workers to regularly maintain the grass on nature strips, in addition to the potential environmental (i.e. absorbing runoff, increasing biodiversity, reducing the urban heat island effect, cutting lawn mowing emissions, and etc.), community (i.e. fostering social interaction and capital), and aesthetic benefits (i.e. streetscape beautification) (Nyers, 2013).  Most visibly, the City of Sydney has released "Footpath gardening Policy" providing guidelines for constructing verge gardens that are amenable to foot and vehicular traffic that are processed through an online submission of a checklist indicating compliance with city guidelines.  Other councils are even more progressive in their support for verge gardens and provide assistance for developing and maintaining verge gardens, including providing financial support, construction help (with even cutting through sidewalk concrete), and community liaison staff.  Other local councils have chosen to implement a stricter permitting process, or have altogether

prohibited verge garden development due to liability and/or aesthetic issues. A last subset

of councils have not released any explicit policy most likely due to verge garden activity

has not reached to a level requiring policy intervention.

Culturally, there are an array of sentiments towards verge gardens. Verge gardens

have been featured on popular media targeting those interested in environmental

sustainability and gardening, including the television programs, *Garden Australia* and

*Garden Gurus,* which show their potential to transform drab nature strips and the book,

*Sustainable House,* which includes them as one component of household sustainability.

Verge gardens have also been the feature of numerous newspaper articles over the past

decade, and are usually framed as a point of contention between enthusiastic verge

gardeners and disapproving residents and unsupportive local councils.

Both positive and negative perceptions of verge gardens by councils and residents

have been reported in Australian news coverage of the verge gardens phenomenon which

usually center on the gardens' appropriateness for neighborhood aesthetics. Commenting

on the city of Brisbane's move to allow verge gardens, one councilor stated, "We believe

that verge gardens, when complying with some basic safety guidelines, will be a great way

to enhance our city" (Community Spirit, 2015). The mayor of the city of Vincent similarly

stated, "At the City of Vincent, we love that residents green their verges and want more of

it!" (Young, 2016). One Perth resident was reported to have favored the verge gardens

because of "the lack of trees and plants" that provide cooling for the hot summer days

(Young, 2016). Negative sentiments were also reported. A verge garden in the Wembley

suburb of Perth that was threatened by removal by council was described by a resident as

"an absolute mess", and a councilor as "awful, ugly looking thing", (though also called as "a little slice of verge-side magic" on social media) (Crane, 2014; Young, 2016). After a verge garden in the inner West area of Sydney was removed, a spokesman for council indicated that the garden "…posed a hazard to pedestrians and an impediment to residents alighting from parked cars as well as a barrier to safely opening car doors." (Carrey, 2013). Essentially, positive responses found in Australian news media sources focused on beauty and environmental benefits (i.e. nature interaction, cooling, and wildlife), while negative responses to the gardens have centered around issues around visual aesthetics, cultural conventions of the footpath, health, safety and mobility, and public insurances liabilities in case of injury from the gardens.

### 3.3.2  Methodology

The approach of MDA, being situated in the approach of social semiotics, assumes that the verge gardens can be viewed as a space with multiple layers of socioculturally-defined meanings that work in concert. These meanings are not based on intuition, but are communicated by specific meaning-making resources of a given space informed by the various social and cultural contexts associated with the verge space (i.e. other garden types, sidewalks, media sources, etc.). In this way, verge gardens have specific affordances for communication and use derived from aspects of its form and design. MDA guides systematic inquiry of first, the range of possible meanings and their organization through a space; and second, the interplay of various layers of meaning. The value of this approach is that it yields a detailed description of a verge garden functions based on its

"meaning potential"—the multiple perspectives that viewers might have of a given verge garden space as a result its overall design. I will first explore how verge gardens function as spatial texts by applying MDA's representational, interactional, and organizational metafunctions to verge gardens at an abstract and conceptual level. This description is not intended to encompass every possible interpretation of a space, but provides a baseline culturally-situated reading of the space based on its arrangement of meaning-making resources.

Rather than focus on a single garden, the description generated through MDA is meant to explore the broad spatial patterns in regard to verge gardens and is based on photos and observational notes taken of over a hundred verge gardens by the author in the areas in and around the urban core of Sydney. In this way, the analysis is informed through a walking ethnography of the verge gardens that is very much in the spirit of Yi'En's assertion that "walking and photographing is rhythmical and brings our bodies into "conversation" with the environments we move through" (2013, p. 3). The sites were mostly found through personal referral from council staff or residents; a few gardens were also located through personal discovery in the course of the research fieldwork. I limited my research area to gardens in or nearby the urban core of Sydney. It was also determined in the course of the fieldwork that verge garden activity mainly concentrated in these areas. As these areas predominantly consist of higher-incomed working professionals and also student populations, verge gardeners likewise tended come from these demographics.

Specifically, data collection involved walking through the various neighborhoods and taking multiple photos of each garden as well as taking observational notes about the gardens, streetscapes, neighborhood, and any observed interactions between people and gardens. In all, photographs of 108 gardens were analyzed in terms of their overall semiotic features as articulated through MDA, and this analysis was also supported through observation notes made during the walking ethnography. Each of the three metafunctions of MDA and their underlying meaning-making constructs were considered in relation to the gardens. For example, the theoretical concept of "power", or the feeling of dominance of an object, is expressed in the gardens through the overall vertical and horizontal size and weightiness of the garden spaces, which in turn contributes to affordances and constraints for interacting with the garden. The interpretation of how the garden space is constructed and the meanings that are communicated are not based on subjective interpretation, but on culturally-situated meanings that arise from design features (i.e. a larger garden tends to convey more power than a smaller garden). While each verge garden is uniquely different, through this exploration, I observe the overarching features and patterns consistent with most of the sample. It should be noted that the description yielded through MDA will be a multi-layered explanation of how the various elements of the space work as a system to communicate meaning, but also incorporates ethnographic details gleaned from the photos and direct observation of the gardens, as well as the surrounding streets and neighborhoods. This analysis allows for a nuanced understanding of how verge gardens, through its representation, acts as public pedagogy.

## 3.4 Verge Garden Representation through a Multimodal Discourse Analysis
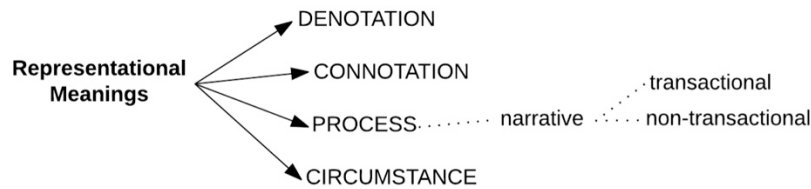


 **FIGURE 10. Representational Metafunction** (adapted from Kress & Van Leeuwen, 2006; and Ravelli & McMutrie, 2017)

### 3.4.1 Semiotic Features of the Verge Gardens

Spatial analysis using MDA typically involves considering each key concept within the three metafunctions in relation to a given text or texts, which for this study, are the verge gardens.  The description generated through MDA considers how each key concept is uniquely realized in the verge garden spaces according to the semiotic features that are distinct to this form.  The resulting description is unlike typical social science research reporting conventions in that, the written narrative integrates analysis and discussion and is *not* separated, because analysis is based how the three metafunctions are realized in the verge gardens as spatial text which are reliant on photographs and direct observations which is consistent with prior work on social semiotic analysis of built environment spaces (Ravelli, 2007, 2008; Ravelli & Stenglin, 2008; O'Toole, 2004; McMurtrie, 2011; Meng, 2004; Stenglin, 2007).

However, for clarity's sake I have listed all the semiotic features and resulting meanings found through MDA in a diagram form (see Figure 11). Semiotic features of the

gardens include size, color, plant selection and garden bed contents, framing elements, unintentional elements (graffiti, litter, animals, and etc.), other objects (i.e. gardening equipment, decorations, etc.), perimeter space and access points, interactivity points (i.e. seating, scissors, watering cans, and etc.), stylization, vitality, arrangement, and management. Beyond the garden, the surrounding contexts of the street verge, street, and neighborhood influence meanings that are expressed in the gardens. Lastly, the interplay of semiotic features communicated three broad types of meanings: discursive, aesthetic, and functional meanings which are also listed in Figure 11. The manner in which the various meanings that emerge from the verge garden spaces will be discussed in detail as each metafunction and its underlying key concepts and are unpacked in relation to verge gardens.

## SEMIOTIC FEATURES

**Garden**
size
color
plant selection/garden bed contents
framing elements
other objects (seating, signage, etc.)
unintentional elements (graffiti, litter, animals, etc.)
perimeter space/access points
interactivity points
stylization (dramatic design)
vitality
arrangement
management

**SPATIAL ELEMENTS**

**Street Verge**
multifunction/multi-use space
- pedestrian, cycle, vehicular traffic
- physical/visual buffer
- infrastructure placement
- theatrical space
- public space

**Street & Neighborhood**
degree of foot/vehicular traffic
degree of conviviality
neighborhood character & history

**CONTEXT**

## MEANINGS

**DISCURSIVE**

(POSITIVE)
sustainability
aesthetic transformation
civic agriculture
local food awareness
progressiveness
community spirit

(NEGATIVE)
disorder/anarchy/crime
bohemian culture
illegality

**AESTHETIC**

(POSITIVE)
reflects neighborhood look
beauty
healthy
protected/secure/safe
care

(NEGATIVE)
clashes with neighborhood look
eyesore
sickly
unprotected/insecure/unsafe
neglect

**FUNCTIONAL**

(PUBLIC/NEIGHBORHOOD)
political statement
neighborhood enhancement
community engagement
wide accessibility

(PERSONAL)
extension of house
personal garden space
limited accessibility

**FIGURE 11. Semiotic Features and Meanings**

### 3.4.2 Representational Metafunction

The representational metafunction is concerned about a space's ontology, perceptions, and use. Figure 10 portrays a simplified diagram[4] of how various aspects of representational meaning of a given space are uncovered through the metafunction. The initial step is to identify the denotation and connotation of verge gardens as a spatial text (Ravelli and McMurtrie, 2016). In terms of denotation, which refers to the plain meaning and function of a space, edible verge garden are clearly gardens constructed for the footpath. While this concept is clear, its function carries more complexity and ambiguity. For those involved in the space's cultivation or are aware of the spaces through media sources, the verge garden exists for providing more space to garden, which includes the entire range of gardening-associated activity including soil preparation, planting, pruning, and harvesting. The verge garden space is also deeply tied to the home space, as garden produce will be used in the kitchen, and sometimes food waste will be composted for use in the garden (and sometimes this happens at the garden site through an existing compost bin—see Figure 12).

However, outside this small subset, most of the public will not have likely formed a concept of verge gardens as they are still an emergent structure and not widely established and will have to rely on strong visual clues such as plants, garden borders, garden beds, and signage to determine a space's meaning and purpose. Gardens with strong borders such as a container, sufficiently large garden beds and/or explicit signage will enable viewers to comprehend the space; gardens lacking these elements must rely on edible

---

[4] Only conceptual categories relevant to this study are included for the sake of clarity.

plant recognition.  A person having familiarity with edible plants may realize that the space is a garden; those without edible plant literacy will likely overlook the garden, viewing it as simply part of the landscaping.  Even for those who recognize the space and without a prior concept of a verge garden might still consider the garden as confusing or unusual because its unorthodox location.

Over time, even for those not involved in the gardening, the verge gardens may also be viewed as exist for leisure and beautification; residents might simply enjoy the sights and smells of the garden while using the footpath.  The garden may also be a source of food for those in the neighborhood with passersby foraging various vegetables and herbs for meals.  Socially, the garden may be a community gathering point in that neighbors may gather to garden together or a place to stop and chat while passing by on route to somewhere else. Ecologically, the garden may contribute to a number of ecosystem services including increasing biodiversity, mitigating urban heat island effect, and reducing rainwater runoff (Ackerman et al., 2014; Lin, Philpott, Jha, 2015; Orsini et al., 2014; Barthel, Folke, Colding, 2010).

**FIGURE 12. Compost Bins** Two types of compost bins located near multiple verge gardens in the Chippendale neighborhood of Sydney

Verge gardens' connotation is related to "preconceived ideas, historical location, experience, knowledge, and familiarity" (Ravelli and McMurtrie, 2016, p. 29). In terms of the built environment, spaces are mostly defined and used according to policy guidelines and cultural norms. As mentioned previously, for the subculture of people familiar with policy and/or cultural discourse around verge gardens, the spaces may be viewed as being a contested entity or having a number of positive meanings. Again, those with and without familiarity with gardens may have different perception of the gardens. For the subculture of residents who identify with sustainability, local food, and gardening, the idea of verge gardens is clearly understood, and may have connotations of grassroots community engagement for the sake of improving and bringing awareness to local food

systems, urban ecology, and neighborhood aesthetics; the spaces are an opportunity to

tangibly bring the issues of food and local sustainability straight to the front and center of

communities for public engagement.  Those outside of this fairly small subset will, again,

will more visceral reaction to the gardens based upon direct contact with them and their

visual cues which will result in any number of positive or negative connotations.

If the gardens are well-maintained and consistent with the neighborhood aesthetic,

they might be associated with beauty and the communal spirit. On the other hand,

gardens that display neglect and/or clash with community preferences for the streetscape

may connote feelings disorder and anarchy.  Residents with this sentiment might consider

the gardens as devaluing a neighborhood or contributing to area crime.  Additionally, the

gardens might also allude to a bohemian lifestyle which would be attractive or

unappealing depending on the person and the neighborhood.

Beyond denotations and connotations, the representational layer addresses the

activity or "processes" present within the spaces.  Relevant to verge gardens are

"narrative" processes, which exhibit movement or activity.  Narrative processes are

transactional if there is an "actor and an object of that action which is technically termed

as "goal" or "range"; and non-transactional if there is only an actor (Kress & Van Leeuwen,

2006).

Verge gardens can therefore be seen as inherently dynamic spaces because of the

number of processes occurring in and around the gardens.  For non-transactional

processes, gardens fundamentally represent movement through plants visibly growing and

evolving through the days, weeks, and seasons.  The other non-transactional process

associated with the spaces are users who meander around the garden.  With

"transactional" processes, three types are associated with the gardens.  The first type are

the culturally-appropriate actions that any passersby may perform, which are observing

and smelling the garden (i.e. people take care of the garden, pick the herbs, smell the

lemongrass, and etc.).  Figure 13 portrays this first type of transactional process.  The

second type are ecological processes performed by non-human actors (i.e. native bee

pollinating the flower; the magpie eating the worm; and the sun shining on the basil plant,

and etc.) (Figure 14).  The last type, illustrated in Figure 15 are actions might be limited to

a select group of people: gardening and harvesting/foraging.  The act of gardening and

foraging obviously applies to the owner of the garden and any residents that the owner

"permits" to garden and forage.



**FIGURE 13. First type of Transactional Process: Culturally-Appropriate Actions.**  Child viewing flowers of verge garden (Child is the Actor; flowers is the Goal).  Yellow vector indicates action.

**FIGURE 14. Second type of Transactional Process: Ecological Processes of Non-Human Actors.** Bee pollinating flower inside verge garden. (Bee is Actor; flower is Goal). Vector indicates the direction of action.



**FIGURE 15. Third type of Transactional Process: Gardening, Harvesting, Foraging**. Man is interacting with verge garden. (Man is Actor; plant is Goal). Vector indicates the direction of action.

For others beyond this select group, gardening and foraging is simply a gray area; a

tension exists between being able to use the garden and pick its produce freely due to its public location and yet feeling the need to ask for permission to do so because others have taken the time to care for the space. However, even though the footpath is public, many neighbors or passersby might feel inhibited to garden or forage from the space, unless there are distinct markers in the verge garden space. In other words, the verge garden's spatial text does not reveal the owner's personal opinion about this unless there are specific markers. Additional objects in the garden space help specify this gray area, including signage addressing the passerby, plant labels, seating, watering cans, scissors (for harvesting). Each of these objects enables further transactive processes (i.e. reading signage and plant labels, sitting on a bench, filling the watering can with water, and etc.). In short, the garden space expresses how the garden owner(s) expect passersby to act on the garden and alludes to the question of what degree of engagement is allowed with a given space. The more that activities are afforded by a verge garden's design, the more entry points there are for the community to engage in the garden, which arguably translates to community acceptance.

Another point of consideration is a verge garden's *circumstance*, which refers to the physical and social context surrounding the garden. What is most distinctive about verge gardens compared to other urban agricultural forms is their street verge location. The combined areas of the footpath and nature strip is the fundamental circumstance for the garden. Both footpath and nature strips have a range of functional, cultural, and legal meanings which make them spaces characterized by multifunctionality and ambiguity (Hogan, 2003). Footpaths have the primary function of facilitating pedestrian traffic and is

94

accordingly governed by urban codes centered on "hazards" and "obstructions" (Blomley, 2012, p. 918).  Footpaths are also viewed as public space where public life is constantly present, constituted, and activated" (p. 920).  In this vein, Kim (2016) contends that footpaths are inherently a democratizing space because of their ubiquity throughout the city, and the range of activities that are found there.  It is through footpaths that "society creates public space rules that support spatial practice it views as legitimate" (p. 17).  This process of legitimization is not always even; in the United States and elsewhere, activities on the footpath such as protesting, panhandling, vending, and sleeping have been legally challenged repeatedly in various locales (Loukaitou-Sideris et al., 2004, p. 149).  The inappropriateness of specific public behavior sometimes becomes codified into footpath regulation (Ellickson, 1996, cited by Loukaitou-Sideris et al, 2004, p. 148).  The footpath can thus be also characterized as a space of tension in that public life is constantly forming and being re/negotiated sometimes to the point of passing municipal codes and regulation. The repurposing of footpaths as outdoor restaurant or café dining space is a prime example of a socially sanctioned use that is sometimes not regulated, even though it does create issues of safety and mobility (Blomley, 2012).

As for nature strips, they act as physical and visual buffers for those on the footpath and the street, allow the planting of street trees, and supply space for a range of utilities infrastructure, such as telephone poles, electricity wiring, manholes, water and sewage piping, garbage removal, and postal service delivery (Meenachi-Sunderam & Thompson 2007).  Culturally, nature strip marks the "threshold space" between private residential space and the public community space, they can be considered as "theatrical space" that

overlaps back- and front-stage behavior in everyday life (Hogan, 2003, p. 55).   Footpaths

in wealthy neighborhoods and city shopping centers in the nineteenth century have been

similarly regarded as "urban theater" for wealthier groups to "display their social class and

power" (Loukaitou-Sideras et al., 2004, p. 144).

The street verge also can be categorized as urban green commons space, or "areas

that allow residents and citizens actively rework urban nature in ways that support

ecological processes, while allowing for a collective caring of pieces of land in the city"

(Colding et al., 2013, p. 1).   In Australian cities, this is illustrated by the trend of local

governments shifting responsibilities for maintaining nature strips on to property owners,

which has led some councils and residents to reimagine the natures strip into ecologically

landscaped forms, including edible verge gardens.  Though legally considered as public

property land, where residents do not necessarily possess management rights (depending

on local governance area), residents assume some measure of control which leads to

various collective management "norms and social mechanisms" and spatial practice

manifestations (i.e. restaurant and café seating) (p. 1).  Urban green commons spaces have

been recognized to have a range of legal ownership forms, including public, private, or

collective ownership, but still share the same quality of social rules of management being

organically developed by individual or groups of residents, while also leading to usage

conflicts because of the multiple levels of competing interests that arise of users as well as

local governments.

From these various layers of context, verge gardens can be viewed spaces that

advocate for the addition of the agricultural function to be added to the street verge,

asserting that agricultural practices are legitimate for the verge and beneficial for the public good. Furthermore, because the street verge can be considered as urban greens common space, residents do have some room (but not right) to self-determine and manage how the verge should be maintained, including its use for gardening, but must conform to relevant footpath regulations and codes. Much like some community garden in some legal jurisdictions, residents may self-organize and turn a nature strip into a verge garden, but at the same time may risk being 'evicted' because they do not have property rights for the street verge (Colding et al, 2013). From all these contextual factors, verge gardens can be seen as having some measure of legitimacy if it can adhere to social norms of surrounding neighborhoods, but is simultaneously a political act because it is trying to push social expectations of the street verge space. Furthermore, because of the footpath and nature strip is space of many overlapping usage tensions, constructing a verge garden on this area magnifies this communicative act.

This broad lens provides the basic circumstance framing verge gardens. Circumstance also concerns the more mundane details of a verge garden's context. For example, a garden's surrounding location influences the degree to which a garden is perceived as belonging to and is available to the community (see Figure 16). If a verge garden is located on a footpath receiving high volumes of pedestrian traffic, then people might view the garden as more public or community-oriented because of the wide range of interactions already occurring there. A garden located on a quiet cul-de-sac might be seen as more private in nature due to the insular character of dead-ended streets. Similarly, if a verge garden is on a street where neighbors are already involved in each

other's lives, there will likely already be informal agreements in place in terms of its

communal management and usage.  Verge gardens existing on less convivial streets might

be considered to be more or less as a property of a given owner.   An area's regional

history and character also affect the perception of the verge garden.  Suburbs that contain

beaches tend to have a subculture that is more bohemian and have less social constraints.

Verge gardens located there will subsequently be seen as vehicles for communal lifestyle

compared to gardens in other suburbs.



**FIGURE 16.  Context**    Physical location influences perception of space's community orientation. The 'island' garden (top) appears more community-oriented through its centered and high traffic location, compared to a garden (bottom) whose location on a quiet cul-de-sac which seems more for personal use.
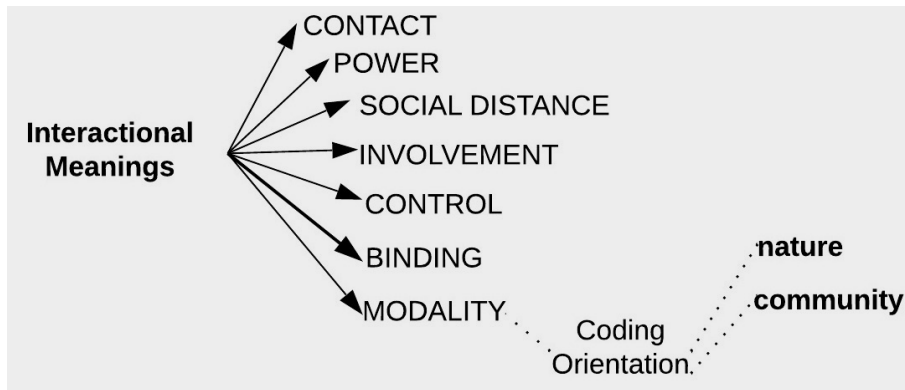
**FIGURE 17. Interactional Metafunction** (adapted from Kress & Van Leeuwen, 2006; and Ravelli & McMutrie, 2017)

### 3.4.3 Interactional Metafunction

The interactional metafunction focuses on the social relationship between the people and a specific spatial text as well as between people who interact with the space. This layer includes the notions of social roles and affect (Ravelli and McMurtrie, 2016) afforded by the space. Figure 17 shows the various conceptual categories for understanding interactional meanings of a space through the metafunction.[5] The first area to consider is *contact*, which in terms of verge gardens, refers to the nature and degree of eye contact that a passerby has with the gardens. Design factors related to a garden's visibility on the footpath influence the extent of this contact. The first factor is *size*. In most cases, since verge gardens are relatively small structures, passersby may not notice them until a relatively close distance—a few meters away. If there are no design features that pull in passersby, contact will cease after a moment or so. When the verge garden is of larger size, contact naturally occurs from further away, and continues for a few moments longer (see Figure 18). For the footpath, the vertical size tends to be more visible than the

---

[5] This diagram has also been simplified for the sake of clarity.

horizontal size as a verge garden will be closer to or at the eye level of adult passersby which increases contact time. Children will likely maintain a longer eye contact even if a garden is shorter because of the lower position of their eye contact. A second factor affecting contact is the presence of *framing elements*. If a verge garden has a raised enclosure such as a wooden paneling or a noticeable soil cover as in sugar cane mulch (yellow/beige colored), the verge garden will impose more of a presence, possibly increasing the amount of contact. A third element is *color*. People will begin eye contact earlier and maintain it longer with verge gardens that feature bright colors, whether through an enclosure or the presence of colorful plants, such as yellow sunflowers or red strawberries. A fourth element is the presence of *non-garden objects* that enable action. Such objects include signage, seating, and giveaway materials (i.e. free seedlings or fruit). Gardens with these sorts of objects potentially engage contact with viewers for a longer time. The last factor is *dramatic design*. Verge gardens with more stylized features or creative arrangement have the power to draw people in, and will obviously be noticed from further away and engage people visually for a longer time. These various factors are pictured in Figure 19. Contact also refers to how spaces enable relationships between passersby. The design feature that influences this is *perimeter space* and *access points*. Gardens with more space surrounding it can gather more people around it. For example, gardens that are enclosed by wine barrels and empty space beyond it have many points of access which allow people who interact with it to face each other. In contrast, a rectangle garden that is bordered by a parked car on one side will limit face-to-face interaction between passersby.

**FIGURE 18. Size influences Contact**
In the five sets of verge gardens on this street, the largest one in the middle of the photo, because of its immense size and presence, will receive contact from the greatest distance and maintain it for a longer time.

**FIGURE 19. Other Factors influencing Contact**
Contact is influenced by framing elements, color, non-garden objects, and dramatic design. Contact is increased in the garden in the upper left photo's strong framing via its robust yellow enclosure; and the garden in the lower right photo through its dramatic design elements (trellis, colored bricks, large white pot in distance, etc.). Contact is limited in the garden in top right photo's weak framing element due to its lack of container and ground covering, though it is minimally framed through the sidewalk cutout.

**FIGURE 20. Perimeter Space, Accessibility, and Contact**
Contact is increased through in garden of left photo due to large perimeter space and many access points. Contact is decreased in the garden of right photo due to street-facing façade being obstructed by car, which lessens perimeter space and number of access points.

Closely related to *contact* are the constructs of *social distance*, *power, involvement,* and *control. Social distance,* the "literal and figurative" closeness between a person and the spatial text during interaction, and *power,* which is the feeling of dominance that a space holds over a person through its vertical size and weightiness, are closely linked (Kress & Van Leeuwen, 2006). As most verge gardens are generally of smaller size, they are hardly imposing when viewed from a distance and therefore possess minimal feeling of power. The same holds true at closer distances. When a verge garden has more size and volume vertically and/or horizontally, their feeling of power naturally increases. This is particularly true when a verge garden is not singular but plural. Often the installation of a verge garden will inspire others, and in a few cases, a street may be filled with multiple verge gardens so that, visually and mentally, they coalesce into a single larger space. In these instances, people will notice the imposing structures from further distances, and when walking on the footpath, will be more or less forced to maintain an intimate

distance with them. To the viewer, the larger spaces might be viewed with wonder, revulsion (if unkempt), or unease, depending on their size and other aesthetics. Figure 21 shows gardens of various degrees of power based on their design. In terms of social distance, the social positioning of verge gardens is at the same level as passersby in most cases. They typically do not receive constant maintenance and care, and thus will display some level of informality. They, therefore, do not normally have a corporate or institutional character, but instead might be reminiscent of home or backyard life. In the case that a passerby happens to be dressed in business attire for the office, the gardens, through their informality, might actually be regarded as socially below the person. The casual nature of verge gardens expresses the home and kitchen life of the owner(s); their level of cleanliness and care, plant preferences, and aesthetic choices are on plain display. When gardeners are seen working on their verges, the space acts as an extension of their private spheres. In this case, social distance between the gardeners and passersby are diminished as gardening, as an expression of care, is an intimate affair. The verge gardens in this sense enable spontaneous conversations and new relationships because the minimized social distance encourages passersby to converse freely. Figure 22 shows gardens with various levels of various formality. *Involvement* refers to the level of engagement of a person with a space. In terms of *involvement*, verge gardens will generally not strongly engage a passerby because gardens will be positioned to the side of the viewer, as opposed to a front-on angle which is more commanding (Kress & Van Leeuwen, 2006). However, the oblique angle of the garden in relation to passersby can be considered more welcoming (Ravelli & McMurtrie, 2016). In order to more fully

engage verge gardens, passersby will have to physically turn towards the garden and then in most cases, look or stoop down to the level of the garden. Moreover, people on the footpath are normally in transit to a destination and unless there is some design feature present in gardens to attract their attention, will continue walking without engaging the garden. Lastly, *control* is the degree of physical and regulatory limitations imposed on a person from a space. Verge gardens do not normally restrict passerby movements and actions. Verge gardens usually lack the volume and spatial complexity to exert much control over passersby, except for two notable instances. The first case is when verge gardens impinge upon the entry and exit of vehicles parked next to them, and thus will be seen as restrictive (see the right photo of Figure 19). Figure 23 shows two different gardens with different degrees of involvement and control. A second case is when the garden becomes a trip hazard due to low visibility and/or poor placement on the footpath. Beyond these instances, verge gardens have a low degree of control in relation to a passerby. However, the context of the verge garden—the footpath—is a highly controlled environment. Footpaths customarily allow only two directions of movement that funnel pedestrian traffic to one of two exit points. As one type of public land, footpaths are highly regulated in terms of their structural guidelines and size, as well as the range of activities that are permitted to occur there. The juxtaposition of a verge garden space which has negligible control and the footpath which is exceedingly controlling is jarring and creates an unusual dynamic. For those who prefer the functionality of the footpath to get to and from places, the verge gardens might be perceived as a barrier or interruption to that purpose. To those who tend to view the footpath as public space meant for

community, the verge gardens broaden the scope of the footpath's publicness by allowing food-inspired conviviality.

**FIGURE 21. Power**
Power is minimal in the garden of the middle row, right photo because of its small size and marginal placement. The gardens in the other photos possess high degrees of power because of horizontal and/or vertical size (including middle row, left photo of wall of lemongrass), or due to belonging to a larger collection (bottom photo; top left & right photo)

**FIGURE 22. Social Distance** The gardens of the top photos have a high degree of informality. This is due to the disheveled condition and graffiti of the garden in the top left photo; and the container choices (repurposed toilet tank and horse feeding troughs) of the garden in the bottom photo. In contrast, the garden in the top-right photo is more formal due to its clean lines, uniform arrangement, and its well-organized plant labels. Levels of formality will translate to various degrees of social distance depending upon the identity, status, and real-time attire of the passerby.

**FIGURE 23. Involvement & Control** The gardens typically have low degrees of involvement and control due to their low height and oblique angle in relation to passersby (top photo).  However, the garden in bottom photo has an overhanging trellis structure contributing to higher degrees of involvement and control even without vegetation on it in the winter months.

**FIGURE 24. Binding** Each garden has various degrees of binding. The gardens in the left-side photos provide a soft edging to the footpath in a manner that softens the harsh pavement. The gardens in the right-side photos have larger vertical size, creating a stronger sentiment of security, perhaps bordering on feeling overly bounded.

The next concept is *binding,* which refers to the feeling of in/security in a space depending on the degree of enclosure (Stenglin, 2004). Verge gardens that occupy larger areas of space will create a soft frame that "binds" and accentuates the footpath and the act of transiting on it. Gardens with binding features such as edging or container walls

also act to physically, visually, figuratively protect the garden from activity occurring on the footpath; these binding features confer a sense of protection to the garden vegetables or herbs.

The final set of concepts within the interactional metafunction relevant to verge garden spaces are *modality* and *coding orientation*. *Modality* describes the manner and degree of truth that is perceived based upon one's idealized image of a space. This conception of truth is entirely dependent on a given sociocultural standard, or *coding orientation,* and specific evaluative criteria, or *modality markers*. For example, Ravelli and McMurtrie (2016) propose the coding orientations of governmental, institutional, commercial, corporate, domestic/social with various modality markers such as layout, noise, and ambience to assess modality of library spaces. I put forward the use of two coding orientations that are relevant to verge gardens: *nature* and *community*. The *nature* coding orientation, which draws from the naturalistic coding orientation (Kress & Van Leeuwen 2006) which refers to the degree that a text reflects people's image of the real world, refers to people's positive conception of nature. Verge garden spaces, with its inclusion of plants and soil, most plainly portrays nature, but sometimes its expression is not necessarily aligned with people's image of nature. Environmental scholars (Cronan 1995; Kovacs et al, 2006; Leopold, 1995) have observed that cultural notions of nature are centered on a nature that is beautiful and pristine and therefore a source of refuge and escape. Similarly, landscape architecture scholarship (Nassaueur, 1995, 2012) observes the need for urban greenspace to have a certain degree of aesthetics (which is culturally-determined) to be accepted and appreciated by the wider culture. Verge garden spaces

111

that have a high modality when viewed through the naturalistic coding orientation are

therefore spaces that are beautiful, productive, and clean.  The second coding orientation

of *community* is based upon the degree a space reflects community life and activity.

Verge gardens with a high modality according to this coding orientation will have

elements that enable community interaction such as benches and signage.
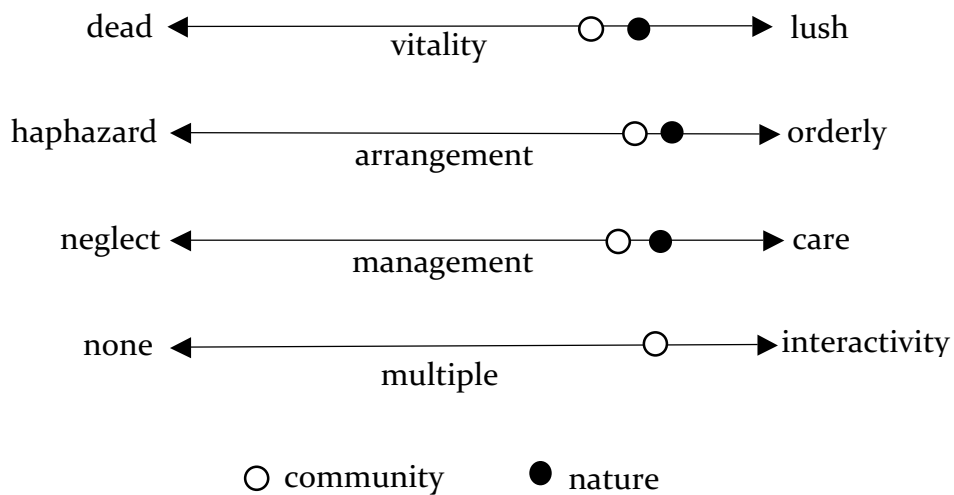


**FIGURE 25. Modality Markers with Respect to Verge Gardens**
A space with a high Nature modality will be sufficiently lush, arranged in orderly fashion, and appear well-cared for (black "nature" points are located near the far end of the vitality, arrangement, and management gradients); the number of interactivity points does not have bearing on the Nature modality (indicated by the lack of a black point on the gradient for "interactivity points".  A space with a high Community modality should have not only a medium to high nature modality (white "community" point is located towards the end of the vitality, arrangement, and management gradients), but also have multiple points for interactivity.

Also, I propose the following modality markers to evaluate the modality of verge

garden spaces according to the two coding orientations: vitality - the degree of health and

production of the included plants; arrangement – the extent that a space is orderly;

management – the degree that a space is well-maintained and cared for (i.e. keeping

structures in good order, pruning excessive growth, removing dead leaves and debris, and

etc.); and interactivity points – the number of objects present that enable community interaction. Spaces with high modality in terms of nature will be lush, orderly, and appear well-managed; interactivity points are not particularly related to this modality. Figure 25 shows the various modality markers for verge gardens related to the two modalities of nature and community. There are of course other modality markers that could be included, most notably, color and smell, but I have distilled the nature coding orientation to its three most essential areas. Spaces with high modality with respect to community will have multiple interaction points and at least a moderate level of vitality, arrangement, and management in order to encourage and not discourage community interaction (beyond this, the aesthetic modality markers are somewhat unrelated to the community coding orientation). Verge gardens lacking interactivity points might be more likely to be perceived as extensions of households rather than belonging to the community. It follows that spaces with a low nature modality are not well-received with communities because they either clash with cultural notions community spaces having a minimum level of aesthetics and nature spaces as being beautiful and orderly. How these notions translate to sustainable ecologies and further, how spaces can critically challenge these notions is an important topic, but not in the scope of this particular study. Also, it should be noted that other coding orientations can also be useful for analyzing verge garden spaces, but these two coding orientations are chosen because they emerge from the footpath's function as public space, and the passerby's fundamental image of the verge garden as urban green space.
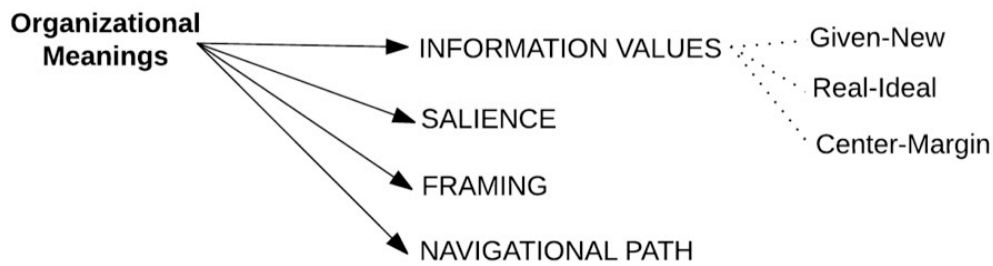
**FIGURE 26. Organizational Metafunction** (adapted from Kress & Van Leeuwen, 2006; and Ravelli & McMutrie, 2017)

### 3.4.4 Organizational Metafunction

The organizational metafunction is centered on how a spatial text's various physical components combine together to confer meaning.  Figure 26 illustrates how the metafunction structures a given space's organizational meaning.[6]  The first concept to consider is *information values* which interprets specific areas within a text as conveying more importance than others according to the fundamental organizing structures of *Center-Margin* (elements are perceived as more important placed in the center compared to those near the 'edges' of a composition or space), *Real-Ideal* (elements that are vertically higher are perceived as being more important compared to elements that are vertically lower), and *Given-New* (left-positioned elements are typically perceived as old information, while right-positioned elements are perceived as new information).  Verge gardens often have a Center-Margin orientation with edging acting as a distinct frame that encloses and accentuates what is located inside the edging (see Figure 27).  In most cases

---

[6] This diagram is also simplified for clarity.

this will be the plants, as well as gardening-related objects/trinkets, such as a trellis (to support plants), toothpicks (to ward off cats), figurines (i.e. gnome), and wind pinwheels. Because the plants are prominently at the center, their appearance and condition will naturally be scrutinized.   Healthy plants express vitality and growth, but sickly plants indicate struggle, decline, and perhaps neglect.  Litter is also frequently found in the gardens.  Most commonly, glass bottles, cigarette butts, random paper products—the result of pedestrians treating the garden space as rubbish bin—are part of the spatial text. The litter most certainly steals the attention away from the plants and has the effect of imbuing meanings of disorder, neglect, and crime on the garden.  At other times, garden beds may be empty and somewhat barren for a number of reasons. Gardeners often takes a break from maintenance because of their busy schedule or unfavorable climates.  At other times, the garden may simply be between plantings.  In any case, passersby simply observe an empty garden bed which is now at the Center, and what the spaces might express on a visceral level is abandonment and decay.

**FIGURE 27. Information Values: Center-Margin**
The Center-Margin orientation of most verge gardens. The edging of gardens (Margin) bring one's visual attention to the planting bed ("Center"). Usually what is accentuated are the plantings and perhaps plant labels (top right photo), but often it is the garden bed, itself (or and/or litter such as old bread and rotting fruits (bottom photo), that is made prominent.

Taking account of the larger street, when a verge garden is viewed from the perspective of the street, an Ideal-Real (top-bottom) dynamic is created with the house being the Ideal and the footpath being the Real, as indicated in Figure 28. Similarly, from the vantage point of the pedestrian, the house with its ontological weight and larger size is viewed as the Center and the sidewalk and verge garden acting as the Margin (Figure 28). This dynamic is also reflective of a Nucleus-Satellite relationship (Vorvilas, Karalis, Ravanis,

2011) in which the verge garden (Satellite) is dependent on the house (Nucleus) for its meaning. In all three cases, the house conveys meanings such as refuge, safety, and permanence; the verge garden, through its position on the edge of the footpath communicates vulnerability and impermanence as it is subject to the elements and ephemeral activity of the street. Furthermore, whatever negative meanings attributed to the gardens from litter, dishevelment, or decay make the Ideal-Real relationship more pronounced. In this case, the Real might expresses that the footpath is not favorable environment for gardening; and the Ideal is that the house as a protected area that is more suitable for planting. From this perspective, verge gardens might be seen as eye sores, and that footpaths should not be used for gardening—effectively hampering their acceptance. It is helpful to point out that in the Center-Margin orientation, in which visual elements in the center are perceived as more important than the margins of a space, verge gardens are not only in the margin (which is physically the footpath) compared to the house, but also it is at the edge of that margin. In fact, the only thing more marginal and residing on a lower plane than the verge garden is the gutter, which literally (and figuratively) represents the harshness of urban existence, for it receives all the impurities of the built environment through run-off during a rain event. That area of margin around the edge of the sidewalk has other competing meanings. It is the territory of local and state government traffic related signage which create an atmosphere of regulation and authority. Also, it is adjacent to vehicular traffic and street parking which convey functionality, movement, and temporality which is also at odds with the more stable verge garden. In short, this convergence of city governance as represented by signage and fast urban rhythm signified

117

by vehicles is visually (and literally) a hostile environment for gardens, which are normally characterized as spaces of tranquility, calm, and conviviality. As such, the gardens may also be perceived symbolically as a political statement that visually protests the frantic lifestyle and perhaps the tendency of urban space to favor function over community.



FIGURE 28. Information Values: Ideal-Real & Center-Margin When viewing from the front, the house has a higher vertical position (Ideal) in relation to the sidewalk (Real). From the vantage point of the pedestrian, the house this dynamic is one of Center (house) – Margin (sidewalk).

In addition to *informational values,* the concepts of *salience, framing,* and *navigational path* contribute to how a spatial text is organized. *Salience* refers to the element that is most prominent within a verge garden space due to some design attribute, such as size, color, or compositional dissonance. What is salient is very much dependent on specific gardens and can include intentional elements such as the plantings, trees, signage, and containers; or unintentional features, such as graffiti sprayed on signage, litter left by partygoers, or cats lying on the garden bed. What is salient in a garden space is also dependent on the position of the viewer. For example, if plants have less volume than its container, the container will be more salient from further distances. As the person approaches the garden, the plants will become more salient than the container. The structure surrounding the plants is therefore crucial because it is the primary meaning maker when the garden is viewed from a far distance. Figure 29 demonstrates how what is salient in a verge garden will change depending on one's distance. The next concept is *framing* which refers to the degree of separation of the inside to the outside. Verge gardens employ a variety of framing devices such as containers, soil coverings, and plants, with each conveying how connected or disconnected the garden is to the larger street. Gardens with weak framing devices (i.e. lacking edging) might be viewed as having a more overall connection to the footpath. Such gardens may appear vulnerable to the range of activity on the footpath. In contrast, gardens with strong framing (i.e. steel container) might be viewed as being separate, and project an image of being a refuge from the

unpredictable activity of the footpath of a space. Gardens in Figure 30 shows this dynamic (as do gardens in Figure 29). For streets with more vehicular and pedestrian (and dog) traffic, a garden bordered and propped up by a tall container might be regarded as more pleasing and therefore more readily accepted compared to gardens simply planted in the ground and lacking any edging. For streets that are quieter and/or isolated, this consideration is less consequential. Additionally, a verge garden that has been designed to match the aesthetic of the street and neighborhood will have a weaker framing compared the stronger framing of one that stands out because of clashing design features. This is not a trivial matter because verge gardens with frames that are a mismatch with the neighborhood's visual sensibilities might elicit negative reactions, including formal complaints to the local council. Framing may also occur on various micro scales within the garden bed (i.e. areas for flowers vs. green herbs), especially for larger gardens, but this will not be discussed at length in this research. In terms of *navigation path*, which is the walking route taken while interacting with verge gardens, most verge gardens are encountered while one is walking along the footpath. Except for a few cases, verge gardens cannot be readily approached from other angles except for the side facing the footpath. The two sides perpendicular to the footpath may be occupied with grass, plants or dirt, and the side facing the street often have parked cars and/or traffic; to approach non-footpath facades of the garden require some level of commitment that may inhibit the casual observer. Figure 31 shows the relationship between navigational path, access, and approachability. In this sense, the view of the garden from the footpath is more formative for how the space is regarded

**FIGURE 29. Salience** From afar, the large containers are most salient in these verge gardens due to their collective size compared to the plants. However, when viewed closely, the magpie becomes most salient due to its association to uncleanliness.





**FIGURE 30. Framing** The garden in the top photo, lacking any bordering except for the curbside, has a weak framing. Its sage appears very vulnerable to the urban environment. The garden in the bottom photo with its very strong framing through its hefty container and accented through its wooden four pillars appears protected from the environment.

**FIGURE 31. Navigational Path** In terms of navigational path, access to the garden in the top left photo is obstructed by a utility pole, another garden bed as well as the curb edging. The "verge citrus orchard" of the top right photo has multiple access points. The garden in the lower right photo has a complex navigational path which makes it difficult to access from various facades which will likely confuse the passerby.

## 3.5 DISCUSSION

A comprehensive summary of how the three layers of representational, interactional, and organization meanings are realized through the verge gardens are shown in Figure 32. Each layer of analysis provides a different semiotics lens for understanding the range of social meanings expressed by a verge garden space. Examining how the layers work together as a cohesive text provides a fuller picture of how the verge gardens act as a semiotic system to construct a particular social reality.

**FIGURE 32. Summary of Metafunctional Meanings as Realized in the Verge Gardens**

### REPRESENTATIONAL

**DENOTATION** garden or landscaping for household and/or community; leisure/beautification; community gathering point; urban ecology engagement

**CONNOTATION** grassroots engagement for local food system awareness/urban ecology/neighborhood aesthetics; beauty & communal spirit vs. disorder & anarchy; neighborhood amenity vs.devaluation; bohemian lifestyle

**PROCESSES** non-transactional—growing plants; walking
transactional—interacting with garden; eco/biological interactions; gardening & foraging

**CIRCUMSTANCE** multifunctional street verge—for pedestrian, cycle, vehicular traffic; physical/ visual buffering; infrastructure placement; theatrical space; public space; political activism

street & neighborhood—degree of foot/vehicular traffic; degree of conviviality; neighborhood character & history

### INTERACTIONAL

**CONTACT** initial contact with garden—often from short distance, but potential for longer distances depending on (vertical) size, color, & stylization contact with other users—often limited by street-side facade, but some contexts have more perimeter space & access points

**POWER** usually minimal due to smaller (vertical) size, but dependent on size/number, aesthetics, stylization

**SOCIAL DISTANCE** between user & gardens—normally casual to intimate physical distance; between garden & neighborhood close to far aesthetic distance; between users— normally casual/informal distance

**INVOLVEMENT** garden is normally invitational (not confrontational) to user due to oblique angle between user & space

**CONTROL** low degrees of control, but high potential for high control given mobility issues (obstruction/trip hazard with vehicles/pedestrians

**BINDING** low to high degrees of binding, dependent on size & garden edging

**MODALITY** degree of perception of garden as nature or community space dependent on vitality, arrangement, management & interactivity points

### ORGANIZATIONAL

**INFORMATION VALUES** CENTER-MARGIN—garden frame (positively or negatively) accentuates garden bed contents; house(CENTER) vs. garden (MARGIN) REAL-IDEAL— low position of garden (REAL: vulnerability/impermanence) vs. house (IDEAL: refuge/safety/permanence)

**SALIENCE** dependent on intentional (size, color, container, plants, arrangement, soil covering, other objects & unintentional elements (graffiti, litter, animals,...)

**FRAMING** weak vs. strong framing—degree of image of protection/safety, dependent on framing devices as containers, edging, soil covering

**NAVIGATIONAL PATH** often limited by street-side facade, but context-dependent with possibility of more/less possible navigational paths

.A number of themes emerge when all three layers are considered in concert. Figure 33 provides a summary of the various characteristics of verge gardens when all three metafunctions are considered together.

# CHARACTERISTICS OF VERGE GARDEN FORM

**Confrontational**
- adding semi-permanent use to a tense space(convergence of well-defined uses, including the negotiation of public life)  [REPRESENTATIONAL]
- dissonance between garden & footpath connotations (i.e. conviviality & rest vs. urban movement)  [REPRESENTATIONAL]
- pedestrians will pass by gardens at close social distance  [INTERACTIONAL]

**Confusing**
- identity (denotation) unclear if markers are missing (strong framing, maintained/arranged recognizable plants, signage)  [REPRESENTATIONAL]
- function (denotation)in terms of community usage unclear if signage are missing  REPRESENTATIONAL]
- potential hesitancy to use garden as intimate social distance required  [INTERACTIONAL]
- juxtaposition near house conveys weakness/temporality, clashing with food provision function  [INTERACTIONAL]

**Easily Overlooked**
- minimal power via typically smaller vertical/horizontal sizes; pedestrians are busy in transit ;  [INTERACTIONAL]
  nature strip objects are easily dismissed (if placed there); [REPRESENTATIONAL]
- gardens often lack salient elements (i.e. bright colors, signage, vibrant plants, etc.)  [ORGANIZATIONAL]

**Context of Affording Free Access & Conviviality**
- footpath is highly informal & easily affords social interaction  [INTERACTIONAL]
- minimal control compared to other UA forms (no membership process, fees, etc.)  [INTERACTIONAL]

**Potential for Negative Reactions**
- already abnormal placement  [REPRESENTATIONAL & INTERACTIONAL]
- presence of negatively salient elements (litter, graffiti, chaotic placement, unkempt plants, decaying structures, etc)  [ORGANIZATIONAL]
- framing elements draw attention to garden bed  [ORGANIZATIONAL]
- possibility of acting as trip hazard / obstruction  [INTERACTIONAL]

**Factors Encouraging Garden Acceptance: Aesthetics & Community Engagement**
- expectations for nature/community space dependent on vitality, arrangement, management, interactivity points  [INTERACTIONAL]

**FIGURE 33. Characteristics of Verge Garden Form**

First, analysis through the *representational metafunction* demonstrated that verge gardens are plainly confrontational for those who encounter them for the first time. They are confrontational because the act of constructing verge garden is fundamentally trying to add an additional use that is semi-permanent to the footpath—a space that was found through analysis of "circumstance" to be characterized as having a high degree of tension because of the multitude of well-defined uses that converge there, including the its political role of enabling, negotiating, and contesting what is defined as acceptable public behavior. Moreover, pedestrians can easily view the gardens as being conflict with the usual activities on the footpath in that there is a striking dissonance between the garden as a place of conviviality and rest and the urban pace represented by the adjacent transit of people, pets, and vehicles in around the footpath (also alluded to in the representational metafunction. A more positive reading of the unusual juxtaposition would be that the garden transforms the utilitarian street into being more convivial. With either case, the garden possibly confronts the sensibilities of the passerby. The gardens can also be potentially viewed as confrontational through lens of the *interactional metafunction* in that pedestrians normally encounter the gardens at a reasonably close social distance because of their proximity to the footpath; though this dynamic is somewhat mitigated by the oblique angle of the gardens which make an encounter invitational rather than demanding, pedestrians will always pass by the gardens at a close social distance. This sentiment would be intensified if the gardens display bold colors or stylized design and mitigated if its colors and design are muted.

127

Second, it can also be surmised through analyzing the numerous denotations and connotations of the garden through the *representational metafunction*, that the gardens are potentially confusing in terms of their identity and use. Pedestrians may not recognize the space as a garden if markers of a garden's identity—namely, strong framing (containers or borders), well-maintained and arranged edible plants, and signage—are missing, which was the case for a significant number of gardens in this study. In which case, gardens might be seen as landscaping or a political/artistic statement trying to challenge conventional uses of urban space.

Passerby may also be confused about a garden's function, especially in terms of the extent in which the owner intends the garden to be for community use. The most obvious way to communicate its purpose—signage—was conspicuously missing from the vast majority of verge gardens encountered in this research. For the few gardens that had signage, the owner's intentions were clearly expressed. Signs such as "Rowley Street Community Garden", "Please pick some herbs for dinner" or "Come gardening with us" clearly conveyed that the spaces were for community use, whereas gardens without signage likely brought some degree of uncertainty to passerby. Even with explicit signage, the passerby might perceive the garden as privately-owned due to the intimate nature of gardens which may cause hesitancy for picking from the garden, which in terms of interactional meanings, implies a close intimacy with the garden—users might require a certain level of ownership before foraging from a garden. This sense of incongruity of the garden's uncertain identity and function is made more pronounced by the sense of weakness, temporarily, and precariousness expressed through its juxtaposition and lower

positioning in relation to the adjacent houses (or apartment buildings) which communicate robustness, permanence, and safety as illuminated by analysis through the *interactional metafunction*. These meanings are at odds with the garden's intended 'claim' as space of food provision and sustenance.

Third, also through the *interactional metafunction*, it was understood that verge gardens generally possess minimal power to attract and keep positive attention because of their typically small vertical and horizontal size, especially if the spaces lack any impactful features. Verge gardens placed on the nature strip with minimal size might not be noticed as the nature strip, as simply a buffer zone, is normally an overlooked area of the streetscape (in terms of the representational meaning). Moreover, the fact that the pedestrians are in transit means that they may not only be preoccupied with their trip, but also the gardens lie at the periphery of their field of view. Possible exceptions mitigating these factors, which were understood by analysis through the *organizational* metafunction, are verge gardens that have greater sizes and volumes, striking colors, signage and/or peculiar design structures as well as unintentional elements as graffiti, litter, and animals (i.e. birds, cats, possums, and etc.).

Thirdly, due to their unique location ("circumstance" of the representational metafunction), verge gardens have distinctive affordances not usually found in other UA spaces. Namely, the footpath physically enables unrestricted access to garden space for all. Though framing structures such as edging or planting containers might appear to separate the garden contents from the urban environment, they serve to visually and physically protect the garden from the urban elements rather than restrict access.

Compared to urban farms, backyard gardens, and even community gardens, verge gardens are clearly more public in that they have a procedurally and physically very weak controlling structures; there is no bureaucratic processes, nor locked gates to discourage entry and use, and the range of gardening-related, leisure, and social activities allowed through the space are in plain view.  Also, the footpath's narrow width and informal nature allow for casual conversation to occur easily between mutual passersby or passerby and gardener.

Lastly, analysis through the *representation* and *organizational metafunctions* demonstrated the high possibility of verge gardens eliciting negative, rather than positive reactions because of their already abnormal placement and high possibility for the spaces to contain elements that do not match community preferences.  These dynamics are also exacerbated through the passerby who will look unfavorably on the gardens when negatively salient characteristics are present, including litter, graffiti, chaotic plant placement, unkempt foliage, and decaying physical structures.  These are exacerbated through the Center-Margin orientation of the spaces which draw attention to the garden bed (Center) because of its framing (Margin).  Apart from appearances, verge gardens that are improperly placed can be trip hazards or obstacles to vehicle entry, will also prompt opposing sentiments.

Because of the numerous factors that might impede the acceptance and use of verge gardens, verge garden's credibility as an acceptable urban form may hinge entirely upon two factors: its overall aesthetic appearance; and affordances for community engagement. As mentioned previously, passersby likely assess the value of the gardens

through the *nature* and *community* coding orientation as realized through the markers of vitality, arrangement, management, and interactivity points.  There is an expectation that verge gardens (as with all "community-nature spaces"), are sufficiently lush, orderly, show care and have multiple points for interactivity.  Gardens with a high modality through either or both coding orientations will have a higher likelihood of becoming accepted in the neighborhood. This means that for verge gardens, maintenance and stewardship are critical for their neighborhood acceptance.  In summary, verge gardens are an intriguing case of converging discourses and values where significant potential exists for enhancing community, food practices, and urban ecology, while simultaneously eliciting disapproval from neighbors and passersby as gardeners learn how to adapt gardening for the footpath

In summary, verge gardens have tremendous potential for acting as public pedagogy to shift cultural expectations of UA primarily because of extremely high degree of access and informality that is associated with the footpath.  Its placement the footpath means that a verge garden will be normally encountered by regular pedestrians using the footpath and residents living nearby, but also that those who want to participate in the garden have very little social barriers to overcome, in comparison to most other UA forms. There are no locked fences or scripted procedures to hinder getting involved. Furthermore, because of the great distance between the ontological and discursive meanings of the verge garden (i.e. conviviality, care, and provision) and the footpath (i.e. function and utility), a well-designed garden will clearly stand out. As a form therefore, verge gardens potentially wield significant agency in challenging conventional notions about the urban food system, while being a potent advocate for more UA in the city.

Because of these exceptional affordances, however, it is equally easy for verge garden's appearance to be defaced through littering, trampling, or vandalism. Furthermore, even if the verge garden is left untouched, because of the already informal, free, and chaotic environment of the footpath, the gardens have a high possibility to be viewed negatively if they do not maintain a high level of aesthetics as the footpath will confer its meanings of informality, marginality, and chaos onto the garden. Uneven plant placement, unmaintained foliage, and damaged containers are just a few of the possible negative characteristics that might contribute to a garden's lack of acceptance by a community.

Also, because their placement on the footpath means that it will normally be positioned at a low level (compared to for example, a vertical wall), than other objects compete for attention (other pedestrians, dogs, cars, buildings, utility poles, and etc.), and that viewers will most often be preoccupied with a thought other than the verge garden (i.e. their destination or agenda, for example), verge gardens require highly stylized design features (size, colors, signage, and etc.) that target consider how to be more readily noticed on the footpath.

Lastly, because gardens are not sanctioned by urban regulations and codes in most council areas, gardeners risk having their gardens being destroyed and replaced by grass by council if either they become an eyesore through being overgrown or defaced, and/or if a resident complains to council because of issues around aesthetics, safety, or mobility—a situation that has been repeatedly occurred in various cities throughout Australia (Carrey, 2013; Young, 2016).

As a result of the unique affordances and constraints that are implicit with making a garden on a public footpath and its subsequent range of representations, the gardens act as pedagogy to convey a very wide range of discourses and values (Figure 34 summarizes these relationships). If the garden is designed to overcome the physical, and aesthetic, and cultural hurdles, the garden then, through its representation, might express any number of positive discourses and values, such as streetscape beautification, household food provisioning, food security, leisure, individual and/or community well-being, community cooperation, land stewardship, and environmental health. If the garden does not succeed in accounting for the various footpath constraints, it will convey, through its representation, negative discourses and values, such as neglect, disorder, neighborly irresponsibility, and health hazard.

**AFFORDANCES**

**(POSITIVE)**

**High Potential for 'Pedagogy'**
high accessibility & informality (low social barriers); possibility for regular foot traffic; contrast of meanings of aesthetic/ethical meanings of garden & functional meanings of footpath

**(NEGATIVE)**

**High Potential for Low-Level Aesthetics or Safety/Mobility Issues**
growing conditions are harsh (dry, dusty), high vulnerability of gardens (littering, trampling, vandalism), need to consider safety &mobility (mobility-impaired persons, children, vehicles)

**High Potential for Gardens to be Overlooked/Dismissed;**
(normally) lower positioning and footpath-scape/activity obscures garden; highly stylized design features (size, colors, signage, and etc.) needed

**High Risk of Resident Complaint & Council Removal**
if low aesthetics, overgrown or defaced, aesthetics, safety, or mobility

**High Potential for Transfer of Footpath Meanings to Garden**
footpath meanings of informality, freedom, & chaos conferred gardens without high level of aesthetics

**DISCOURSE**

**(POSITIVE)**
streetscape beautification, household food provisioning, food security, leisure, individual/community well-being, community cooperation, land stewardship, environmental health

**(NEGATIVE)**
neighborly irresponsibility, neglect, disorder, health hazard, vulnerability, marginality
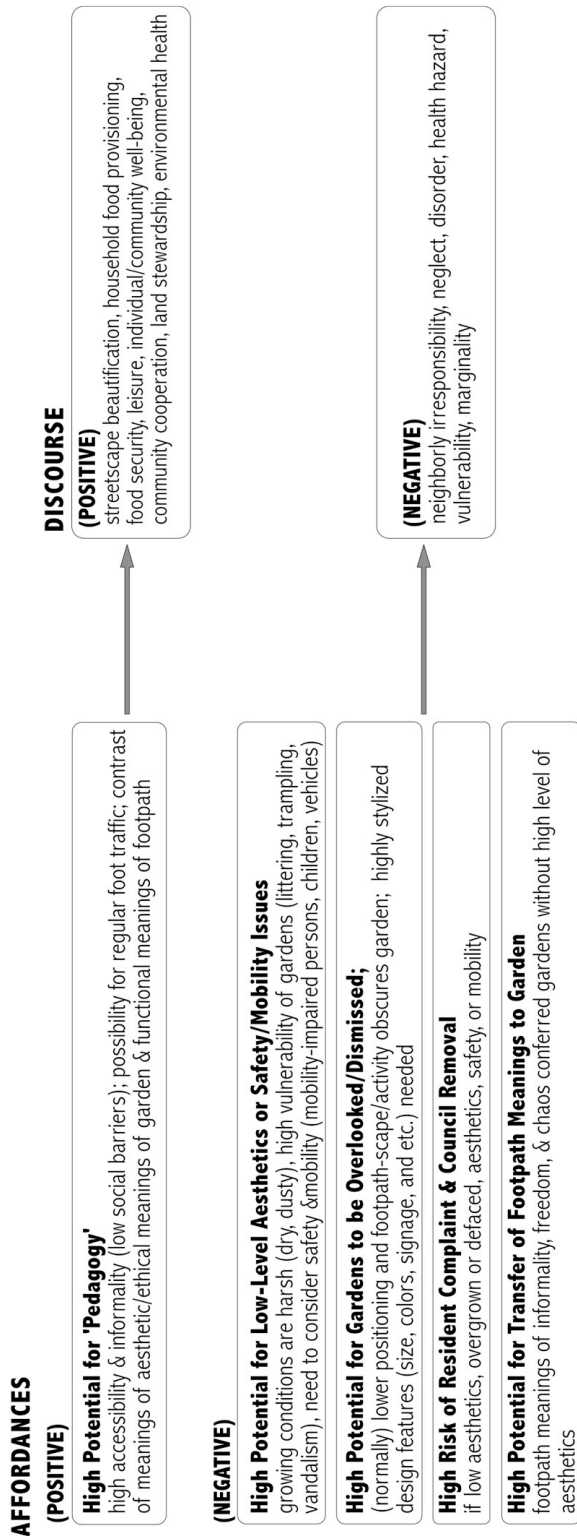
**FIGURE 34. Affordances and Discourse of Verge Garden Form through its Representation**

134

The first type of garden acts to shift cultural expectations for the street by adding agriculture as a potential function.  In other words, residents might question why more streets are not being repurposed for food growing?  The second type of garden will reinforce the dominant narrative of the footpath being solely for transport and utility purposes; a garden not being 'translated' for social expectations for the footpath through attentive spatial design will deter edible verge gardens from entering the urban food imaginary.

Multiple obstacles can easily deter verge gardens from being accepted as a desirable and legitimate food system UA form in the urban food imaginary; focused design attention is necessary for helping verge gardens overcome these deficits precisely because of its great potential for being confrontational to the dominant cultural expectations of the urban landscape and its relationship to provisioning food.

As the footpath is a space of transit and pedestrians normally engage visually with items on the footpath through quick glances, a visitor's sentiment of a verge garden will likewise be likely be formed in a very short-time frame through one's momentary multisensory experience with the space.  In those microseconds or seconds of contact, a garden must have design features that act as a "pedagogy's hinge" that bridges a passerby's cultural norms regarding the streetscape as only for the conventional functions (i.e. transport, utilities, rubbish disposal, and etc.) with the notion that the footpath is an underutilized space that can be repurposed for food production (Ellsworth, 2005).  This hinge may be a single element such as carefully-worded signage, high-quality materials, well-maintained herbs, or eye-catching flowers, or the synergies between those and other

elements.  The lack of a hinge in a verge garden's representation will cause viewers to either overlook or deride the garden.

Lastly, while positive or negative discourses produced by verge gardens do not have immediate effect on urban policy that prohibits their use, verge gardens expressing negative discourse certainly reinforce the maintenance and enforcement of these policies of restriction.  On the other hand, if verge gardens characterized by only positive discourses were scaled-up, there would be potential to gain community support as an urban food imaginary that contains verge gardens is cultivated, which could translate to policies being updated that allow their existence.

While there are many potential pathways to reforming policies to allow verge gardens, this is one avenue was taken by at least one Sydney neighborhood.  The inner-city area of Chippendale took a 'dig first, ask for forgiveness later' approach in creating a series of verge gardens primarily in two residential streets.  Incremental negotiation between residents for and against the gardens eventually led to the development of footpath gardening guidelines which allow the gardens if they meet certain design guidelines that stress safety, mobility, and aesthetics.[7]  This brief case illustrates the importance of a garden's representation and subsequent discourse playing a critical factor in shifting urban food imaginaries which in turn effects policy reform.

---

[7] Suggestions for and analysis of current guidelines is located in Chapter 5

## 3.6 CONCLUSION

Visions of the how cities should implement their food system are formed and reformed by complex synergies between a myriad of culturally salient structures, especially the mainstream spaces of the urban food system, such as the supermarkets, kitchens, and restaurants.  UA spaces play a key role in nurturing an urban food imaginary that is based on re-introducing agriculture into the everyday spaces and practices of urban life, but I have argued in this chapter that each space may not be valued for its ecological or social value in its usual form, but requires specific translation for the various cultural expectations of the surrounding urban landscape in order to be appreciated by the wider public (Nassauer, 2012).

In this chapter, I have examined the case of how the representation of edible verge gardens generate public pedagogy, and the various affordances and constraints (or positive and negative affordances) of this particular UA form through observing spatial patterns in a large set of over a hundred verge gardens in Sydney using MDA and walking ethnography. Verge gardens were clearly found to have pedagogic salience in regard to food—their stylized appearance, coupled with a highly visible locale, provokes a response. Those encountering the verge gardens, whether neighbors or passersby, are pressed to make meaning of the spaces.  This wide-lens analysis of the semiotic features of the spaces illustrates the wide range of meaning possibilities for the verge garden form, which translate to affordances or constraints for and/or deterring engagement.  Gardens must successfully navigate through the various design considerations that accompany the verge garden form and its atypical environment of the footpath in order to gain wider

acceptance. Most significantly, verge gardens must display a high level of aesthetics and maintenance to the degree that it overcomes the footpath's connotations of informality and chaos, while also being sufficiently stylized or else risk being overlooked in the footpath. While this study brings attention to the specific case of verge gardens, many of the same dynamics are applicable to other UA spaces. How each UA space—whether community garden, farmers market, local food restaurant, or emergent structure—acts as pedagogy through its representation is crucial for how it shifts the urban food imaginary. In the case of verge gardens, the gardens are still a niche space that is far from being established in the urban food imaginary. More precise planning and policy mechanisms[8] are required that support the gardens through not only regulatory frameworks and incentives, but target the pedagogical dimensions of their spatial design in order that the verge gardens can have a higher likelihood of being normalized in the wider culture.

This study employed MDA as a primary spatial tool to examine the gardens. While MDA was able to provide a detailed description of the range of social meanings of a space based on the arrangement of its design elements which translate to overall spatial affordances and constraints, it is limited to the vantage point of the 'spatial text' to generate this description. The perspective of social semiotics has allowed an understanding of a garden's 'meaning potential' or the spectrum of meanings that could be conveyed through the spaces, but how the garden is perceived, used, and received on the ground in actuality by each specific neighborhood is beyond the scope of this research. The themes found through MDA could be further refined through future research

---

[8] Chapter 4 has suggestions of targeted policy intervention for steering verge gardening practices.

employing other complementary visual methods, such as sensory ethnography (Pink, 2012), which is able to provide an account of a space's representation from the perspective of its user.  Future work that incorporated this vantage point would allow for a fuller picture of the *representation* layer of public pedagogy from both lenses of the garden as a 'spatial text', as well as the garden as experienced while 'in-use'.

# CHAPTER 4: Pedagogies for Urban Food System Transition:

## The Case of Verge Gardens and their New Urban Food Imaginaries

**Abstract**

Though planners have been engaged with encouraging urban agriculture (UA) in more concentrated efforts for especially the last fifteen years (Horst, McClintock, Hoey, 2017), UA remains a low priority for many local governments and residents. In addition to the policy and legal obstacles keeping UA from being a central concern for cities, cultural expectations for the urban food system are a major factor. Though UA is touted for its multifaceted contributions to urban ecology, food security, and resilience (Orsini et al., 2014; Barthel, Folke, Colding, 2010; Zezza & Tasciotti, 2010), it is simultaneously often seen as a regressive, unaesthetic, or only a temporary land placeholder (Specht et. al 2016; Horst, McClintock, Hoey, 2017). These disparate responses highlight the agency of UA spaces to either maintain or shift current expectations of the urban food system and UA's role in it. This study examines the public pedagogy of UA spaces with respect to enabling certain social practices and practice-associated learning, and how that pedagogy influences the urban food imaginary— the spatial and material expectations of 'how food is done' in the city. I explore the case of edible verge gardens in Sydney, Australia as a case study, in terms of how the gardens, through the various pedagogies related to emergent social practices potentially shift the urban food imaginary. Data for this study includes 29 in-depth interviews with verge gardeners, local council staff, food movement leaders, and residents; four months of diary entries by four best-case verge garden owners,

photographs of more than hundred gardens, and field observations. It was determined

that within the 'higher quality' gardens—those that displayed adequate levels of aesthetics,

production, and community use—exerted influence on the urban food imaginary through

re-envisioning the streetscape, normalizing new footpath-based food practices, and

stimulating technical adaptions and policies for footpath gardening. I conclude by

offering suggestions for policy intervention that focus on the recrafting elements of the

verge gardening practice as to stimulate the proliferation of 'higher quality' gardens.


## 4.1 INTRODUCTION

The struggle of cities to embed its food systems in place and locality because of its

"multifunctional" associations with environmental sustainability, public health and

nutrition, community resilience, and social justice, is a multilayered conflict of competing

agendas and urban visions propelled by differing narratives and values (Morgan, 2015, p.

1379). Urban agriculture (UA) spaces, broadly referring to the various spaces of 'local

food' movement activity in the city involved in any stage of the food life cycle

(production, processing, preparation, eating, disposal), play a central role in revitalizing a

city's food system because of its contributions to number of areas, including ecosystem

services and biodiversity, (Lin, Philpott, Jha, 2015; Orsini et al., 2014; Barthel, Folke,

Colding, 2010), community food security (Zezza & Tasciotti, 2010), resilience (Barthel,

Parker, Ernstson, 2015), and food justice (Horst, McClintock, & Hoey, 2017). Planning, at

times, supports UA efforts through activities such as including UA policies within city

comprehensive or food plans, updating zoning to allow agricultural activities, offering

economic incentives for UA, and providing staff and funding support for UA (Horst, McClintock, & Hoey, 2017).  UA, however, continues to be a source of contention for cities with residents, key stakeholders, and local governments often viewing UA as unsuitable for cities because of rural and unaesthetic connotations (Sprecht et. al 2016; Colasanti, Hamm, and Litjen, 2012), concerns over health and safety issues (Voigt, 2011), or perception of not being only for social purposes (Senye-Mengual et al., 2016).  Because UA, especially UA that benefits all social and economic groups, tends to not be a central concern for cities, Horst, McClintock, & Hoey (2017) advise planners to "embed UA into long-term planning efforts so that urban agriculture is viewed as a priority, nor just a place-holder for future developments on the land" (p. 278).  UA spaces often lack land tenure, with its users not possessing any ownership rights, and are often viewed are temporary structures which reinforce their notion of not being an important and legitimate urban form.

One approach to understanding this struggle of UA becoming a legitimate dominant form and structure for cities comes from the interdisciplinary field of sustainability transitions which examines the incorporation of environmental sustainability into societies.  From this perspective, UA spaces are framed as a niche space with emergent activities that have a range of dynamics that determine their stabilization within a society. The two dominant paradigms within this literature, multilevel perspective (MLP) and social practice theory (SPT), are both useful for understanding the 'structuration' of how practices associated with UA change and stabilize. MLP emphasizes the 'vertical' structures and trends (i.e. policy, infrastructure, sociocultural demographics, and etc.) that

influence the stabilization of niche spaces. Within this framework, niche spaces come up against the obduracy of existing 'regimes' ("established practices and associated rules that stabilize existing systems") (Geels 2011, p. 26). For example, the practice of fresh vegetable shopping for low-income residents may be hindered by current industrial food regimes which tend to avoid placing local food retailers in poorer areas in the city (Cohen & Ilieva 2015).

Sustainable transitions frameworks are still a nascent approach to understanding food systems issues. Within this literature, studies have prioritized examining the practice and practice dynamics associated with UA, such as farmers market shopping using government food subsidies (Cohen & Ilieva, 2015), the acceptance of new food policy initiatives by schools and non-profit institutions (Pitt & Jones, 2016), and the domains of everyday food consumption (Spaargaren, 2011). What has been undertheorized are the various dynamics that support UA spaces, themselves, in becoming stabilized entities within a city; as well as the vital role of the UA space, itself, to enable various everyday practices related to food. A better understanding of these processes of stabilization is necessary for UA to become a long-term entity in cities. At the present, UA's frequent lack of tenure often results in gardens and farms being destroyed when future uses come into play (Horst, McClintock, & Hoey, 2017).

This research attends to this theoretical gap by considering UA spaces as pedagogical entities that nurture a range of social practices around food, while simultaneously nurturing cultural legitimacy for itself through shifting dominant spatial and material expectations of the urban food system—the urban food imaginary. My use of

the term, pedagogy refers to the multitude in/formal learning forms situated in practices associated with the UA spaces (i.e. gardening, cooking, socializing, and etc.) which assumes the process of learning to be "cumulative, a continuous but uneven set of routines and recalibrations" (Watkins, Noble, Driscoll, 2015, p. 13). This notion of pedagogy also presumes that discourse and values are mediated through everyday situated interactions with the UA spaces (Tavin, 2003; Duttman, 2002). UA projects typically stress the return to growing, preparing, and eating of fresh and local produce, while other spaces promote the renewal of region-specific and/or indigenous food practices, such as growing indigenous varieties of vegetables or keeping native bees. In these various UA spaces, not only do heritage foods, but also different food practices, meanings, and values enter the urban food system ethos.

Recasting the dynamics of the urban food system as flows of pedagogies and learning has at least two important implications. It brings attention to the educational processes of specific UA spaces and their role in encouraging food systems change, and also provides an additional frame for understanding the socio-technical journey of emergent UA spaces becoming stabilized within a given locality (Geels 2011, Sengers 2016). It follows that planners and policymakers, through observing the pedagogical flows of a given emergent UA space, through policy, programmatic, and planning interventions, can nurture the societal acceptance and proliferation of the spaces. Both of these implications suggest that the urban food policy, UA space, and other factors traditionally focused on in food systems literature (i.e. supply chains, food hubs, and etc.) is not entirely sufficient for understanding the dynamics of urban food systems

144

change.  The flows of pedagogy within these elements that culminate in social and cultural preferences and expectations surrounding the urban food system is a key, yet overlooked dimension of urban food systems change.

In order to better grasp of how UA spaces might act as 'public pedagogy' to contribute to changes in the urban food imaginaries, via enabling learning associated with social practices, this research examines the case study of the edible verge gardens in Sydney, Australia.  As one of the more overlooked forms of UA perhaps because of their small size and emergent status, verge gardens, which are also called nature strip, footpath, sidewalk, or road gardens are resident-cultivated plots of vegetables, herbs, and/or fruit trees planted in the interstitial spaces in and around the footpath and street.  The gardens are a compelling case because of their unique placement in or around the footpath, which is at the nexus of public and private; and personal and community space, and further complicated by the tensions between grassroots food movement that endear them as symbolic of change and local council policies which often lean towards their prohibition.  It follows that the verge gardens represent both the tremendous potential for urban footpaths to be transformed for agricultural use, if scaled up at a city-wide level, as well as for the great disruption that such prospect brings because of their interference with the more conventional uses of the footpath and nature strip (i.e. pedestrian transport, trash bin pickup, street aesthetics, and etc.) *and* cultural notions of how footpaths should be used.

My central questions are: (1) How do the verge gardens act as public pedagogy with regards to influencing social practices related to food for the surrounding locale?; and

(2) What is the role of the public pedagogy of the verge gardens in influencing the urban food imaginary?  Utilizing a blend of grounded theory and case study approaches, my emphasis in this study is on generating and refining theories of sustainability transitions; and considering examining the verge gardens in Sydney as an "instrumental case" (Stake 1995) to illuminate the relationships between pedagogy and social practice within emergent UA spaces in their stabilization journeys. In order to answer these questions, I undertook fieldwork in Sydney which consisted of walking ethnography, participants observation, and interviews.  Walking ethnography, as prescribed by Yi'En (2013), focuses on the details of urban life that can be gleaned through the embodied, and sense-engaging practice of leisurely wandering around a city.  Through taking the time to understand the mundane nuances of the neighborhoods and urban streetscape that the verge gardens were situated in through walking, making observations, and taking photograph, I could better understand the sensate experience of pedestrians encountering the gardens on an everyday level.  Primary data for this study includes 29 semi-structured in-depth interviews with ten verge gardeners (some interviewed two or three times for clarify interview themes), six local council staff from four different councils overseeing verge garden-related policy and programming or sustainability initiatives, three prominent local food movement leaders, and three residents with interest in the gardens; four months of diary-keeping by gardeners of four best-case verge gardens observing details about community interactions and usage, field observations and notes, photographs of more than hundred verge gardens during both the summer and winter months (as to observe the contrast of production/abundance).

Secondary data has also been collected in the form of three petitions and included comments by residents that were created when conflict with council or other residents arose around two of the best-case gardens, and social media posts connected with the gardens. Both participants and individual verge gardens were located through professional networks, local council contacts, and personal referral. Some verge gardens were discovered randomly during the periods of walking ethnography.

The purpose of the interviews with was to understand the overall life around the gardens (history, perception, usage, and issues) and learning associated with them. An interview guide was created that focused on general questions about garden usage and meanings (see Appendix A). In the course of conducting interviews, though questions from that guide were utilized, interviews were intentionally kept open-ended to allow flexibility and spontaneity in order to capture a wider range of responses. The interviews were recorded and transcribed. From the group of interviewees, five primary owners of best-case gardens were asked to take part in the diary-keeping exercise and four agreed to participate. These participants were given a diary kit which included open-ended prompts (see Appendix C) that encouraged reflection and observation regarding the overall use of their verge garden and notebook with participants given the option of writing reflections using the notebook or electronically.

Diary-keeping was chosen as an additional form of data collection for a number of reasons. First, it encouraged verge garden owners to consider the community usage of their garden more consciously over an extended period of time rather than for the short duration of the interview which might generate a richer picture of the garden's meaning

147

and use in the community.  Second, because this research sought to understand the

formation of emergent practices at the everyday, mundane, and inconspicous level, the

diary provided an additional, and arguably more personal lens beyond interviews and

direct observation for uncovering both practices and motivations and meanings that

surround those practices (Sofoulis, 2005).  Participants were provided with writing

prompts centered on the themes of neighborhood mapping, education, garden design and

neighborhood perception, household usage, community usage, environmental impact,

and food traditions as a means of stimulating reflection.   These themes were chosen

because of their resonance with research objectives, provision of a broad entry point for

the participants to engage in reflective writing, and potential for an in-depth and multi-

dimensional understanding of the life of the garden in the neighborhood, especially in

fostering social practices around food (Sofoulis, 2005).  Diaries were collected after the

four-month period was finished and themes that arose in the diary entries were clarified

through additional interviews with the participants.

Interviews transcripts and diaries were first initially coded line-by-line with subcodes

that aligned with the broad categories of "pedagogy", "multi-level perspective", and "social

practice theory", reflecting the theoretical frameworks considered in this study.  Those

subcodes were refined and re-coded repeatedly and iteratively until specific subthemes

emerged.  Lastly, two conceptual models were developed in order to understand the

intricate relationships between the uncovered themes with regards to the gardens and the

possibility for policy intervention.  Through the triangulation of the various data sources

(Cohen, Manion, and Keith, 2013), a fuller picture of the verge gardens can be ascertained

in relation to my research themes.   The variety of data sources together was found to sufficiently provide a sense of understanding of the research themes in question, as well as provide a voice to the community that has formed around the gardens.

In the course of the fieldwork for this study, it was found that many of the more than hundred gardens surveyed for this project were of poor quality, by which I mean that little attention is given to either aesthetics, production, and/or community use.  Most gardens appeared to be haphazardly constructed, seemingly the result of a whim or experiment and meant only for the short-term.  In fact, some of the gardens that were observed at the beginning of fieldwork became abandoned and/or primarily attracted litter when visited at a later point.  As poor-quality verge gardens have little transformative agency, I focus primarily on the data around the higher quality gardens found during fieldwork, including but not limited to the five best-case practice gardens.  By "higher quality", I mean that the gardens exhibited sufficient degree of attention to either aesthetics, production, and/or community use.  In short, higher quality gardens appeared to receive care, while lower-quality gardens appeared neglected or abandoned.

I focus on the higher quality verge gardens in order to understand the gardens' educational potential as a UA form—in other words, what education around food is possible if sufficient detail is given to their construction and design? This chapter is organized into four sections.  In section two, I will review the three theoretical frameworks of public pedagogy, sustainable transitions, and urban food imaginaries that situate this research.  In section three, I will discuss the main themes uncovered primarily through the interviews and diary-writing data.  Specifically, I briefly explore how public pedagogy's

"public" was found to mean accessibility, visibility, and influence in relation to the verge gardens; and proceed to identify two types of pedagogies that emerged from data around the higher quality gardens that I designate as *place and network pedagogies*. Finally, in section four, I synthesize the findings through two conceptual models.  The first model articulates the multi-layered fashion that verge gardens act as public pedagogy and its relationship to new urban food imaginaries; and the second model illustrates how the niche space of verge gardens can be potentially stabilized through policy that more precisely targets the practice dynamics of verge gardening.

## 4.2 THEORETICAL FRAMEWORKS: PUBLIC PEDAGOGY, SUSTAINABLE TRANSITIONS, AND URBAN FOOD IMAGINARIES

Public pedagogy is an emergent construct within education studies that explores how everydady spaces, such as museums, supermarkets, zoos, and restaurants act pedagogically to transmit knowledge and values (Sandin, Burdick, & O'Malley, 2011). The construct of public pedagogy is helpful for directing awareness to the notion that the mundane sites of everyday life are, in fact, educational as a result of how they are designed and represented, as well as through the activity occurring in and through them.  It follows from the public pedagogy lens that any given UA space can be unpacked in terms its underlying learning processes.

This conception of pedagogy emphasizes the agency of informal spaces through its synergy of design elements and activity to afford learning.  This articulation is consistent with Giroux's broad understanding of pedagogy (2003) as "a referent for analyzing how

knowledge, values, desire, and social relations are constructed, taken up and implicated in relations of power in the interaction among cultural texts, institutional forms, authorities, and audiences" (p. 83) but stresses a space's ensemble of features (i.e. design, artifacts, activity, people, etc.) generating agency to impart knowledge, discourses, and values.  My preoccupation with pedagogy, again, is situated in how food-oriented spaces are places of incidental (and sometimes structured) learning. This understanding of pedagogy also aligns with the literature on "cultural pedagogies" (Watkins, Noble, and Driscoll, 2015; Noble, 2015) which preferences the learning processes implicit in "semiotic and material practices and subjectivities of everyday life" in that I am seeking to understand how the edible verge gardens enable learning associated with everyday social practices around food.

To consider how public pedagogy of UA spaces might relate to social practices around food, I draw on the field of sustainability transitions which focuses on the various dynamics and processes that lead societies towards environmental sustainability.  Two approaches dominate this field of study: the multi-level perspective (MLP) and social practice theory (SPT).  MLP analyzes the various synergies between the levels of *niches*, which are emergent innovations such as solar power, green roofs, or autonomous cars; *regimes*, which are "established practices and associated rules that stabilize existing systems"; and *landscape* which represents the larger environmental, social, political, and cultural trends (Geels 2011, p. 26).  MLP focuses on the interactions between three distinct hierarchical levels: *niches* (specific emergent innovations), socio-technical *regimes* ("established practices and associated rules that stabilize existing systems"), *landscape*

(macro-level external pressures) (Geels 2011, p. 26). Studies utilizing MLP typically

describe the interplay between each of the three levels to generate a sociotechnical

transition. This framework tracks how regimes shift as a result of changes in society,

culture, and infrastructure through pressures by the niche and landscape levels.  Regime

changes are thus the culmination of the complex interplay between the three

levels.  Hinrichs (2014) provides the UA example of food hubs being a niche space having

to interact with the current regime of "business regulations and codes, food safety law,

existing transport and logistics infrastructure, or business networks" as well as various

landscape pressures that include climate change and public sentiment for food

sustainability (p. 149).  These dynamics may eventuate in the stabilization of food hubs (in

an updated sustainable food regime) or their disappearance when the hubs do not

smoothly integrate with current regime dynamics.  In addition to focusing on the interplay

of the three levels, MLP stresses the possibilities of nurturing niche spaces until they result

in regime shifts by focusing on areas such as policy, technological infrastructure, and

cultural attitudes (Hargreaves, Longhurst, Seyfang, 2013, p. 404).  Whereas MLP centers

on the overall structuration of change, SPT targets the emergence and continuation of

everyday social practices as they relate to sustainability.  Because social practices are

activities that aligns with social expectations—as mundane as dishwashing, cooking, and

driving to work— they have environmental salience in that they are replicated on a

massive scale of a given culture (Kennedy et al., 2016, p. 10).  As with MLP, the focus is

not on the individual's individual sustainable behavior but instead of MLP's articulation of

the relationships of niche, regime, and landscape, SPT examines the dynamics of social

152

practices formation.  This is accomplished through observing the synergies between the three elements of "Stuff" (technologies, materials, and artifacts needed for the practice), "Skill" (competencies required to enter in the practice), and "Image" (social meanings derived from the practice) (Shove, Pantzer, and Watson, 2012).  For clarity's sake, I will refer to this triad using "Materials, "Competence", and "Meanings", instead of "Stuff, "Skill", and "Image".  It is through the interaction between these three elements that any social practice emerges, persists, or declines.  This provides a framework for examining any food practice associated with individuals, households, or retail and any stages related to the food cycle (production, provision, preparation, and etc.) as well as when "bundles of practice"—when different practices are related to each other across different domains such as the home and supermarket (Hinrichs 2014; Schatzki, 2011).  In this way, SPT and MLP are regarded as the horizontal and vertical dimensions of systems change, respectively.

Sustainability transition theories provide an analytical lens to understand the public pedagogy of UA spaces in relation to social practice.   Whereas the public pedagogy construct serves to highlights the educative potential and agency that a given UA space has to transmit knowledge and values around food, the sustainability transitions lens brings into focus the extent in which a space's educational processes are either situated in everyday practices and/or influence shifts of everyday practices; as well as how the space's educational processes are shaped by the niche, regime, and landscape dynamics.  In this way, the conceptual links pedagogy and food systems change, as articulated by SPT and MLP, are able to be explored.

With regards to food systems change, this study is concerned with the formation

and evolution of the *urban food imaginary*, which I define as the expectations of the

spatialities and materialities of the food system and its activities (food production,

procurement, processing, exchange, preparation, eating, disposal, and etc.). Social

imaginaries, or "common understanding[s] that makes possible common practices and a

widely shared sense of legitimacy" serve to define what is considered normal and socially-

sanctioned behavior (Taylor 2002, p. 106). Urban food systems are in constant flux as

new spaces and practices emerge, normalize, and disappear. What at first is viewed as

unusual or innovative at the moment, such as rooftop gardens or food waste recovery

supermarkets, may later be entrenched into the foods system landscape. Urban food

imaginaries thus can influence food system shifts towards a certain direction. For

example, the organic food movement birthed in the 1970s in the West Coast United States

might have been perceived as radical, bohemian, and political at the start has since

gained traction especially over the last decades to the extent that it is no longer considered

'fringe' behavior to purchase organic produce or participate in community gardening

(whereas it may still be viewed as peculiar in some developing countries, for example). In

this way, urban food imaginaries guide not only the envisionment of the future food

system, but moreover what spaces, practices, foods, and behaviors are considered as

socially legitimate. UA spaces, in particular, because of they are still somewhat an

uncommon feature of the cityscape can be perceived as simultaneously trendy or

unfashionable; and innovative or regressive depending upon one's positionality; urban

food imaginaries have the potential to both encourage or discourage the proliferation of UA.

Urban food imaginary can be theorized as having three conceptual layers of spaces, practices, and material/technological infrastructure, drawing on the notion of "sociotechnical imaginary" which stresses the imagined social life of the future as mediated through emerging science and technology infrastructure (Jasanoff and Kim, 2009). Through the urban food imaginary, spaces and places are re-envisioned (Hodson and Marvin, 2009; Pont and Birch 2014); new or renewed food practices are legitimized (Taylor, 2002); and technological and material infrastructure is updated. The updating of infrastructure includes the introduction or adaption of food-related urban policy and programming, the development of technological innovations that allow new forms and methods of UA, and the reconfiguring of the material food/urbanscape. The three layers of the urban food imaginary act in concert to remake the city food system. Urban food imaginaries shift as spaces, practices and supporting infrastructures around food evolve in the city. This study is concerned about the role UA spaces have through their public pedagogy in influencing social practices related to food; and in doing so, contributing to this movement of the urban food imaginary.

This research builds on theorization found in a number of literature areas, including the pedagogical influence of community gardens on neighborhoods and visitors (Walter, 2013; Bendt, 2013; Lopes and Schumack, 2012); the sustainability transitions perspective of food systems (Cohen 2015; Hinrichs 2014; Oosterveer and Spaargaren, 2012; Spaargaren, Oosterver, and Loeber, 2012); and the role of

sociotechnical imaginaries in sustainability transitions (Sengers, 2016; Jasanoff and Kim, 2009; Geels and Verhees, 2011).  This study brings together and extends these perspectives by developing the conceptual links between UA spaces, education, and social practices, and the urban food imaginary.  In doing so, this research the overlooked role of education in all of its formal and unstructured forms in precipitating food systems change.

## 4.3 PUBLIC PEDAGOGIES OF VERGE GARDEN SPACES

Three major themes related to public pedagogy emerged from the analysis of the various data forms considered for this study.  First, the concept of "public" in relation to the "public pedagogy" of the edible verge gardens was found to be related to themes of accessibility, visibility and influence.  Second, the verge gardens were found to be associated with as *place pedagogies* or learning situated or related to social practices that emerged in and around the garden. Third, the spaces were linked with *network pedagogies* which are learning process taking place through the social practices that embed a space in networks of local spaces and actors.  In the following sections, I describe in further detail about the substance of these three themes.

### 4.3.1 Publicness of Pedagogies

This section describes the three overlapping themes of *accessibility, visibility*, and *influence* that emerged from that data that unpacked the notion of "publicness" within "public pedagogy" in relation to verge gardens. The first two themes relate to place

pedagogies in that accessibility and visibility are directly related to a specific garden's

spatial design and affordance for social practices. The last theme is associated with

network pedagogies due to its emphasis on a verge garden's reach beyond its actual

space.

Firstly, publicness with the verge gardens means *accessibility*.  Because verge

gardens are located in the common footpath, urban residents are able to witness

agricultural processes that unfold over time. Through brief encounters with the gardens,

passerby are afforded with the experience of seeing incremental change of the plants

throughout the seasons.  Even for people who might not take part in gardening, there is a

subtle education that takes place.  The food activist articulates this in this statement:

> *So there's this wonderful educational potential that just as slow drip, every day.  It's almost like the equivalent of biomagnification, we can blare and magnify the importance of biology and horticulture and food by drip-feeding exposure to it every day on a verge garden.  Because people watch it and see it grow, and see it go into flower. They see it grow.  They see it go into flower.  They see the flower become a fruit.  They pick the fruit.  So, for me, that's the most important thing because for alot of people in the city, they would never make it even to the city limits to see a farm.  So, it's the most day to day, easily accessible opportunity to expose people to the cycle and seasons.*

This high degree of accessibility distinguishes verge gardens from other UA spaces.

Accessibility refers not only being able to easily observe the garden, but also enter into

any one of the practices associated with them.  As another gardener, commented, the

verge garden is "a public garden" where "everyone's welcome".  The extreme publicness

of the verge garden was illustrated mid-interview at a different garden as a council staff

witnessed someone foraging:

*See that lady help herself? She just walked past and took a few little
herbs.  I think you know, [the gardeners] need to be up for that, people will help
themselves.  You just hope that they just don't take everything.  It's a risk
though because it's out on the public space and you can't sort of say, "Oh, it's
mine, and you can't have any", that's not going to work.*

 The notion that verge gardens were publicly accessible to all the passerby was implicitly

understood by all those involved with the gardens.  This accessibility enables the passerby

to be influenced through the easy entrance into any of the aforementioned social practices

associated with the gardens.

Secondly, publicness is also expressed by *visibility* which refers to the amount of

foot traffic and ease of being noticed by pedestrians. Some gardens, due to their proximity

to flows of foot traffic, are more visible, and therefore attracted more usage.  For example,

a verge garden in a North Sydney residential area was set near a footpath that received

regular pedestrian traffic to nearby shops.  Its owner mentioned that the garden's position

on a busy footpath contributes to more frequent social interaction to the degree of "three

conversations on most days just when...leaving the house...or coming back," compared to

gardens that lie on footpaths with less foot traffic.  Another participant who started a verge

garden at the entrance to a cul-de-sac observed that because of its busier location she has

been able to meet more people, and mentioned, "*if it was at the other end of the lane, [I

wonder] how many people…would know about it?*" Also, visibility is linked to the

inclusion of stylized features such as bright colored elements, seating, and signage.  The

verge gardens in the Chippendale area of Sydney have containers painted "*very bright

safety yellow*", which was appreciated by the council because of its high visibility.  As one

staff mentioned, "*if your sight is not so good or if you walk through there at night, you're*

158

*not going to collide with them.*"  Signage was also a crucial part of the verge garden's

visibility as it works, as participants expressed, "to direct perception", provide

"communication", and "transform how people experience [the gardens]". In addition to

signage, an array of random objects included with various gardens, such as seating,

scissors (for harvesting), a book sharing cabinet, water fountain, watering tank, black and

yellow barricade tape, and compost bins, create a more visible composition that is more

likely noticed by those passing by.  Lastly, numerous participants pointed out that verge

gardens were typically more visible to children and their caregivers due to their usual

lower positioning ("they notice it more—it's at their level, right?"), stylized characteristics

("children love the flowers because its colorful and pops out a bit"), and potential for food

education *("[parents that I met] were very keen for their child to learn where food comes*

*from; that is, not just from the supermarket!")*. One gardener mentioned frequent

visitations by children and their grandparents:

> *…the guy who lives at the end of the street on the corner, he always used to*
> *bring his grandchildren down here.  You know so we would get chatting to him*
> *cuz he would come down and they would want to see what had grown you*
> *know from last time and it must have been probably three sets of different you*
> *know grandparents and grandchildren cuz I must have had that same*
> *conversation with at least 3 different [times].*

Participants associated with multiple verge gardens confirmed that the gardens were most

popular children and their caregivers.  Overall, a verge garden's publicness was found to

be directly related to its visibility.  Gardens without stylized features or on footpath with

little foot traffic, though are in the public space, were considerably less "public" in this

sense, than gardens with these features.

Lastly, publicness is related to a verge garden's *influence*.  As one verge garden owner observed, verge gardens can wield influence that is "far and wide".  This particular owner did not realize the extent their garden was appreciated by the neighborhood until an owner of a property next door (living in a distant suburb) who wanted it removed by the local council.  The garden owners launched a paper and online petition which had *"over 900 signatures"*.  The owners commented that there were "*people writing to us, physical letters, and attaching them and saying you know, how they love the garden and how it's astounding how even somebody would think of removing it."*  In the petitions, people living near and far from the garden wrote a range of positive comments about the garden, such as, *"This is a fabulous community initiative – it makes my heart sing each day I walk past (and I don't know the garden's makers but adore their effort)."*  This incident demonstrates that verge gardens not only potentially have a "catchment area" of users that reaches far beyond an immediate street, but also a public life more than what is even known by its owners. One owner of a verge garden was surprised to find out that knowledge of their garden had spread to another suburb over two miles away. As she recounts, "…*someone will say to me oh, I went to a dinner party in Mosman and the people there were saying there's this fabulous verge garden in Cammeray, you know [laugh]."*  Another garden owner expressed knowing some of the garden's usage by residents, but confessed that *"there's a lot of things…going on without my knowledge."*  Owners and other users of the garden typically only see glimpses of the unfolding life of the garden and may not know the extent of its influence.  Through identifying "influence" as one of the dimensions of a garden's publicness draws attention to the notion that

different gardens will wield different degrees of influence (or agency) depending upon the extensiveness of its network and the accompanying discourse and narrative that is produced.

**4.3.2 Place Pedagogies**

Place pedagogies refers to the various learning processes that are situated within the social practices themselves. It is through this set of pedagogies, that the verge garden forms an identity as a distinct place in the streetscape, and moves beyond simply being an urban street experiment or transient political expression. Through these pedagogies, the garden moves from only being a part of the streetscape to becoming a meaning-making entity having its own clear identity through the generation of social practices. The gardens become a community food space that is embedded in the social life of the community.

Social practices form the basis for place pedagogies, in that through the practices, a range of learning processes occur. Various knowledge, skills, and competencies are incrementally acquired through entering into these social practices which can involve any number of processes such as observation, micro/actions, imitation (and modeling), conversation, collaboration, and negotiation. This sort of tacit learning, depending on the degree of structure, can at times be characterized as "situated learning" in that the process of learning is not centered on participating in a community of practice rather than the abilities of the individual learner (Lave, 1991) and at other moments as "cultural pedagogies" because the learning is set in the informal flow of everyday life (Watkins, Noble, and Driscoll, 2015; Noble, 2015). Place pedagogies were found to have two

161

outcomes.  First, place pedagogies acted to form a place-identity for the verge gardens as a community food place.  As mentioned above, through place pedagogies, the verge garden develops its own ontology as a place in the streetscape.  As the verge garden allows certain food-oriented social practices to emerge over time, it becomes a legitimate community food space for the surrounding neighborhood.  Second, through place pedagogies, garden users gained an immersive food education through which they developed literacy in not only the cultivation and usage of edible plants but also their connection to the urban ecology. Gardeners clearly considered their garden spaces as educational in that it not only taught about "where food comes from" but also being "aware of the natural environment".  In other words, gardening practice was viewed as more than simply food production, but rather as an opportunity for environmental stewardship which enabled on-the-ground engagement with concerns as biodiversity, urban green space, foodwaste, human-nature interaction, and soil health.

Place pedagogies were situated in three types of social practices were associated with the higher quality verge gardens: visiting and observing; food cycle activities, and sharing rituals.  There are obvious overlaps between the categories. Sometimes specific practices in one area were closely relates to other practices in another area (i.e. beekeeping and gardening); or a single practice being able to fit into multiple areas (i.e. composting).  Nonetheless, there was enough distinction with area to merit such classification.

***Visiting and Observing***

The first type of social practice revolves around visiting and observing the gardens. After the gardens become established, they become a noticeable part of the streetscape. Compared to most edible verge gardens in Sydney that are easily overlooked because they are either diminutive, overgrown/barren, and/or haphazard in appearance, the five best case gardens are quite prominent because of either their significant size, pleasing aesthetics, and/or appearance exhibiting a high degree of care. As one resident commented about their neighbor's verge garden down the street, *"Everybody stops. Everybody stops and looks"*. The emphasis in this statement was on how this particular verge garden is so striking and visually appealing, that passerby cannot help but take a look.

This practice is naturally dependent upon the degree of foot traffic near the verge garden which is often tied to daily commutes to public transportation or shopping errands. One verge gardener mentioned that it's the people *"on foot...walking around things [who] see things so much more"* that end up participating in their garden, rather than those who drive. Another gardener mentioned they often receive *"positive comments"*, especially those who *"brush past the lemon verbana each morning on the way to work, and by the lavender."* A third garden also observed that visitors to the garden are often there, *"because they've walking up to the school [or] shops."* In one of the more frequented verge gardens, its owners mention that

> *On a weekend, we won't go 10 minutes without someone saying 'Hi, garden looks great", stuff like that... And we're out working the front, so yeah, its had a very positive [effect], particularly because since people are walking to and from the station, they experience it twice a day so.*

163

Each verge garden will thus have its own unique "catchment area" made up of varying

numbers and types of pedestrians, representative of the flows of sidewalk traffic of the

given area.

For some of these pedestrians, the garden is imbued with meanings of calm and

healing, rather than the more functional meanings of food production or environmental

sustainability.  One working professional female is mentioned to have stopped by the

garden frequently as part of her journey out of depression:

> *This woman stops and says I was a professional woman, I had a mental*
> *breakdown.  For two years, I wouldn't leave my room, in her apartment.*
> *And then she got the courage with her little dog to come out and walk,*
> *and this was a key point in the garden of her restoration.*
> *She would walk past it and say, wow, its growing, this is happening, and*
> *that's happening and it was part of her mental health recovery.  [she lives]*
> *kind of in the next lane.  And a number of people have said something*
> *similar.  Hers was the most powerful message, but yeah, she said, but*
> *other people have said, look, it brings joy to my heart, I feel*
> *uplifted overtime I walk past.*

This story was corroborated by this individual's own note expressing the garden's value

which was part of a neighborhood petition defending it against a request made for its

removal by the adjacent property owner: "the garden gave me hope, and now I walk daily

just to see what is growing! This has helped me heal."  While this individual's case is

dramatic, others in the neighborhood similarly visit the garden to experience mental

rest.  The owners describe this dynamic, especially as the garden was under the threat of

removal:

> *The other thing that happens with the verge garden is that people come to it*
> *when they're wanting a quiet space.  That happened more than I originally*
> *thought.  ...up the road, when [our neighbor] was pregnant with her 3rd child*
> *and she's got two other little children when she just wanted to have a place*
> *where to get away from it, she would just wander up here, and be in that*

*space. And that would sort of calm her down and she'd be able to go back. And there's quite alot of people that do that. They just come and wander up here. They just have a little calm and quiet think, being in that space. It almost has the role of a small park, in that way. It does that for people. Which was why people were really alarmed with it going. Cuz its taking away that special place for them.*

The gardens provide not only mental rest, as reflected in those comments, but also, in some cases, physical rest. Another best-case verge garden features a wooden bench that has been placed by the owner for those wishing to sit by the garden. The owner comments,

*People sit [on the bench] all the time. Particularly, there's a lady, now I've got to know her, she's [my neighbor] down the road and she's got a heart condition and I'd see her, she'd come and sit on the sort of the fence to have a break when she's coming back with her vegetables, coming back from her shopping so used to sit on the bricks and things, and now she has a rest there on that set.*

For this subset of visitors, the garden functions as a place of respite during the course of one's day. Though this group may not engage in the garden through directly gardening or foraging, there are still far-reaching mental health benefits. This is not structured education in the sense of knowledge and skill transmission, but more so reminiscent of Ellsworth's affective theorization of public pedagogy which emphasizes immersive experiences connect to one's inner life and lead to changed identities (2005).

For another subset of people, the garden serves as simply a place to stop by and visit as it has become a legitimate place in the streetscape that is associated with meanings as community spirit, beauty, or nature. This group of people is reflected in these verge garden owner's comments:

*Saturday, we were working on the garden and a young woman comes by with a little boy, and we've seen her before a few times, she's new to*

> *town.  She's moved to M. which is a very, very long way away.  Whenever she comes up to visit her parents, just to live in this area, she always come by and the little boy asks to come to look at the 'ladybird garden' which is really lovely and we sort of give her tips and kind of exchange news, and it gives her a chance to catch up with the other people on the street too because he used to go to kindergarten with some of the kids here as well.*

This sentiment is also seen in another best-case verge garden, whose owner also notes that her garden has also become a place to visit for people in the neighborhood:

> *But also, people like to show them off so you'll have someone down there and she's got a friend over for coffee so they walk up the road to go have a coffee up here and then they walk back and they'll stop at the herbs and they talk about the herbs and how it works and then even if there's no children in sight, the person has explained to them how the watering cans work and how this works and how that works.*

In this particular garden, watering pitchers have been set up by the owners for the community, especially children, to use freely.  Their garden receives such heavy use that it developed to be a casual pedestrian meeting spot, or

> a nice focal point... because people also bump into each other there if people are walking in both directions and they stop to say hello, they always stop there while waterings going on.

> This practice of stopping by and observing is cursory and seemingly

inconsequential, but as these actions are repeated throughout the years by different people, the garden becomes embedded into the streetscape and community.


### *Food Cycle Activities*

A second set of social practices enabled through verge gardens are activities related to the food cycle, especially production, provisioning, preparation, and disposal.  Gardening is naturally the central social practice connected with the spaces. Gardening, however, consists of many micro-practices whose full range was found at the

garden, including soil preparation, planting, watering/irrigating, weeding, mulching

pruning, pest control, fertilizing, harvesting, and seed saving, and transplanting.  Also, a

number of gardening tasks more specific to the sidewalk context were also

discovered.  Because watering taps are sometimes unavailable nearby the sites, gardeners

would resort to building makeshift water reservoirs, bringing filled watering cans

repeatedly to their site, or adding an extension to their hose at their residence.  The close

proximity of vehicular traffic and pollution contributing to soil contamination made soil

testing a popular practice.  The public environment of the sidewalk prompted owners to

create signage expressing their intentions about community use of their gardens.  Some

adaptions were more technical in nature, such as the construction of self-irrigating garden

beds and/or shade cloth to handle the intense summer heat and sunlight; modifying

municipal underground water piping that direct runoff on roofs to allow "leakage" into the

verge gardens; and the usage of bright colored materials for garden containers as to avoid

being a trip hazard.

   For the five best-case gardens, the learning of gardening knowledge and skills

primarily occurred through the garden acting as a demonstration space as gardening tasks

were assumed mostly by the owners, with neighbors assisting with watering or other tasks

when informal "working bees" (community work days) were scheduled or when owners

were away on holidays.   The exception was the single verge garden that featured

community watering cans.  For this garden, watering is almost entirely performed by the

passerby, which most often are children and their parents.  Other than these instances of

community members participating in the gardening duties, gardening education occurred

through the casual conversations that spontaneously happen throughout the course of the

day between the owners and passerby, or between the passerby,

themselves.  Conversations naturally revolved around garden-related areas as plant

identification, growing techniques, cooking advice, and other food knowledge.  As an

example, the following conversation happened with a verge gardener and a neighbor

walking by during the course of an interview:

> *Passerby: Hello..., that looks lovely doesn't it!*
> *Verge Gardener: Yeah it does.  Everything's looking chirpy despite the weather.*
> *Passerby: What are they?*
> *Verge Gardener: That's nasturtium.*
> *Passerby: No, the other one.*
> *Verge Gardener: No, I'm trying to think of the name of it.*
> *Passerby: It's kind of a clover isn't it*
> *Verge Gardener: Yeah it is clover.  The lemongrass is coming back which is good.*
> *Passerby: Yeah very good.  The warm weather's probably brought it on.  Thanks!*
> *Verge Gardner: See you.*

In the course of this spontaneous conversation, which lasted probably lasted less than

fifteen seconds, the identification of the plant, clover, was taught; and the growth of

lemongrass through the warmer spring climate was commented on.

Another verge gardener remarked through the diary-keeping that, *"an afternoon's*

*fertilizing & watering always turns into extended neighborly conversations!",* and

elsewhere gives a more detailed example:

> *While watering the garden on a milder day, [name of neighbors] from across the*
> *road engaged in conversations with [name of neighbor], lasting the whole time it*
> *took to water—conversation ranging from what to plant, how & what to prune,*
> *planned holidays, caring for chickens & rabbits, children back at school after*
> *the holidays & when the next pawpaw will be ripe.*

This conversation shows that a range of gardening knowledge being conveyed to three

neighbors which naturally extended to animal agriculture.  The garden's natural

affordance for informal socializing is also reflected as expressed through the fluidity within "on-site" conversations which, in this case, oscillates between agricultural and personal topics.

The conversations around also sometime extend "off-site".  One verge gardener described the process of teaching their neighbor at their neighbors' house about using worm compost, for creating healthy soil conditions (as is done in their own verge garden):

> *We put aside a bucket of [worm] castings and a bucket of liquid for [our neighbors].*
> *Later that day, I took them over to them and explained where they came from, how they were produced and that we obtain this rich "hummus/compost" and liquid fertilizer from our own worm farms every six months (during the summer, more frequently). [Our neighbor]'s eyes were wide open when I showed him the castings.  I urged them to dig it into part of their vegetable garden & water with 1/2 strength liquid ('worm tea').*

The anecdote shows that learning processes around verge gardening occur in spaces beyond the garden.  This dynamic will be expanded upon later in the chapter.

In addition to food production, food provisioning activities also are a significant aspect of the life of verge gardens.  Two of the best-case gardens supplied fresh produce requirements for their respective households.  Interviews with the three households (ownership of one garden transferred in the duration of the study) confirmed their daily reliance on their verge garden for items such as lettuce, kale, tomatoes, and herbs for meals (i.e. *"We'll go and get something form there most days really."*)  One of the gardens produced an overabundance of items as kale, parsley, basil, tomatoes, and eggplants to the degree that its owners would have to pickle and/or give away the excess produce.  The owner of this garden wrote in their diary:

> *We have not bought leafy greens or herbs for years, because of the garden. Knowing the seasons, we also wait until a particular here will grow on the verge & use it only then. We have not bought summer basil, thyme or sage for years.*

For two owners, their verge gardens functioned as their primary kitchen garden that would supply many of their vegetables and herbs. For the other sets of owners, the three best-case gardens functioned more as community gardens with passerby foraging freely from them.

Multiple data sources confirmed that foraging activity around verge gardens occurs most often during the late afternoon to early evening *"in preparation for the evening meal"* with some people *"knock[ing] on the door [to] ask"* while others simply taking, depending on the garden. The following exchange typifies the foraging occurring around the gardens:

> *The older gentleman on the other side of the lane thought [the verge garden] was a great idea and he said he had cheekily taken some herbs – I welcomed him to do this and explained that is why I put the note [indicating that foraging is welcome] on it. I'm keen people take the herbs when they want as long as they are careful when doing this.*

The foraging often occurs without the owner's knowledge and with some hesitancy, even with the presence of a note encouraging free picking.

Other forms of foraging also became normalized with the verge gardens. One local preschool regularly picks herbs from a nearby verge garden to make teas as part of their food education curriculum. Multiple verge gardeners reported "drive-by" foraging as a frequent occurrence. This phenomenon recounted by gardeners of three different gardens:

> *A man, or a women, quite often a man will drive up in his car, come out and have a look and say, "Oops, I'm supposed to get oregano—which one is*

*that?"  The women will do it as well, they'll actually drive, park, get their herbs, hop in and go again.*

<div align="right">—verge gardener</div>

*People drive up and they jump out of their car and get some sage and they drive off again.  I don't know where they're from [laugh].  A few leaves of sage or, someone pulled up and said they need some mint for one of those drinks, Mojito or whatever.  Just picked some mint and zipped off again.*

<div align="right">—verge gardener</div>

*Just went out to the garden to get some herbs for breakfast, and a guy was riding past on his motorbike, who then stopped to get some mint.  We got chatting and he told me he'd planted something, and asked me if we had possums, as it had been gnawed at.  He then told me he lived around the corner, and came over and watered it with chilli water sometimes etc, etc...just one of those random garden moments...!*

<div align="right">—verge gardener</div>

In the case of drive-by foraging, the verge garden assumes the place of the local supermarket or vegetable stand for quick herb procurement.  This means that some people who were dependent on food retail outlets for specific herbs now procure them from the verge gardens, which is a point that has been repeatedly observed in the data.  For example, one verge gardener wrote in their diary that an "*Asian girl from flats next door picks the lemongrass and thanked me for planting it as it is expensive in the shops and you only need a stick.*"  Lastly, two gardeners mention that chefs regularly utilize their verge garden's herbs to garnish meals at nearby restaurants (one being a well-known restaurant having two Michelin stars).  One of the gardeners did not realize that this practice was occurring until witnessing it firsthand:

*There's a guy I saw picking from it. He pulled a little box of pasta and put it in, and he sort of hid when I came out and I said, 'It's okay, you can…it's alright.'  ...Oh, cuz he had a restaurant, like a vegan restaurant, and he was picking some stuff to put on, like a preparation like with other things and stuff, it's like okay you know, whatever.*

As with the preschool teacher, 'drive-by pickers', and chefs, the presence of a nearby verge garden enables people to embed the practice of foraging within a range of different daily rhythms and applications.

Food provisioning is naturally linked to the practice of cooking as owners and residents will use ingredients from the garden for various meals or drinks. Owners dependent on the garden were found to use it for cooking meals almost daily (i.e. "every night") as well as various pickled items, such as pesto and jams; one household arranged meals based on what garden ingredients were available day-to-day and season-to-season such as "ratatouille" based on eggplants and dills in the garden. As examples of resident cooking afforded through the garden, a preschool owner living near verge gardens mentioned using herbs for *"lemongrass tea"* and *"bolognaise and pasta"* together with classes, with students bringing herbs as "kefir lime" or "lemon grass" back to use at home. Multiple gardens experience residents quickly making a trip to grab herbs to simply garnish their meals. As one resident retells, *"I ran downstairs, I was making a salad, …and I wanted some chives, and they had some chives"*, conveying the garden's convenience for those living nearby.

Lastly, composting activities also are a significant aspect of the life of verge gardens. Three of the best-case gardens received regular inputs of compost made from kitchen and yard scraps. One of which features a rotating composting barrel on the actual site of the verge garden, while another of the gardens was entirely dependent upon the compost as its primary growing medium. Also, another set of verge gardens in the suburb of Chippendale in Sydney has featured various configurations of community composting

172

bins on the public sidewalks to provide compost for their extensive network of verge

gardens, with previous programmatic support from the City of Sydney.

For the owners of the verge garden that relies fully on household compost, the

practice of composting, though happening away from the garden, is considered a vital part

of the gardening:

> *So what happens to food waste? Well, it gets put in a bucket.  When this bucket is full it gets put down there and when there are three buckets, I feed the three worm farms.  So, the 3 worm farms get a bucket of kitchen scraps and then within, depending on the season, 3-6 months later, you've got lovely rich humus which is ready for the garden! And the cycle goes around.  Usually, the kitchen scraps is what's produced in the kitchen.  Leftover parsley, lettuce leaves that aren't much good, etc.  The compost is usually clippings from, like clippings from for example when we're pruning the hedges or repotting the ginger...it goes into the compost.*

While this garden was unusual for its complete reliance on homemade compost for its

soil, there was a general assumption among most of this study's participants that

composting should accompany verge gardening.  Another verge gardener mentioned that

foodwaste composting was a strategic way to involve his neighborhood with his garden:

> *The other thing that's been a very positive element is that cuz I got chickens, the other way I've involved families is that they bring their food scraps and so we got worm farms here and all this is getting cleared.  I've got all this [bucket of food waste] and stuff, and it's going to become a garden.  You can see, I didn't have the bucket out, but families leave their food scraps for the chickens.  And that's a way to get people involved.*

In the case of this garden, composting was handled not only by worm farms, but also

through chickens which processed neighborhood food scraps to be used in the verge

garden.

**Sharing Rituals**

A third set of activities associated with the verge gardens sharing rituals, or a various activities which involve the sharing of time, objects, and relationality, which include conversations, the giving of food/food-related items, and joint participation of garden duties. Though these three types of sharing are separated in the following description, in reality, these rituals were very fluid and often occurred in together, or in concert, across various timeframes.

Verge gardens were found to enable conversations both on and off the footpath. Verge gardens in general, including all the best-case spaces, encouraged conversation and social interaction on and off the footpath. Because of the public character of the footpath and flow of pedestrian traffic, garden owners reported conversations being a daily occurrence. One owner reported that an estimated "*50-100 people walk past everyday and comment on [the garden]*. Another owner similarly noticed conversations occurring "everyday", and mentioning that as the garden is a "focal point" of their street, "people…bump into each other there", often with the significant number of mothers and children stopping and conversing at their garden ("it gets huge"). Conversations would therefore happen between passerby, as well as gardeners and passerby, and would often revolve around both food (i.e. cooking tips, plant identification, gardening advice, etc.) and non-food related everyday topics (holiday plans, family and friends, recent events, etc.). Multiple participants reported that through footpath gardening, new relationships were made (i.e. "*through the garden, we know everyone in the street!)* which naturally

resulting in food and non-food related conversations occurring beyond the footpath. One gardener reflected:

> *I have to say I am immensely antisocial and I didn't know probably 90% of the people that I now know as a result of doing that… So it was actually quite an incredible kind of project, from the perspective of alot of people who had never spoken to each other and like [resident's name], she was lonely…*

The sentiment that verge gardening acting to alleviate social alienation is also shared by numerous council staff. As an example:

> *…in these sort of high density areas, you know, generally these days are sort of disconnected from each other and we found that in doing this… neighbors who wouldn't normally speak to each other start talking to each other, and they get involved.*

In short, footpath gardening is a "very relaxed nonthreatening situation where you walk down the street, you see somebody, you're walking the dog maybe, they're looking after their garden. It gives you an opportunity to stop, pass the time of day with them," as one council staff observed.

Food sharing, whether fresh herbs and vegetables or prepared foods, is also a common activity around the verge gardens, often, "*as a kind of extension of…conversations [around the garden]." For* one neighborhood, in particular, the verge garden formed one node of a very active sharing network which included not only fresh produce, but pickled foods, eggs, and honey. As the verge gardener from that neighborhood commented, "*Food and produce sharing is a way of life here in our neighborhood. Recently we have exchanged produce for honey from local hives.*" A gardener from another neighborhood mentioned a similar dynamic, though more infrequent: "*Every now and then we have done a big pesto run and given it around. I*

*mean with [resident's name], these guys are always freakin' baking cakes and half to us*

*and half to them and all the rest of it."* The sharing happens not through only formal

gifting and exchange, but also as neighbors allow informal access to plants and fruit trees

on their property:

> *So like the neighbors, you were just hand over a handful of parsley. Its like this, help yourself when you want. And our neighbor, though…she does that. So she'll just come and she'll say, we got keys for each other's house and then she said, you know I got friends coming for lunch, I just came and grabbed a lemon. We got a lemon trees and stuff like that, it's nice.*

In this way, the verge gardens either add another layer of informal food sharing already

occurring or enable new food sharing relationships within a neighborhood.

Lastly, the sharing of gardening responsibilities was associated with the verge

gardens. The first form happened through more formally determined neighborhood

gardening days. One council that was very supportive of verge gardens actually

organized "working bees" to launch verge gardens that would be installed, bringing

"gloves" and tools; as well as "tea and coffee, and biscuits as well", with as *twenty*

*people"* participating. Two neighborhoods casually organized community work days,

such as "big planting day[s]", with the assistance of social media-based announcements.

The sharing of garden duties would happen more informally as well. One garden, because

of its inclusion of a water source and watering cans in its space, became entirely

dependent on passerby to water. While this was the exception, for other gardens, duties

were shared mainly when owners asked neighbors to maintain their gardens when away.

For example, one gardener notes in their diary, *"We also told [resident names] - We each*

*of us care for each other's garden & property when one or some of us are away - it is a real*

*element of neighborliness."* The in/formal sharing of gardening responsibilities acted to also deepen community relationships.

### 4.3.3 Network Pedagogies

Network pedagogies are the learning processes occurring through the social practices that embedded the verge garden in networks of local spaces and actors. For the verge gardens, network pedagogies were linked to three different types of sites and its associated social practices: structured education via the garden being used for primary to tertiary-level classes excursions or within classroom materials; media via the garden being featured in news and social media; and community spaces via garden related items (i.e. produce, seedlings, compost, prepared food) being shared at local events and spaces. Through these linkages, discourse of the garden(s) is generated and is circulated beyond its own space. This discourse is initially formed through the gardeners themselves but is then taken up and sometimes reconfigured in the network of spaces and actors. This discourse confers various meanings to the verge garden which are spread well beyond the immediate surrounding neighborhood. The space-specific learning that is afforded through these linkages have two outcomes. First, discourses about the space generated and are circulated even beyond its own space. Through network pedagogies, therefore, cultural notions are formed of the verge garden space. Incrementally, the gardens develop conceptual meaning as they are embedded in a larger network of social relations and meanings (Noble, 2015). It should be noted that verge garden owners played a primary role in creating discourse in that often assumed an instructional role when relating to the

177

different spaces and actors in the network.  While discourse certainly evolves and recontextualized as it is taken up by other spaces and actors with sometimes different social purposes (Bernstein 1996) which is a subject in itself worth investigating further, I focus only on the discourse from the gardeners themselves.  This is consistent with the notion that the discourse expressed in and through a given learning artifact (i.e. verge garden) is linked to the overall educational intention of its producer (i.e. gardener) (Bezemer and Kress, 2008).  For the gardeners in this study, it was evident that their interest in creating verge gardens lay in transforming the footpath and cultural assumptions about the footpath.

Second, as with place pedagogies, network pedagogies promoted being literate about food and its relationship to urban ecology. In this way, the learning topics in network and place pedagogies are the same—food cycle activities and their relationship with the environment.  However, in contrast to the casual and everyday nature of the place pedagogies, the learning situated in network pedagogies was more formal in that it assumed the structure of each specific learning environment (i.e. university class visits, sustainability tours, radio programs, and etc.).  With each specific learning setting within the spaces that make up network pedagogies, garden-related food and urban ecology knowledge was taught and reconfigured.  Again, this recontextualization of knowledge (Bernstein, 1996) will not be covered in this study, but it should be acknowledged that knowledge and discourse does change and is reframed in this process.

I will now focus on the discourse generated by the verge gardeners before describing the network pedagogies of the three sites of structured education, media, and

community spaces.  Verge gardens were widely considered as a mechanism for making the footpath more oriented towards aesthetics, agriculture, ecological health, and community.  Conventional footpath areas were widely considered to be unappealing spaces (i.e. "ugly"; "weed-infested; "dry and dusty" and etc.) due to their aesthetics but also their poor soil health (i.e. "dead"; "denied oxygen"; "barren"; "wasteland", and etc.).  In this sense, gardening was not simply about food project, but was a way to engage in improving the urban ecology, at the micro-scale.  One gardener expressed this discourse of aesthetic and ecological transformation most poignantly in saying, "*[the nature strip] is a dog-shit catcher.  Just half-dead grass that's gonna to remain like that forever.  We start to turn that into a garden, the whole street becomes 'wow'".*  The discourse of transformation also entailed a shift from that is privately or council-managed to being community-oriented.  This was evident as gardeners described the verge gardens using language as "shared space", "communal", "a community project", and "shared responsibility".  Lastly, the discourse of transformation also referred to changing cultural assumptions of the footpath.  In this sense, verge gardening is viewed as a political act, in the sense it is "upsetting the status quo—how a landscape is meant to be perceived inside the city".  One gardener articulated, "[the gardens] are right in their face…sorta mainstreaming it in a way."  In short, the primary discourse around verge gardening is not merely about urban streetscape change, but rather, "…a culture change project" in that it is a challenge to "think differently about the public space."  This discourse is produced initially by the gardeners and proliferated through network pedagogies to other local and virtual spaces.

Gardens were connected to forms of structured education through firstly, educational institutions.  One inner city neighborhood with numerous verge gardens, in particular, has attracted numerous classes and students from formal educational institutions.  One local food movement leader noted that the *"constant stream of high schools, primary schools, childcare coming through [to see the gardens"* is "one of the most powerful things cuz we're showing that you can do this in a really hostile environment."  The various students that visit, maintain, or use the gardens do so as part of typically sustainability-related curriculum or service learning programs.  The flow of knowledge and discourse around the gardens extends back to schools as well as the gardens as examples of sustainability-oriented design for teachers and students.  This mostly takes forms such as university lecture slides and student research projects (and food preparation in the case of the aforementioned preschool).  Linkages between the gardens and schools were also formed through verge gardeners who also were involved in school gardens. As an example, one verge gardener in the suburb of North Sydney also happens to be a preschool teacher who also incorporates gardening in her instruction; she viewed her verge garden in the same light as her school garden as it is "still at the same time are educating people" and inspiring others to start gardens. In this case, the verge garden was linked to the preschool and its garden through its gardener; through her conversations with preschool staff and students, verge garden discourse would travel. Another verge gardener from the 'Inner West' area of Sydney similarly was a teacher, but of a technical school course on sustainability and urban agriculture who taught adult students working as primary school teachers.  Lastly, parents involved with a school garden, also in the

Inner West, would learn from a nearby verge garden and their owners about various gardening knowledge and techniques.

In all these formal and informal ways, verge gardens have ongoing linkages with formal school institutions through which knowledge and discourse about the gardens is transmitted and circulated.   In the case of educational institutions, verge gardens are imbued with a sustainability discourse emphasizing the gardens' positive influence on the urban ecosystem.  This linkage also frames the verge gardens as urban agriculture, by placing it in the same semantic category as school and community gardens—effectively legitimizing their form—as opposed to other less popular discourses such as guerilla gardening or pop-up urbanism. Educational institutions also, through their perceived specialist authority, act to legitimatize verge gardens as an innovative space, valuable to the urban ecology.

Gardens were also related to structured education through, secondly, community education which took a variety of forms.  Informal workshops or talks on verge gardens have been given through some council's sustainability initiatives, gardening-oriented nonprofits, and environmental groups.  Each of these forms of community education present verge gardens within the sustainability discourse, while providing general design guidelines for their planning and installation.  Community education also took the form of educational tours focused on urban agriculture, sustainable gardening, and/or sustainable living which are organized by area councils or gardening/environmental groups.  Through these tours, participants visit verge gardens as they are led through neighborhoods to observe various configurations of urban agriculture.  One specific tour run by an Inner

West area council takes groups of 20-25 participants, four times a year, to an open house of one of the best-case verge gardens with the owners acting as informal teachers for the groups, providing face-to-face instruction about maintaining verge gardens. The owner mentioned about discussing the integration of food waste composting through worm farms, verge gardening, and food preservation techniques (i.e. "olive pickling", "green tomato relish", "lemon myrtle infused peaches", and etc.) and giving out "chilies and bunches of basil to everyone" as a parting gift.  One council area sustainability center in the Eastern suburbs of Sydney actually created a very large verge garden complete with large community composting bins in front of their center which acts as a demonstration space for the community. In these various forms of community education, verge gardens are also positioned within the sustainability and urban agriculture discourses.  The gardens are presented as a practical and wholesome way to incorporate sustainability into everyday household practices, while connecting verge gardening to foodwaste and food preparation practices.  Through these media forms, verge gardens are incrementally legitimized within the popular culture.

Network pedagogies around the verge gardens were also generated through various forms of media.  Numerous social media platforms as Facebook, Twitter, and blogs are utilized by verge gardeners to inform about the spaces, neighborhood workdays, vegetable/herb information, growing and cooking tips, and sustainable living-related information.  Signage on or around Chippendale area verge gardens invited passerby to visit a website in order to get information about joining gardening efforts.  Knowledge and discourse around the verge gardens is also circulated through social media posts by local

182

residents who randomly discover and write about the verge gardens. In social media

sources, verge gardens were communicated through not only sustainability living

discourse, but also portrayed as grassroots activism through ordinary residents.  Media

connected to the gardens also took more traditional forms of newspaper, television, and

radio.  Local and national news covered verge gardens through either emphasizing the

conflict between local residents and oppositional councils or as novel urban agriculture

phenomenon.  Popular television programs such as *Gardening Australia* and *Gardening*

*Gurus* which center on home gardening trends and tips both ran numerous programs

extoling the benefits of the verge gardens, as well as rallying behind garden owners in

high profile cases when council would demolish verge gardens because of existing policy

regulations (in the Perth and Sunshine Coast areas of Australia). A community radio show

based in the Inner West of Sydney focused on verge gardens, interviewing its owner about

general verge gardening tips.  Lastly, media in the form of local council materials also

serve to transmit discourse and knowledge about the gardens.  This includes policy

statements, informational brochures, website links, newsletters, grants, and awards

concerning the verge gardens.  Each of these artifacts generates certain discourses and

assumptions around the verge gardens.  As a council staff observed,

> "[the local council] did alot media when they did release their verge gardens
> around community grants that people could get to build a verge garden.  And in
> [another council], they're really publicized through things like their magazines
> and their council communications, …so I think that there's that awareness that
> surrounds streetscapes, you know, and council has the domain of the
> streetscapes"

In council areas that were generally supportive of verge gardens, the spaces were

expressed as a positive community-building opportunity that also has environmental

benefits.  Another staff member noted that aesthetics and inclusiveness are prioritized in

their various media materials:

> *[in order to] make our public spaces appeal to the widest possible sector of community, so we know the communities have told us, we want to grow vegetables, we want to plant our own flowers.  So, we've tried to make that happen as much as possible.*

From these statements, it can be surmised that each council's thinking around the verge

gardens as they support or compete with their vision for their area is reflected visually and

linguistically through their materials.  Through council's materials, residents form a

concept of the verge gardens which is influenced by council's response toward them as

well as the overall streetscape.  Generally, only councils that were supportive of the verge

gardens produced materials connected with them which emphasized the social cohesion

and ecological benefits of the gardens, serving to legitimize the verge gardens as legally

sanctioned entities in the streetscape.

The last category of sites connected with the verge gardens are informal community

spaces.  Verge gardeners used produce from their gardens to make prepared foods to be

brought to parties and other gatherings.  One diary entry describes bringing an assortment

of food made possible through the garden to an Australian Day gathering, including

> *eggplants, all varieties from the garden, sliced, salted, pickled & grilled; capsicums similarly prepared & tomatoes, grilled w olive oil & spiced salt; great bunches of silver beet and red chard, lettuces & greens, ready for salads & lime dressing made from the one lime that is ripe on the tree; then bunches of green basil, sage, parsley, mint, shallots to add to pizza and salsa and a jar of 'opal' basil pesto.*

The same owner brings verge garden produce to a community "veggie swap" on a

monthly basis, which is an informal event organized by local food networks where local

residents can exchange homegrown produce.  Also, as mentioned previously, the verge

gardens are also connected to at least two local restaurants as chefs regularly pick herbs to

use in salads and as garnishes.  In all of the above cases, the verge gardens are linked

through transactional relationship; functional meanings are conferred the garden through

the usage and bartering of its produce. The gardens are also linked conceptually to other

local food gardens, specifically home, community, and other verge gardens.  By

'conceptually', I mean that the verge gardens are perceived in the same semantic category

as the more conventional gardens, and are therefore incrementally normalized as another

expression of the alternative or local food system, rather than simply a novel aberration.

Many verge gardeners maintained other gardens either in the back/front yard, balcony,

school and/or community garden (four of the gardeners maintained at least three spaces).

The verge garden was simply another place to extend the scope of their plantings, whether

to have more space to grow more or different produce or provide an informal community-

oriented space. As mentioned previously, some residents who maintained gardens

elsewhere used verge gardens to learn gardening techniques.  One resident with a very

large backyard garden that supplies a local cafe walks past a nearby verge garden daily

while walking her dog "for inspiration" about what to grow.  There was a synergistic

relationship between their gardens as her backyard garden included three bee hives

producing "40 kilos a year" which undoubtedly benefits the verge garden by providing

pollinators.  This dynamic of the verge gardens inspiring the creation of other gardens was

reported numerous times.  All four gardeners of the best-case verge gardens attested to this

pattern:

*[My neighbor] has started a garden following my lead — inside the fence and on the fence but not on the footpath.  Another resident has joined him and they have now covered the concrete yard with productive pots & tubs they have recycled.  They have compost tumblers (recycled) as well.*
*— Verge Gardener, Central Sydney*

*[My neighbor] asked about [my verge garden] and when I explained in more detail about it she said she would need a raised bed also as she can't bend and this would be her kind of garden. She thought she might install one outside her house. What a delight!*
*—Verge Gardener, North Sydney*

*Across the road, they started a little verge garden,.. we gave them some compost and taught them what's good to grow.. [we] chat about the garden and how it's doing, and that kind of thing.  And she comes around and checks out ours [laugh].*
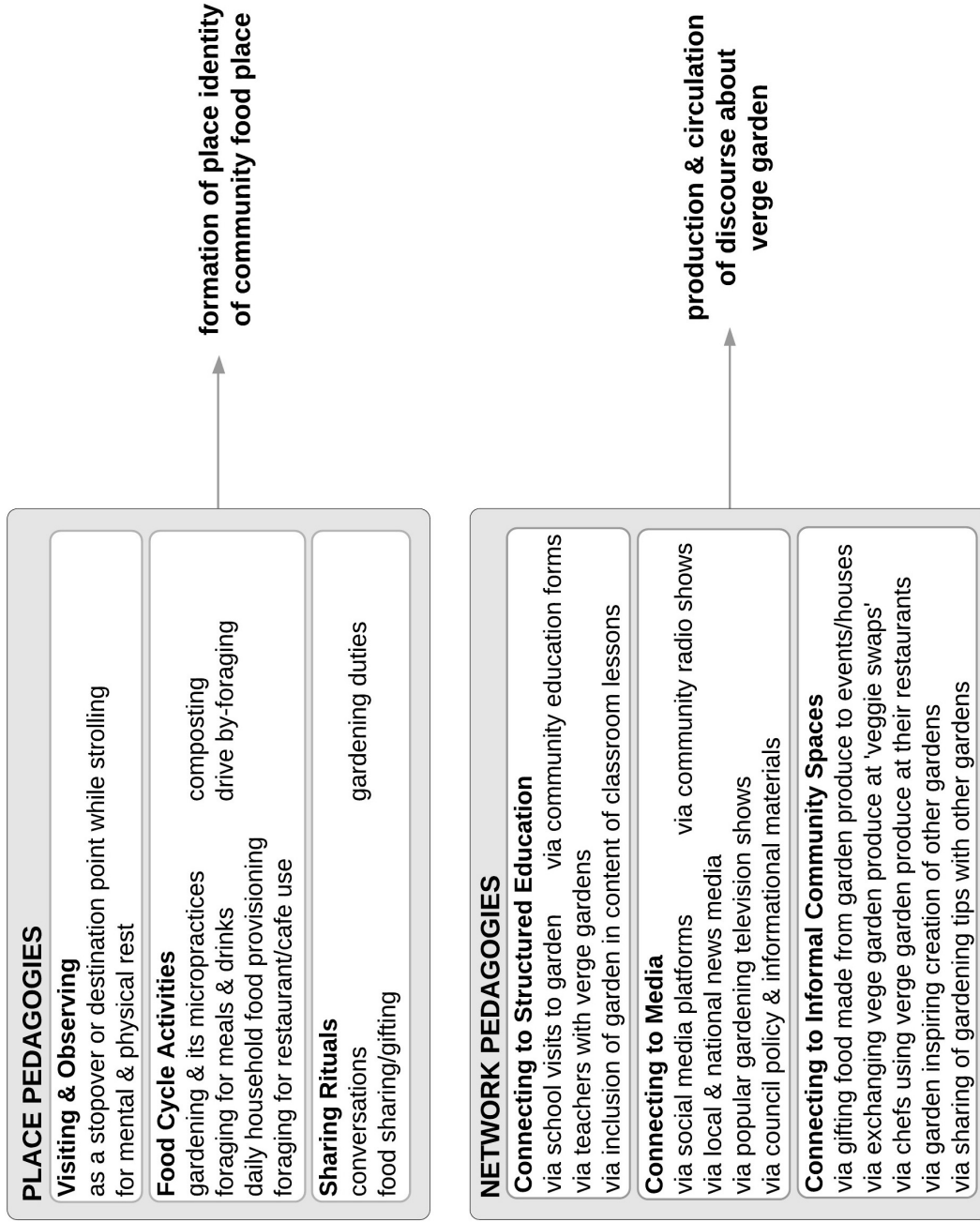*— Verge Gardener, Inner West*

*And there's some young couple just around in the laneway there, or the next street down...  They got enthused cuz they saw the garden here so they did their entire front yard….  They get sun all day and they've just got a prolific garden in their front yard.*
*—Verge Gardener, Inner West*

As the verge garden develops conceptual and relational links with a range of informal community spaces nearby, the garden's own identity as a legitimate and transformative urban agricultural entity deepens.  Furthermore, through network pedagogies, discourse around the garden develops and is circulated.

Place and network pedagogies are the two streams of learning situated in an array of social practices that have emerged around the verge gardens.  Figure 35 compiles all the various social practices that are enables through place and network pedagogies.

**PLACE PEDAGOGIES**

**Visiting & Observing**
as a stopover or destination point while strolling
for mental & physical rest

**Food Cycle Activities**
gardening & its micropractices            composting
foraging for meals & drinks               drive by-foraging
daily household food provisioning
foraging for restaurant/cafe use

**Sharing Rituals**
conversations                             gardening duties
food sharing/gifting

→ **formation of place identity of community food place**

**NETWORK PEDAGOGIES**

**Connecting to Structured Education**
via school visits to garden      via community education forms
via teachers with verge gardens
via inclusion of garden in content of classroom lessons

**Connecting to Media**
via social media platforms          via community radio shows
via local & national news media
via popular gardening television shows
via council policy & informational materials

**Connecting to Informal Community Spaces**
via gifting food made from garden produce to events/houses
via exchanging vege garden produce at 'veggie swaps'
via chefs using verge garden produce at their restaurants
via garden inspiring creation of other gardens
via sharing of gardening tips with other gardens

→ **production & circulation of discourse about verge garden**

**FIGURE 35. Place and Network Pedagogies of the Verge Gardens**

## 4.4 FORMING NEW URBAN FOOD IMAGINARIES

### 4.4.1 Pedagogies and the Urban Food Imaginary

In section, I will explore the role of pedagogies associated with the verge gardens in influencing the urban food imaginary.  New urban food imaginaries are composed of re-envisioned spaces and new social practices, all of which are supported and enabled by an updated technological/material infrastructure.  The relationship between the two pedagogy types identified as occurring in the best-case verge gardens and the new urban food imaginary is expressed in Figure 36 below.  The two streams of pedagogies are found to exert pressure on the layers of the urban food imaginaries in different and overlapping ways.
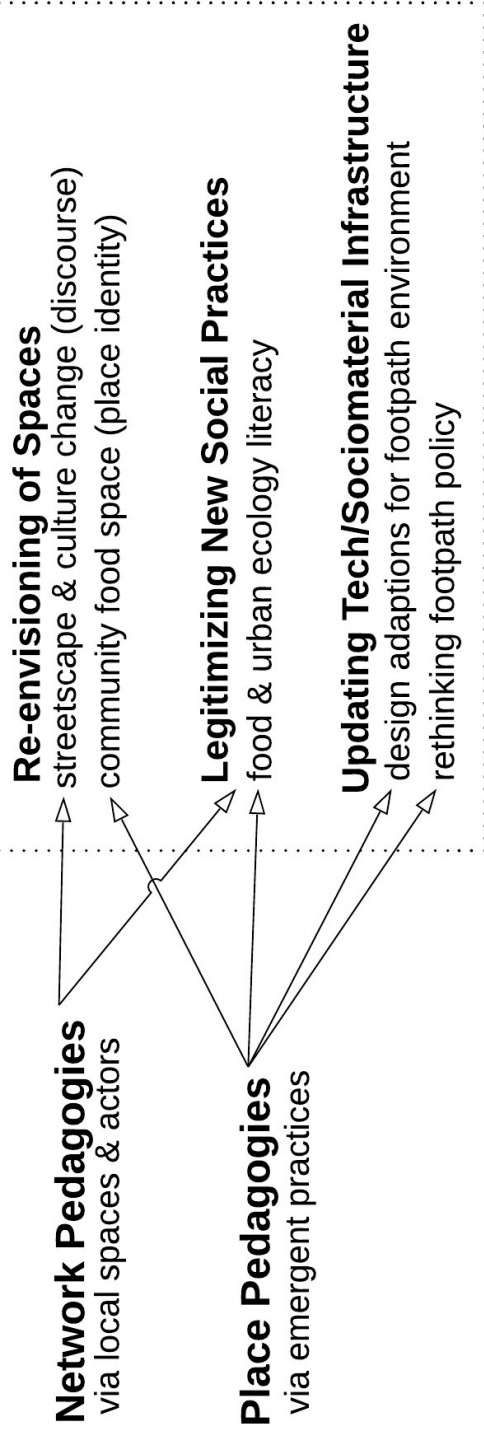
**NEW URBAN FOOD IMAGINARY**

**Re-envisioning of Spaces**
streetscape & culture change (discourse)
community food space (place identity)

**Legitimizing New Social Practices**
food & urban ecology literacy

**Updating Tech/Sociomaterial Infrastructure**
design adaptions for footpath environment
rethinking footpath policy

**Network Pedagogies**
via local spaces & actors

**Place Pedagogies**
via emergent practices

FIGURE 36. Pedagogies and the New Urban Food Imaginary

Network pedagogies, in particular, act to generate discourse about the gardens and the potential altered role of the footpath to include agricultural practices. Through the discourse that emerges from the range of learning processes situated in the networks of local spaces, events, and actors, the footpath is re-envisioned as an urban form that can be used for food production purposes and also is intended to promote a larger cultural shift in using urban spaces for food production. Because this network extends beyond the immediate neighborhood, the discourse about the garden is able to spread across and beyond a given city. Also, network pedagogies contributed to legitimizing new social practices through encouraging food and urban ecology literacy through its sites of learning. This revolved around the teaching of food cycle practices to various pre-primary to tertiary school classes and educational tours that visited the gardens, such as food cultivation, foraging, and composting, and their role in improving environment health; and within news and social media that would share details about these practices, and often emphasizing their novelty.

Place pedagogies also are key in the processing of re-envisioning of the footpath. Through the learning processes situated in the various food-related social practices that form around the garden, it develops an identity as a neighborhood space with people associating the footpath is also a community space, rather than simply a place of foot traffic. As with network pedagogies, place pedagogies also contribute to the urban food imaginary by legitimizing new social practices. First, the whole range of food-oriented social practices—visiting and observing, food cycle activities and sharing rituals—take place on or through the footpath space. While this may be perceived as unconventional

190

at first, these practices are normalized and legitimized over time and become part of people's expectations of the footpath's potential.  Second, it is through place pedagogies that social practices around food are reinforced and reproduced.  For example, as people acquire verge gardening skills, they apply new skills with their home garden or even start their own verge garden.

Place pedagogies therefore contribute to the formation of everyday food practices that might be marginalized in urban life that are typically associated with the local food movement, such as the cultivation of unindustrialized produce (varieties not found in the supermarket), food preservation techniques, and food composting. Place pedagogies also played a role in the updating of technological and material infrastructure primarily in the form of the adaptations to the public footpath environment that accompanied verge gardening practice.  This included the aforementioned technical adaptations such as various irrigation techniques (i.e. retrofitting roof gutter drains to funnel water to the gardens, installing on-site water tanks, including wicking beds in garden containers), public communication efforts (i.e. signage and branding of gardens), and other physical adaptations (i.e. breaking concrete to install gardens; adding shade cloth in order to handle the direct sun during the heatwaves).  These various adaptations, though on a very localized scale, are technical and material infrastructure supports to the gardens.  These adaptations also inform future design guidelines for verge gardening practice which may eventuate into urban policy.

The processes related to "re-envisioning of the spaces" also pressures the development and updating of footpath governance policy.  As the discourse of streetscape

and culture change (network pedagogies) is created and circulated; and the creation of the

place-identify of the verge garden as a community food space is solidified over time, verge

gardening gains momentum as a legitimate challenge to existing aesthetic and social

norms around the footpath which force councils to consider how to engage the gardens

through policy.  While councils related to the edible verge gardens in this study had a

wide range of policy responses including prohibition; allowance through an approval

process; and provision of and on-the-ground support of council-sanctioned gardens, it was

found across the board that councils "won't act on things unless there's a complaint."  It

was also recognized by multiple council staff that most edible verge gardens are done

with people "just going and doing it "and not realizing that they might need to ask

permission and it [has] just becomes a common practice to do it."  In this way, most

gardens, which were labeled as "rogue" by one council staff, simply "go under the radar"

unless a complaint is lodged.  Therefore, it can be observed that policy was largely

regulatory in nature, in either prohibiting their installation or allowing them through a

permitting process with prescribed design guidelines (and sometimes permitting fees), and

did not serve to promote the gardens.  Rather than having to enter this bureaucratic

process, most gardeners simply began their own gardens disregarding or not knowing of

these procedures.  The exception to this was one council whose policy was in the form of

a program that installed gardens for their residents and provided ongoing on-site support

in the form of gardening advice and even seedlings. In this council area, demand for the

gardens was very high, which illustrates the potential influence of policy has in scaling-up

verge garden spaces if the policy is designed to promote rather than only regulate.

In summary, place and network pedagogies worked in concert to exert a shift in the urban food imaginary.  Essentially, through place pedagogies, verge gardens became woven into the social life and rhythm of a neighborhood, whereas through network pedagogies, verge gardens went beyond a localized phenomenon through the deepening and circulation of discourse which legitimized as a UA form that is an innovative mechanism for bringing food systems change to the everyday level of one's street and neighborhood.  Identifying these two streams of learning within the verge gardens enriches the public pedagogy construct in relation to space.  Public pedagogy, therefore, can be theorized as having two dimensions through social practices that establish, root, and 'emplace' a space within a community (place pedagogies) and practices that spread discourse about the space beyond the community (network pedagogies) which in turn inform and inspire other spaces and activities in other locales.  Network pedagogies is reminiscent of the notion of "urban coordination tools" (Macfarlane, 2011, p. 20) that are any intermediary structure that acts as a connector and distributor of knowledge throughout the city and beyond, through which cities or groups in cities access and share knowledge (i.e. policy, ideas, strategies, innovations, structures, and etc.) with each other in 'translocal' fashion.  However, while urban coordination tool refers to the structure (i.e. verge garden), network pedagogy draws attention to the processes (learning embedded in social practices) that circulate the knowledge and discourse.  Overall, place and network pedagogies are crucially the processes of normalization and legitimization within a neighborhood and beyond—which include both other neighborhoods and scales beyond the neighborhood (i.e. city, state, country, etc.).

Pothukuchi's study (2017) which articulates the various challenges of scaling up UA in one of the epicenters of the UA movement, Detroit, Michigan.  One of the primary findings is that UA needs to be more "permanently integrated into the urban fabric and accommodated in all neighborhoods, with the scale, design, and location of gardens and farms appropriately tailored to the neighborhood setting" (p. 1182).  Essentially, the process of mainstreaming UA involves understanding how specific UA spatial forms can be contextualized within each type of neighborhood.  Place and network pedagogies provides one angle of approach.  For UA spaces to be embedded into the life of neighborhoods, place pedagogies that align with the distinct rhythms practices of a particular locale as well as network pedagogies, which generate a discourse which legitimizes the space in and beyond a neighborhood must emerge.  For example, for a community garden to be deeply embedded into the daily flows of a neighborhood, everyday practices (i.e. gardening, harvesting, cooking, etc.) and legitimizing discourse (i.e. community food production, food security, neighborhood stewardship, and etc.) related to its usage must form that connect the garden to the neighborhood, so that the garden moves from being only a demonstration space to being a crucial hub for the community which carries a certain of narrative with it that makes it an essential component of the neighborhood.  As the community garden (or other UA space) is folded into the neighborhood fabric, it incrementally becomes an expected and desired food system form for other neighborhoods or cities and has begun to shift the urban food imaginary.  In short, establishing UA in cities is not only a progression of procedural activities, but also inherently the production or 'reworking' of culture.

### 4.4.2 Policy-Relevant Findings

My focus thus far has been on establishing place and network pedagogies as two streams of educational processes that make up the overall public pedagogy of verge garden spaces; and their influence on the three layers of the urban food imaginary. This analysis is based entirely on the best-case gardens found for this study which showed a high level of attention to aesthetics, production, and/or community-use. As mentioned earlier, the majority of the verge gardens were of lower quality which means that they displayed high levels of neglect, in regard to those areas. When viewed through the lens of sustainability transitions, the progress of the niche space of verge gardens is being impeded by structural and social practice related dynamics, which include established urban standards, norms, and behaviors around the footpath. The predominance of poorer quality gardens can be attributed to the synergy of both of these vertical and horizontal factors.

From the perspective of MLP, the verge gardens are being frustrated by a number of existing regimes related to the footpath. Because the footpath and the area around the footpath is already sanctioned for use of number of uses—pedestrian and vehicular mobility, utilities infrastructure, waste disposal and pickup—verge gardens must be adapted to coexist with these other uses. Each of these uses has its own separate regime (i.e. transport regime, utilities regime, waste regime, and etc.) which are its own established regulatory rules and practices that all converge in the public space of the footpath. For example, current vehicles of the transport regime produce airborne

pollutants which affect the soil quality of nearby nature strips.  As a result, verge gardens

planted in high vehicular traffic areas might be compromised by heavy metal pollutants

which was a concern for many participants in this study.  Also within the transportation

regime is the fact that residential streets in Australia are commonly used for parking.

Councils sometimes received complaints about verge gardens not allowing adequate

clearance for doors of parked vehicles. Within the waste management regime, the

footpath and nature strip is utilized for the placement and movement of garbage bins.

Verge gardens can easily obstruct these activities if not properly placed.  Also, the nature

strip's association with uncleanliness because of garbage disposal, dumping, and littering

might also deter people from viewing the footpath as a potential site of agriculture.  Verge

gardens also must contend with the regime of urban animals/wildlife with the footpath

being a common area for dogs, cats, possums, birds, and other animals.  Dogwalking, in

particular, is a popular practice within this regime with socially-approved conventions for

the footpath.  It is not unexpected for dogs to leave excrement on the nature strip, nor a

garden set low on the nature strip, for that matter.  Multiple gardeners often expressed

concerns about protecting their garden from animals.  Within the nature strip management

regime, council workers may regularly trim overgrown plants and spray herbicides into

the nature strip.  This requires verge gardeners to regularly communicate with council

workers to prevent damage to gardens. One verge gardener reported their large verge

garden being destroyed by such spraying by council workers.  These are only the more

prominent examples of the many tensions that exist with the verge gardens interacting

with existing regimes that function in and around the footpath.  Most verge gardens have

not been designed to account for the various regimes interacting with the footpath and therefore will struggle to survive, much less flourish.

From the perspective of SPT, verge gardening practice can be viewed as being undermined by the various dynamics present between "Materials", "Competence", and "Meanings". The abundance of poor-quality verge gardens displaying neglect, in particular, benefits from this analysis. In terms of "Materials", there is a not sufficient consideration of how to adapt the verge gardens to the footpath environment. Many gardens had containers that were shoddily constructed which failed to protect its contents from outside elements. For the poor-quality gardens, production levels were also minimal, which further diminished its aesthetic value. As one resident commented her frustration with the verge gardens in her area that were lacking productiveness:

> There's no way anybody, even a family is going to live off this. Why are they planting this? It's really annoying. Who's doing it? For what purpose?... If you're going to do it for food, do it really well!

Also, most gardens lacked signage that would assist passerby with communicating vital information such as the garden's purpose, community involvement, included plants' names, foraging details, and cooking tips. In terms of "Competence", verge gardening requires a higher level of skill then conventional home gardening because of the added challenges associated with gardening in the public footpath which include at least attention to small-space gardening techniques, strategies for limiting littering and vandalism, design considerations for pedestrian and vehicular safety and mobility. For the poor-quality gardens, owners likely lacked the skills (and/or the time) to maintain the garden which was expressed through the sparse or even absence of production of plants (many gardens became barren) and further, through gardens that became abandoned. As

197

one council staff commented, "it's like they like the idea of it and they're not actually proficient…the enthusiasm level is not matched by the skill levels."  There was also a lack of foraging skills observed with the gardens.  For people wanting to forage from the verge gardens, skills of being able to identify, harvest, and cook specific plants are required. Many participants reported a pervasive illiteracy when it came to gardens with many people having never seen popular vegetables and herbs in their plant form, much less being able to know how to harvest them.  This meant that even for the best-case gardens, the unfamiliar plants were not usually picked.  One gardener reported foragers mistaking inedible flowers for herbs, which could lead to poisoning in some cases. As for "Meanings", verge gardens were often negatively viewed because of their perception of illegality or disorder.  One verge gardener reported that the question of "is it legal?" has repeated come up from other residents.  Others simply perceived food gardens as being unaesthetic.  Council staff noted that food being a "barrier" and quoted another staff calling a verge garden "like a dog's breakfast", indicating the sheer unattractiveness of some food gardens.  These negative meanings associated with the spaces certainly acts to deter people from starting new gardens.  The dynamics present in all three elements of the SPT provide further rationale as to why the verge gardening, especially of the construction and maintenance of higher quality gardens, has not stabilized as an everyday practice. For verge gardening to be normalized and scaled up, all three elements of the SPT triad must be addressed.  I assume the perspective that some of the structural impediments elucidated through MLP can be partially addressed through policy that more closely considers the dynamics of the SPT triad.  Moreover, it is far easier to update verge

gardening policy which is still emergent then it is to update the policies of established and entrenched waste management, transport, utilities, and other regimes which can are characteristically, as city infrastructure, resistant to change due to not only the long-term taxpaying investments that they represent, much of which may be sunk costs, as well as deep-rooted patterns of social behavior around their use that have emerged over time (Shove et al., 2015).  In contrast, because gardening on the footpath is a still a nascent activity whose practice is still evolving and developing, updating verge gardening policy to reflect new best practices would likely be an easier task.

### 4.4.3 Recrafting Verge Garden Practices through Policy

There are multiple ways to address the 'horizontal' and 'vertical' challenges to establishing verge gardens as a more dominant form in the city.  Firstly, community planning processes could be implemented, such as developing neighborhood self-governance capacity through selecting leadership, conducting resource inventories (i.e. suitable spaces for verge gardens in a neighborhood), cultivating a neighborhood vision for verge garden integration, devising strategies to collectively manage the gardens, and communicating with councils about progress and garnering support (adapted from "Achieving a Self-Reliant Neighborhood", 1985).  This approach would be suitable with neighborhoods that already have a strong core of residents that wish to collectively start verge garden(s) together.  San Francisco has employed this approach in their "sidewalk garden project", through which residents must first organize together before applying for garden permitting (The Sidewalk Garden Project, n.d.).  The 'Urban Food Street' in the

Sunshine Coast, Australia, whose street of community based and highly productive verge garden which received some international attention, also were the result of determined and capable leadership that organized neighborhood residents around the cause of community-based food production.  However, in the case of verge gardening in Sydney, with a few notable exceptions that involved charismatic 'community champions' are leading their neighborhoods into implementing verge gardens, the majority of verge gardens were started by individuals wishing to create a space for household and community use.  Employing a neighborhood planning based approach might support such initiatives, but some potential gardeners might be inclined to not invest the time and energy needed for a community collaborative process to start their garden.  Also, because cultural conventions already favor the dominant uses of the footpath, there may be considerable resistance to creating gardens.  Because of the nature of current verge gardening interest which is situated in individual and not community interest, other planning approaches can also be considered.

Spurling et al. (2013) propose approaches to sustainability policy intervention that focuses on shifting everyday practices, as opposed to normal policy framings that target sustainable behavior, choices, or innovative technology.   This approach centers on the question of "how everyday practices can be made more sustainable?", and in doing so attempts to steer culture, rather than individual behaviors, towards a less energy-intensive and ecologically-adverse directions (p. 4).  While a number of policy approaches are offered, most relevant to the case of edible verge gardens is the notion of "re-crafting practices" which is the examining of each element of the SPT triad and subsequently

introducing different "material, skill, and cultural conventions" in order to generate a more

sustainable form of the practice (p. 22). For example, Spurling et al. suggest the practice of

clothes drying can be encouraged to be less energy-intensive through the provision in

houses or apartment units of a dedicated space for air drying while omitting a space for a

machine dryer, which targets the "Material" element of clothes drying practice.

With the verge gardening practice, I focus on how policy targeting its three practice

component elements can stabilize the practice (see Figure 37).  The "Materials" element

can be addressed in a number of ways.  Developing policy that outlines broad design

guidelines and standards that emphasize aesthetics, garden adaptions for street, and

community use can encourage the production of higher quality gardens.  Additionally, the

providing a list of verge garden typologies and their suitability for different streetscape

variations would help gardens to be better customized for a range of footpath conditions.

Gardening resource centers could also be created or adapted from existing council

sustainability centers to provide material support for gardeners (i.e. compost, worm farms,

seedlings, and etc.).  Other policies targeting the "materials" component of verge

gardening could include reducing or eliminating verge garden permitting fees, installing

water taps for verge gardening use (or allowing access of fire hydrants for UA as is the

case in Cleveland, Ohio) (Horst, McClintock, & Hoey, 2017). A number of North

American cities reduce water fees for urban agriculture spaces.  While these apply to

larger community gardens and urban farms, this structure could be applied to home

owners who regularly maintain a verge garden.  Also, funding in the form of grants could

be made available for verge garden development.  One residential street of multiple verge

gardens in the Dulwich Hill neighborhood of Sydney was assisted in scaling up through the awarding of private grants to support sustainability projects. Interventions such as these would overcome some of the material obstacles related to verge gardening.

For the "Competence" element, the lack of skills and knowledge regarding gardening and foraging can be addressed through the provision of training and support opportunities. This could take a range of forms, such as agricultural skills workshops, best-case garden or foraging tours, and on-site consultation visits. Garden resource centers operated by councils could also encourage the development of gardening skills. One of the councils in my study did have both a garden resource center and support staff for on-site consultations for verge gardens which greatly helped gardeners maintain higher levels of aesthetics. Also, because verge gardening requires special techniques for maximizing production while displaying aesthetics in a small space, targeted classes and training should be developed or adapted from other similar types of gardening (i.e. balcony gardening). Policy that improves gardening and foraging skills through educational opportunities in this way can further improve the overall quality of verge gardens as well as community usage of them.

In terms of the "Meanings" component, verge gardens were sometimes perceived as being illegal, unaesthetic, unclean, or unorthodox. Council can engage these negative perceptions of verge gardening through developing media and communication materials (i.e. fact sheets, informational brochures, promotional events, and etc.) and campaigns that specifically help residents view the footpath as not only a place of functionality, but also of neighborhood conviviality and environmental stewardship that can be fostered by

gardens; while also bringing awareness to the pressing social and environmental reasons that undergird developing more agricultural spaces in cities.  While residents having interest in environmental sustainability and climate change might accept the notion of verge gardening easily, many residents who do not have this orientation might view verge gardens more positively through communications tools that present a clear rationale for the gardens, potentially shifting negative meanings of verge gardening.  Lastly, though a significant number of verge gardens are made considering their legality, for gardens to be able to be exist in the community long-term without the risk of being demolished by local governments, policy that legally sanctions them is required.[1]   Policy that allows the construction of verge gardens if guidelines are properly adhered to is necessary for shifting the popular sentiment of the gardens being illegal, while supporting their long-term existence in the community.

Two suggestions regarding food-related 'practice management' by Cohen and Ilieva (2015) are applicable to verge gardens.  First, they suggest that because food practices exist as larger bundles of practice (i.e. food procurement, cooking, and food waste processing) targeting related practices can be viable strategy.  Verge gardening was found to be associated to practices such as food procurement, meal preparation, pickling, and even food selling.  In addition to focusing on recrafting verge gardening, policy and programs centered on related practices can be modified to consider verge gardens.  For example, planners can develop maps detailing urban foraging spots (i.e. fruit trees,

---

[1] Four out of the five council areas researched in this study sanctioned verge gardens if owners followed permitting and/or guideline procedures.  Even so, many gardens in the four council areas were constructed without following these procedures.

community gardens, etc.) which can include productive verge gardens.  Secondly, Cohen and Ilieva (2005) suggest that the monitoring and measuring of new food practices is essential for policymakers and planners.  Applied to verge gardens, maps of current verge gardens can be developed and regularly updated; and metrics regarding their production and usage can be kept.  In this way, verge garden's spatial distribution in a city and their overall acceptance in a community, especially in relation to the other material, competence, and meaning interventions, could partly be accounted for which would help inform adjusting and updating certain interventions and support.

**VERGE GARDEN POLICY INTERVENTIONS**

design guidelines emphasizing aesthetics, production, adaption for street, and community use; provision of streetscape-specific garden typologies; council-run gardening resource center; removing application fees; reducing water fees; grant support

robust gardening/foraging training & support (workshops, site visitations, resource center, etc.)

communication tools focused on changing meaning of footpath, and awareness of the need for & benefits of from verge garden; policies that legalize the gardens if design guidelines are followed (if not present already)

**Materials**

foopath adaptions, such as communication about usage/management

**Meanings**

perceptions of legality, aesthetics, & health

**Competence**

gardening/foraging skills & knowledge

**Materials**

lack of adaption to footpath conditions; material costs for installation & maintenance

**Meanings**

perception of illegality, disorder, pollution

**Competence**

lack of gardening/foraging skill & knowledge

**FIGURE 37. Recrafting Verge Garden Practice through Policy Intervention**

The negative meanings associated with the verge gardens will also be mitigated as higher quality gardens become more commonplace. These policy suggestions highlight the synergies between the three component elements; administering garden design guidelines and providing material support (Material), upskilling gardeners and foragers (Competence), and influencing verge garden discourse through communications tools and regulations that permit verge gardens (Meaning); while also simultaneously attending to related practices and monitoring current verge gardens can all contribute to the development and proliferation of higher quality gardens that have more attention to aesthetics, food production and community use. By introducing policy interventions that focus on the component elements of the SPT triad, verge gardening practice can potentially overcome the obstacles that impede the stabilization and scaling up of the gardens.

It is also possible for policy to be developed that address the various regimes that coexist with verge gardens on the footpath and nature strip. For example, footpath and nature strip codes are revised, they could certainly include design features that assume the installation of verge gardens. However, updating the well-established regulations and practices that govern the regimes of transportation, waste management, urban animals/wildlife, and nature strip management to account for verge gardens on the footpath would be a near impossible task without a strong base of verge garden support. At this early stage of the stabilization journey, verge gardens must move from novelty to normality through the scaling up of aesthetic, productive, and community-oriented gardens.

It should be noted that there is already precedent to some of these practice-oriented policy recommendations. The most prominent Sydney-area council, the City of Sydney, has verge garden design guidelines already in place, which assume the form of two checklists for container and non-container types gardens. The checklists help gardens adapting gardens for the footpath by stressing safety and mobility. However, the areas of aesthetics ("Maintenance") and community use ("Speaking with Your Neighbors") are somewhat limited in scope. For instance, applicants should consent to the statement that intended planter boxes *"…will stay tidy, free of rubbish and weeds."* The corresponding statement for non-container verge reads that gardens *"will be maintained to ensure it is safe, healthy, tidy, and attractive."* Because "healthy" and "attractive" are overly broad and open to various interpretations, it would be helpful for the checklist to add statements related to gardening techniques, such as choosing plants that are hardy and/or match particular seasons of the year; adding colorful plants such as flowers; ensuring proper organic fertilizers are added regularly to promote productiveness; or integrating worm composting with the verge garden. Similarly, the statements concerning neighbor approval focus singularly on receiving consent from neighbors and/or apartment complex management regarding the construction and placement of a potential garden. This section can be strengthened having applicants ask neighbors to share in ownership and maintenance for the gardens; requiring gardens to have signage that indicate details about community usage (i.e. entry points for community involvement, foraging instructions, cooking tips, and etc.); and suggesting the inclusion of objects that promote community interaction such as seating, watering cans, or composting bins. Also, the guidelines

feature an essential starting typology of two garden types, container and non-container gardens. Including more garden types would allow more carefully alignment of garden form and footpath conditions. Other garden types observed in this study include groups of potted plants; climbing plants or trees that decoratively attached to adjacent walls; and multi-layered planting. In short, design guidelines that have a more robust focus on adapting gardening for the footpath through considering aesthetics, production, and community use; as well as a list of garden typologies would encourage gardens that are healthier and more embedded in the community.

## 4.5 CONCLUSION

In this chapter, I examined the specific case of an emergent UA space, the verge gardens in Sydney, and how they act as public pedagogy through enabling certain social practices around food; and how that pedagogy influences the urban food imaginary. It was determined that gardens that displayed attention to aesthetics, production, and community use generated two streams of public pedagogy that I designate as place and network pedagogies that worked in concert to educate the community about food and urban ecology literacy. Place pedagogies, embedded in the range of food-oriented social practices that emerged through the garden, also formed a place-identity for the gardens as a community food space; and network pedagogies, through the learning situated in linkages of the garden with other local spaces and actors generated a discourse of streetscape and culture change. Together, network and place pedagogies formed new urban food imaginaries through the re-envisioning of the public footpath and nature strip,

the legitimization of micro-level neighborhood food practices, and contributing to the new iterations of urban policy and design standards that supports the gardens.  However, many verge gardens observed in this study were of poor quality which mean that they appeared neglected in terms of their uneven aesthetics, minimal production, and lack of community use.  This indicates that while there is much interest in verge gardening, it is often resulting in gardens that end up either overgrown or barren, and later, eventually abandoned and/or destroyed.

Through considering horizontal (SPT) and vertical (MLP) dynamics of the verge gardens, various obstacles hindering the stabilization of verge gardening were uncovered. Namely, established regimes such as transport, waste management, utilities, urban animal/wildlife, and nature strip management that converge on the footpath interfere in different ways with verge garden placement and activity; and synergies of practice oriented factors such as gardens not being adapted for the public footpath environment (Materials), poor skill levels of gardeners and foragers (Competence), and negative perceptions if the gardens (Meaning) contributing to subpar gardens and a lack of momentum.  Verge garden policy targeting the component elements can encourage the recrafting of the verge garden practice through updating design standards, upskilling gardeners, and promoting verge garden awareness.

Without focused policy and programmatic attention to the dynamics social practice, verge gardens will likely remain a marginalized activity.  Through this study, I highlight the overlooked potential of this nascent UA form by focusing on the cases of

best-practice and their agency to stimulate food and urban ecology literacy for their neighborhoods and beyond.

One limitation of this study is the shortage of interview data from the perspective of neighborhood residents and passerby.  Because of this, I am heavily relying on interviews with gardeners, council staff, local food movement leaders, and secondary sources to understand the fuller picture of the life around the verge gardens.  Future research can focus on the pedagogies of the gardens from the standpoint of the residents and passerby and a more detailed assessment of each locale's unique obstacles hindering community acceptance and use of the gardens.

The learning processes found through the gardens were found to work in concert to form and legitimate a repertoire of "micro-community" food practices which have wider social and urban ecological implications.  While most food cycle activities and sharing rituals are not intrinsically new, the fact that many of them either take place on or through the area around the footpath is an innovation that is well worth further attention by local governments, planners, and policymakers.  Through a concerted effort to address the practice and regime dynamics of these niche spaces, verge gardens can become a normal form in the city, and not just a few select streets.   In doing so, the non-place of the street verge (Arefi, 1999), a space marked only by its utilitarian functions of providing visual buffering and situating utility services, can be transformed into a place, or as one participant described it, "a living, breathing city artery."

# CHAPTER 5: Research Summary

## 5.1 SUMMARY

In the struggle to develop UA as a legitimate long-term dimension of the city is the result, in part, of competing visions of the city's food system. In this study, I have sought to draw attention to the flows of knowledge, discourse, and practices that cultivate new urban food imaginaries that include urban agriculture. Specifically, I have focused on the more visible forms of UA, their potential to generate a public pedagogy, and how those pedagogies exert influence on the social and material expectations of the urban food system.

In the case of the edible verge gardens of Sydney, I explored the nature of their public pedagogy by focusing on extensively on two dimensions: their spatial representation and their facilitation for new social practices around food. In Chapter 2, I presented the conceptual model for analyzing the public pedagogy of UA spaces and applied that model to a single verge garden case. In Chapter 3, I examined the *representation* layer of public pedagogy by approaching the larger landscape of verge gardens in Sydney through the approaches of MDA and walking ethnography. In Chapter 4, I focused attention on the *social practice* layer of public pedagogy in exploring the phenomenon of verge gardens in Sydney as a whole to understand the nature and 'structuration' of the social practices that emerged around the gardens through analyzing primarily in-depth interviews with gardeners, local council staff, food movement leaders, and residents; and diary entries by best-case verge garden owners.

The research questions that oriented this research were:

- How do verge gardens act as public pedagogy, through its spatial representation and enabling of social practices, for the surrounding residents and passerby?

- What is the role of verge garden's public pedagogy in shifting the urban food imaginary?

- With regards to a verge garden's representation, what are the range of spatial representation characteristics of the verge garden form and their affordances and constraints for generating pedagogies?

- With respect to a verge garden's enabling of social practice, what specific practices emerge in and through the garden, and what are the various social and structural dynamics that support the maintenance of the practices?

Three distinct studies were carried out to explore different facets of these questions. In the first study, the conceptual model I developed conceptual model which is oriented around the analytical frames of *representation* and *social practice* assumes that an UA space is integrated into the urban fabric through being normalized as an accepted in the urban landscape as well as in the mundane activities of everyday life. The model is based upon firstly, by Hall's articulation (1997, p. 2) of culture being produced through the interrelationship between "shared meanings" generated and circulated (i.e. representation) and "sets of practices" (i.e. social practice) and secondly, through literature on ecological landscape aesthetics (Nassauer, 1995, 2012) that suggest that innovative urban landscape forms must be visually translated for the wider public (representation) and theoretical

perspectives on how incremental and tacit learning are embedded within everyday

settings  (social practice) (Watkins et al., 2015).

The single verge garden case of an edible verge garden analyzed through the

conceptual model demonstrate, on the micro-scale level of a street, that public pedagogy

influenced the urban food imaginary through reinventing and legitimizing a part of the

footpath a community garden space and normalizing garden-centric practices and social

interactions on the footpath, which together present the verge garden as a viable UA form.

Specifically, it was determined that the garden through its spatial representation conveyed

discourses of hospitality/community and wholeness/transformation, while creating

affordances for a series of varied user roles and activities around the garden, a casual and

close engagement with the garden and other users; and the bridging of home, street and

garden.  Also, the garden enabled the social practices of watering, foraging, social

interaction, and acts of neighborly conviviality.

The second and third studies expanded on the first study's initial theoretical

exploration by focusing exclusively on the *representation* and *social practice* layers of the

public pedagogy of verge gardens, respectively.  In the second study, I also highlight the

theoretical contribution of visual culture literature (Tavin, 2003) to further inform the

representation layer, emphasizing the increased influence of the visual realm in the

"construction of [cultural] consciousness and the creation of knowledge" (p. 204).

Focusing at the landscape level of the verge gardens in Sydney and their representation by

examining broad spatial patterns in over a hundred gardens through MDA and walking

ethnography drew attention to the distinct form of the verge garden and its specific

affordances and constraints that derive from its spatial features in relation to its footpath context which affect the "character" and "reach" of its pedagogy.

Edible verge gardens were determined to be oriented around the following semiotic features: size, color, plant selection and garden contents, framing elements, other random objects (i.e. gardening equipment, litter, trinkets, and etc.), perimeter space and access points, interactivity points (i.e. seating, signage, giveaway items, etc.), stylization, vitality, arrangement, and management.  In addition, verge gardens as a "spatial text" were further informed by their multileveled context.  First, the street verge is a space of intense multifunctionality, being used for pedestrian, cycle, and vehicular traffic; visual buffering for the street and household spaces, infrastructure placement for various utilities, theatrical space bridging the public and private, and public space for unscripted social interaction and activities.  The verge garden as a 'meaning-making system' was found to be further informed by overall character of the surrounding street and community in terms of the degree of foot/vehicular traffic, level of conviviality, and neighbourhood atmosphere and history.  These various spatial characteristics worked in concert to shape the verge garden form's overall its affordances and constraints to communicate various social meanings and discourse and, in turn, the nature of pedagogies that were generated by the verge gardens.

Overall, the second study established the verge gardens as holding tremendous pedagogical potential because of its severe publicness—the footpath context translates to the gardens being completely accessible to the pedestrians at any time of the day and also provide a very informal environment for social interaction to develop. To expand further, verge gardens were determined to be an especially confronting form of UA because of its

limitless degree of access to an urban nature space which can potentially provide the immersive experience of observing plants grow and evolve and understanding complex interactions between living organisms and the urban ecosystem at the micro-level, all of which fosters a sense of appreciation, wonder, and beauty of urban nature.  Furthermore, the immediate context of the normally drab and utilitarian footpath acts to further accentuate the garden's aesthetics and discursive meanings (i.e. conviviality, care, provision, and etc.), while providing a casual environment which both facilitate users to interact with the garden and each other.  However, these qualities are tempered by two factors.  First, the sense of informality and chaos of the footpath will simply be extended to the garden if the garden is littered upon, damaged, overgrown, in poor condition and/or haphazardly arranged. Second, its low placement compared to other items and activity on the 'foopath-scape' mean that gardens have a high possibility of being overlooked if the gardens lack stylized features that draw attention (i.e. bright colors, compelling arrangement, flowers, and etc.).

These two factors suggest that verge gardens have a strong potential to be dismissed, overlooked, or negatively perceived if they are not exceptionally well-maintained and aesthetically designed.  Gardens that, through thoughtful design, are able to overcome these factors can potentially convey a range of positive discourses such as streetscape beautification, household food provisioning, food security, leisure, individual and/or community well-being, community cooperation, land stewardship, and environmental health; while gardens that are not constructed with these design considerations will express negative discourses and values, such as neglect, disorder, neighborly

irresponsibility, and  health/safety/mobility hazard.  Gardens therefore that account for the hostile environment of the footpath through having stylized features, neighborhood-consistent aesthetics, and regular maintenance have greater potential for generating (a positive) public pedagogy.  This is to say that gardens that convey meanings also provide a public pedagogy, but one that at least suggests that agriculture does not belong on the public footpath.  Gardens therefore that account for the hostile environment of the footpath through having stylized features, neighborhood-consistent aesthetics, and regular maintenance have greater potential for generating (a positive) public pedagogy.  This is to say that gardens that convey meanings also provide a public pedagogy, but one that at least suggests that agriculture does not belong on the public footpath.

These findings highlight the significant need for policy and programmatic that encourage verge gardens to be better maintained and display a higher degree of attention to aesthetics, especially as most of the urbanites attempting or wishing to start verge gardening are typically not professional landscape designers nor have ample time to devote to their maintenance. Focused consideration on design aesthetics that accounts for the surrounding footpath conditions and neighborhood character is a process of "translating" its representation as to more easily allow public expectations of the footpath to be re-imagined and footpath-based food activities to be normalized, while simulating footpath policy revision—all dimensions of the urban food imaginary that are intricately linked (Nassauer, 1995).

The third study's focus on the *social practice* layer (i.e. emergence and dynamics of social practices around food) through also exploring the overall landscape of verge

216

gardens in Sydney, but by considering a range of qualitative data sources, first determined that the majority of gardens showed visible signs of neglect through minimal attention to aesthetics, minimal level production, or community use, and therefore produced a 'negative' public pedagogy (i.e. instructed the public via negative discourses of food production being unaesthetic, agriculture not being appropriate for the footpath, and etc.). However, 'higher quality' gardens were also found that expressed care through these characteristics and were determined to enable two 'streams' of pedagogies, that can be conceptualized as *place* and *network pedagogies*. *Place pedagogies* are the learning processes that were situated in three broad types of social practices—visiting and observing, food cycle activities (especially food cultivation, foraging, preserving/cooking, composting), and sharing rituals (conversations, food sharing/gifting, conversation)— through which the gardens formed a place identity of being a community food place. *Network pedagogies* are the learning processes situated through the social practices that embed the garden in networks of local spaces and actors. These practices included using the gardens for pre-primary to tertiary-level classes, presenting the gardens in news and social media, and the sharing of garden-related items at local events and spaces. These linkages with structured education, media, and community spaces produced two outcomes: verge gardens developed conceptual meaning through the network conferring various meanings to them; and discourse about the garden(s) is produced and circulated well beyond the intermediate neighborhood. Much of this discourse centered around the need for changing the urban spaces to incorporate food production; and the culture resists

this transformation. Also, both *place* and *network pedagogies* contributed to food cycle and urban ecology literacy through its various activities and learning processes.

Together, the two streams of pedagogies worked in concert to shift the urban food imaginary through re-envisioning the footpath as a potential community food place and legitimizing footpath-based food practices; place pedagogies also contributed to shifting the imaginary through various technical innovations around adapting gardening for the footpath.  It was also determined that the verge gardening practice was impeded by established regimes and their conventions and activities, which converge on the footpath such as transport, waste management, utilities, urban animal/wildlife, and nature strip management.  It was also hindered by synergy of verge gardening practice elements– garden designs were often not properly adapted for the footpath (Materials), gardeners and foragers lacked skill (Competence), and some residents and council staff held negative images of the gardens (Meaning)—which culminate in substandard gardens and a lack of momentum.

Because of these challenges, I suggested a policy approach focused on the 'recrafting' of verge gardening through targeting changes in the practice elements: updating design standards to emphasize aesthetics, production, garden adaptions for footpath-specific cultivation, and community use; upskilling gardeners via education and support, and using communication tools for creating awareness of the need for UA and the benefits of verge gardens.

## 5.2 DISCUSSION

Examining the various findings of each of the three studies together, it is possible to make a number of observations. The second study brought attention to the 'severe' pedagogical potential of the verge garden form. By 'severe', I mean that that the verge garden has tremendous potential to transmit knowledge, discourse, and practices around food, but only if a high-level of attention is given to its design with regards to aesthetics and issues of safety and mobility. However, because the footpath is a "hostile environment" for food cultivation, as one participant noted, there is a significant potential for gardens to have unsatisfactory aesthetics which would result in negative discourse (i.e. neglect, disorder, hazard, nuisance, etc.), and possibly resident complaints and subsequent council removal of the gardens. Moreover, the footpath, with its array of visual features and activity makes gardens easy to be dismissed and overlooked if they are constructed without visually-compelling features. This means that the verge gardens, as a UA form, are a somewhat unforgiving as a pedagogical medium unless the gardener has adequate skills and expertise to design and maintain a garden that can overcome these multifaceted obstacles. These findings of the second study were theorized primarily through multimodal discourse and confirmed visually by walking ethnography. However, the actual demonstrated potential of gardens that could overcome these difficulties—best-case practice gardens—was a virtual unknown and beyond the scope of the second study.

The findings from the second and third study functions to fill this gap. In the third study, through a range of qualitative sources, best-case gardens—gardens that overcame the obstacles of the hostile footpath environment—were broadly found to generate a

219

public pedagogy that was centered around the social practices that formed place and network pedagogies which, together, contributed to new cultural expectations of the city food system through solidifying the verge garden as a legitimate community food place, producing and circulating discourse about the garden focused on spatial and cultural change for food production, forming food and urban ecology literacy, innovating garden adaptions for the street verge, and informing future footpath garden policy. The first study's case example focused on a single best-case practice garden and similarly found discourses of community and transformation spatially represented in its garden. This garden also enabled social practices that formed its own place and network pedagogies (watering, foraging, social interaction; and acts of neighborly conviviality, respectively). The single case space, the Carter Street Herb Garden, through its representation, also expressed discourses of wholeness and hospitality which were not discourses that were explicitly found through the third study's focus on social practice using qualitative data. This is not to say that these discourses were not present, but rather they were not alluded to thematically in the interview and diary-keeping data.

The three studies also highlight the importance of the everyday spatial representations and practices of UA for forming the basis for social life around the gardens. Verge gardens with representations conveying negative discourse were less likely to encourage practices around food to form. Garden representation also impacted the extent it would potentially endure to be a long-term structure in the neighborhood. The question that follows is whether representation of other forms of UA, such as community gardens, urban farms, and rooftop gardens, is hindering its ability to be scaled-

up in a city. In other words, does a UA space's representation prevent certain desirable social practices around food to emerge; or keep the space from becoming more than a temporary placeholder for underutilized land? In the case of the verge gardens, their representation clearly was linked to the formation of practices and longevity; gardens made with aesthetics, productivity, and community use in mind stimulated food practice and have mostly persisted as long-term gardens, while those that did not consider those factors deterred practices from forming and became unused and/or removed by the municipal council.

Lastly, the studies elucidate the need for policy and programming that target the representation as well as the dynamics of social practices around UA. If spatial representation is a key obstacle for UA to be accepted by the wider public, specific policy related to each UA form's aesthetics can be developed. In the case of the verge gardens, my research suggested that guidelines emphasizing impactful visual aesthetics, high degrees of maintenance, and community stewardship could facilitate the gardens 'societal embedding'. Also, policy and programming focused on food practice component elements might facilitate the formation of desired practices. For the practice of verge gardening, synergies of poor images of the verge gardens (Meanings), novice gardening and foraging skills (Competency), and lack of design consideration, and policy, programmatic, and financial incentives (Materials) frustrate the emergence and maintenance of the practice.

Overall, the three studies provide a case study of a specific UA form and its degree of agency—in terms of its ability to be folded into the everyday life rhythms of a given

community via the interplay of its representation and its enabling of new social practices around food. This type of 'pedagogic potential' analysis also uncovers obstacles that hinder this process of embedding.  Urban Imaginaries that do not include UA are a significant impediment to UA becoming a permanent 'infrastructure' in cities.  This study brings attention to how the spaces of UA themselves can be analyzed in terms of how they align or not with cultural preferences of food in urban space.

## 5.1 FUTURE DIRECTIONS

This dissertation brings attention to the flows of knowledge, discourse, values, and practices around UA spaces with a specific focus on verge gardens in Sydney.  Central to my argument is that the gardens generate a public pedagogy based on its spatial representation and enabling of social practices around food. This research on the 'pedagogical life' of edible verge gardens in Sydney has been exploratory in the sense that has endeavored to unpack how the public pedagogy of UA spaces can be conceptualized. There are many areas that could be refined through further research.

While this study has been conducted through social semiotic and qualitative research approaches, the notion of public pedagogy as applied to UA spaces can be strengthened by measuring and quantifying the degree in which UA spaces are embedded in their locale. For example, by having metrics on the number of passerby that engage a verge garden compared to those who do not engage; the frequency of practices (gardening, foraging, meal preparation, etc.); and the amount of production for each

garden, would allow the degree of agency that a garden possesses to exert cultural change to be linked with quantitative measures.

As noted previously, this study preferences the garden space itself to generate public pedagogy, but more research can be conducted from the perspective of the residents and passerby to construct a more nuanced picture of how the garden is perceived, understood, valued or not. Especially, it would be useful to know why best-case gardens were not engaged by or used by passerby. A passerby might not consider using gardens because of any number of reasons, including food preferences that do not include herbs, a lack of cooking skills, a hesitancy to pick from the garden because of social norms, or a perception of the garden produce being unsanitary because of air pollutants or animals. A more thorough understanding of why passerby's reasons for engagement with the gardens could further inform garden design.

There is also the potential for subsequent research in some of Sydney's hotspots for verge garden activity. Chippendale, in particular, is well known for their verge gardens and having more in-depth ethnographic data about how their gardens' use and perceptions would allow the verge garden phenomenon to be examined from the neighborhood scale. Also, some of their gardens did not display a high degree of aesthetics and maintenance, yet there is an image that they are used regularly by the community. Ethnographic research with its community members would be able to clarify the level of use by the community, and whether aesthetics and maintenance levels were not a significant factor determining use.

Also, further research could elucidate what kind of gardens and neighborhood/street contexts encouraged certain types of social practices. Some of the practices—community gardening days, preservation of produce (i.e. pickling), composting—that were confirmed in some of the gardens were not necessarily found in other gardens. Research that details why certain practices emerged according to garden or neighborhood characteristics could clarify further how specific design features are link to practices. For example, certain plants might encourage foodsharing or pickling because of their productivity or abundance; while others might not because of their unfamiliarity.

My research also suggests that there is room for more studies devoted to what plants perform best under these conditions (i.e. easy maintenance and high aesthetics), and what sorts of container designs are visually compelling enough to attract engagement, but not too much so as to attract resident complaints. Having quantifiable data would be an additional metric to help persuade key stakeholders, who often make policy decisions based on empirical measurements, of the value of UA. Metrics around public pedagogy could form the basis for comparing different sites of the same form or of different forms as a way of further unpacking the relationship between representation, practice, and cultural change.

The conceptual model and analysis developed was focused on the case study of edible verge gardens. The extent in which the model is generalizable is a limitation of this research study; applying and contextualizing the model to other UA forms could allow for further refinement of the model. However, the model is sufficiently broad in scope to generally apply to most UA forms (and contexts), such as community gardens or urban

farms, as each form have their own range of spatial representation and social practices. Understanding the affordances and constraints of each form can help inform a more effective cultural 'translation' so that representation and practice dynamics are not hindrances to their normalization in everyday life and proliferation in cities.

On a final note, a likely contribution of this research lies in its interdisciplinary attempt to bring the perspective of educational theory to urban food systems planning. This research is challenge to dominant approaches within not only urban food systems planning, but also educational studies. Within both fields, this research encourages further thinking in terms of how the everyday spaces that we inhabit and interact with contribute to new ways of thinking and living, while potentially eventuating into larger shifts of cultural narratives, discourses, and approaches to dwelling in the city.

**APPENDIX A: Multimodal Discourse Analysis of Case Garden (from Ch. 2)**

### Representational Metafunction

Through representational metafunction, I will explore this verge garden's overall *denotation* and *connotation*. With this verge garden's *denotation*, what is first observed are seven circular half wine barrel containers dug into the ground of a large nature strip, between the footpath and the street. The containers are located slightly closer to the footpath in the nature strip, which at about five meters width acts as a generous framing for the whole garden. The barrels are divided into groups of three and four, which surround an auxiliary footpath leading to a house directly behind the garden (presumably associated with the garden), while connecting perpendicularly to the primary footpath. Inside the planters are herbs and plants at various stages of growth. Two identical signs of porcelain tiling are mounted on wooden posts and placed in the ground between the first and second planters of each group of barrels. The small signs are an off-white color with a simple yet elegant decorative green border and lettering. On the signs are the same handwritten words on both sides (but in reverse order). With either direction of approach, the signs will always read "Community Herbs on Carter Street" and "Pick on your way home", sequentially. Across the footpath, two pastel blue watering cans hang from a white picket fence fronting the house. Behind the fence is a faded green metallic water pump that continuously drips into the full-sized water barrel filled with water (and gold fish), effectively creating a simple rustic fountain. Sitting in front porch of the house, behind the fountain, is a wooden wheelbarrow with terracotta containers of herbs. Given

the high-quality materials and uniform arrangement, the garden appears to belong to the adjacent house or be a small community garden set up by council.  In either case, the signs point to the garden being provided for neighborhood use.

In terms of *connotation*, the garden space has an air of refinement, tradition, and sentimentality which is expressed through the natural materials—aged timber, ceramic tiling, and metals—and various handcrafted objects that allude to the past, including the water pump, fountain, wooden cart, wine barrel, and the signage.  The container and signage material choices are especially revealing, as cheaper materials are typically used for verge gardens. Permanence and strength are conveyed through the wine barrels which appear as two continuous structures due to their proximity; and the barrel's thick walls which are set heavily into the ground.  The wood, aged yet no visible imperfections, appears to have withstood many seasons of rain and sun.   Warmth is connoted by the circular shape of the barrels, in contrast to industrial overtones that are associated with more angular shapes (Kress and Van Leeuwen, 2006; and cited in Ravelli and McMurtrie, 2016), and further accentuated through its placement on the expansive space of the large nature strip lawn.  Additionally, the space subtly communicates that it is associated with the nearby house through its closer placement towards it; as well as the nearby watering cans, fountain, and wooden cart on the house's property.  The space's features, therefore, suggest that it is simultaneously connected with the house and community through its overall design, materials selection, and explicit signage.   The semiotic markers effectively blur the home and community boundaries, while making the space feel idyllic, elegant, and inviting.

227

The space is also represented through a series of transactional processes, which in MDA are actions/movement received by objects.  Beyond observing and interacting with the garden (and fountain with fish), passersby can also read signage, pick up, fill, and return watering cans, water plants, and pick and observe the herbs. A synergy thus exists between the passerby, signage, plants, watering cans, fountain, and water; and supported by the nearby wooden cart garden.  Excluding any element impedes watering the plants. Without signage, passersby might not interact with the garden; without watering cans, the fountain is simply decorative; and without water, there is no direct engagement with the watering cans and fountain.  Even the goldfish are a critical element as it prevents mosquitoes from deterring garden users. The positioning of objects is also crucial to enabling activity.  The watering cans' location on the outside of the fence suggests that pedestrians can water the garden.  The water fountain's placement directly behind the watering cans implies that passerby can use the fountain to fill the watering cans.  Also significant is that movement (*vector* in MDA terms) and sound are created through the water dripping into the barrel also serving to attract the passerby.  Through these subtle details, affordances for a spatial engagement are created, while communicating the owners' hospitality and invitation to participate in the life of the garden.  The simplicity and good-naturedness of these actions is supported by the pervasive aesthetic of tradition, countryside quaintness, and perhaps nostalgia, most certainly reinforced by the lulling sound of the dripping water.

**The Interactional Metafunction**

For the interactional metafunction, this garden has a range of meanings related to its large size and stylised features. *Contact* with the garden is usually initiated from a reasonable distance because of its considerable volume, of more than seven wine barrels of width; and sizeable footprint, reinforced by the containers' identical form and appearance. Being below eye level, the space does not impose despite its substantial size, but instead suggests itself to the viewer (Kress and Van Leeuwen, 2006; Ravelli and McMurtrie, 2016). *Contact* continues as pedestrians approach the space, likely reading the signage which is invitational in tone, content, and materiality (subdued white and green hues and cursive handwriting). *Power* is expressed predominantly through the horizontal plane by the two sets of barrels conveying strength and longevity through their thick wood construction, but is muted through their neutral tone and lower vertical position. The *social distance* at which passersby can engage with this garden is intimately close, as with most verge gardens. The garden is also fully accessible from any direction due to the surrounding large nature strip, unlike most verge gardens are difficult to access from facade facing the street. A close *social distance* is also realized through the earthy materials, an upper-class aesthetic that residents from the surrounding upscale neighborhood would likely feel affinity towards. Pedestrians initially relate to this space from an oblique angle which is inviting and suggestive, rather than demanding and imposing (Ravelli and McMurtrie, 2016). *Involvement* (and a closer *social distance)* between users is encouraged through the sizeable nature strip which allows easy engagement with the garden and other users. It is also enabled through the water pump

fountain area and the pathway linking it to the garden which provide additional points of social contact and interaction.  The garden has a low degree of *control,* or degree of physical/regulatory limitations imposed on a person from a space, due to its spacious area; pedestrians have ample room for movement.  The pathway to the fountain does cross the footpath, but is hardly limiting because of the light foot traffic. However, the water pump fountain area is highly controlled through its placement behind the fence.  Pedestrians can fill the watering cans only by reaching over the fence.

Lastly, *modality* refer to the degree of truth perceived based on one's idealised image of a space. This conception of truth is entirely dependent on a given sociocultural standard, or *coding orientation,* and specific evaluative criteria (Ravelli and McMurtrie 2016).  I propose two coding orientations relevant to verge gardens: *nature* and *community*. The *nature* coding orientation refers to people's idealization of nature, which for Western sensibilities, is equated to beautiful and pristine scenery that a source of refuge and escape (Cronan,1995).  Verge gardens plainly exhibit nature, but sometimes their expression clash with people's visual expectations of how nature.   Verge gardens having a high nature modality are therefore spaces that are vital, well-maintained, and orderly; spaces with a low nature modality are either plain, of poor condition, and/or unkempt.  The second coding orientation of *community* is based upon the degree a space reflects community life and activity and can be assessed by the presence of interactivity points, or elements encouraging community (i.e. benches, signage, etc.).

Overall, the verge garden on Carter Street has a moderately high nature modality due to its plants being generally healthy, its arrangement of containers expressing a high

degree of orderliness, and its reasonably maintained plants.  However, seasonality affects its nature modality.  In the winter, the garden was found to have a lower modality through an increase of brown/lifeless plant and empty beds communicating neglect, though this may be mitigated through lower expectations of the plants during the winter months; and the wooden cart of herbs that are still in good condition, despite the colder weather.  The garden also has a high community modality via its many interactivity points— two signs, watering cans, and water pump fountain—all enhance, through analyzing the single verge garden case of d by the spacious perimeter area and signage explicitly encouraging community usage.


**Organisational Metafunction**

In terms of the organizational metafunction, it is first beneficial to understand how it is arranged spatially, in terms of its *informational values*.  Firstly, there is a Given-New relationship for the pedestrian walking along the footpath as the "Given" of the nature strip is juxtaposed by the "New" of the verge garden.  Though the verge garden matches the aesthetics of the neighborhood, it still is prominent; no other verge gardens exist on this street.  The nature strip might be perceived as the current way of managing the verge which is dull and sterile (Given); and the verge garden as a progressive reconfiguring of urban space that results is vibrant and lush (New).  The Given-New relationship is expressed also through the signage.  Through the first sign, "Community Herbs on Carter Street" (`), a pedestrian will identify the space as belonging to the neighborhood.  As the

pedestrian encounters the second sign, "Pick on your way home" (New), s/he is now invited to use the garden.

With regards to s*alience*, the most prominent feature of the garden is the wine barrel beds, whose repeated circular pattern, serve to reinforce the feeling of the aforementioned permanence, refinement, and durability.  Also highly salient is the signage because of its raised position and white color; as well as two small trees in the barrels, curry leaf and bay leaf, as they are the largest plants in the space.  The two trees serve to add to the garden's feeling of longevity, rootedness, and abundance.  The water pump fountain and wooden cart are not centrally positioned in the text, but have a moderate degree of salience because they are two objects extremely unusual for the public streetscape.  *Framing* for this space is strong because it is accomplished via the wine barrels whose thick walls and tall size provide a sense of protection against the hostile environment of the footpath (i.e. dogs, cats, littering, etc.).   Lastly, as mentioned earlier, the garden space is very unrestricted, so a pedestrian's *navigational path*— implicitly made by the border of the nature strip which uniformly surrounds both sets of containers—is unobstructed around the perimeter of the garden.

Looking at all three metafunctional layers together (see Figure 35), this verge garden as a spatial text is clearly held together by the series of seven wine barrel planters set in the grass expanse of the large nature strip.  The barrels' rugged, thick, and circular wooden walls form a stout, yet elegant base and barrier for the garden, imbuing it with a sense of warmth, refinement, and order; and the ample swath of grass surrounding the wine barrels make the space feel free and approachable. The synergy of these two design

elements supports the overall warm atmosphere of the space which expresses an uncomplicated neighborly friendliness through the ensemble of salient objects — cheerful signage, plentiful herbs, quaint water cans, a continually dripping water pump fountain, and an antique wooden cart of plants.  Those objects also crucially afford pedestrians to move from observing to interacting with the garden. Viewers develop a more than a casual connection with the garden though the elemental actions of filling watering and harvesting. The overall earthiness and countryside-inspired simplicity communicated through the selection and arrangement of the objects and their potential for spatial engagement ultimately transforms one small section of a mundane footpath into a vital community space.

## REPRESENTATIONAL MEANINGS

**Denotation/Connotation**

- refinement, tradition, sentimentality (artisan signage; french water pump fountain; wheelbarrow garden; natural materials of timber, ceramic tiling, metals; water)

- permanence & strength (interconnected, heavily-set wine barrels planters)

- warmth (circular shapes & expansive nature strip)

- blurring of house & community(placement by house/fountain/wheelbarrow yet on nature strip &  explicit signage)

**Processes**

- affordance of synergistic activity via signage, watering cans, plants, fountain, goldfish

- dripping water (sight/sound) attracts passerby

## INTERACTIONAL MEANINGS

**Contact**
- starts from distance due to considerable volume, and repetitious form;

**Power**
- horizontally via barrels (strength & longevity via thick wood construction, but muted by neutral tone & lower vertical position.

**Social Distance / Involvement**
- invitational & suggestive due to oblique angle with footpath, then, mostly intimate (physical) distance due to footpath placement & full accessibility from perimeter
- close (aesthetic) distance as it aligns with upper class neighborhood preferences
- multiple points of involvement (garden, fountain, signage, watering cans); garden easily engaged by multiple users due to expansive nature strip

**Control**
- low degree due to informal/casual nature of footpath/nature strip

**Modality**
- high nature modality (reasonable levels of health, orderliness, maintenance) & high community modality (many interactivity points)

## ORGANIZATIONAL MEANINGS

**Information Values**
- juxtaposition of nature strip (Given) vs. garden (New); dull & sterile space (Given) vs. vibrant & lush space (New)

**Salience**
- wine barrels (refined aesthetic), signage (community orientation), & herb trees (longevity/abundance) are most prominent

**Framing**
-strong framing via wine barrels (protection against hostile footpath environment)

**Navigational Path**
- free & unhindered because of expansive nature strip

**FIGURE 37.** Multimodal Discourse Analysis Summary of Case Study Garden

# APPENDIX B: Semi-structured interview Questions

**Opening Questions**
- What is your name
- Where do you live?
- What is your relationship to this verge garden?

**General**
- Occupation/Organization
- Where do you live?
- Which country are you from?

**Meaning of Verge Gardens**
- Did you grow up gardening or farming?
- How long have you been involved with verge gardens?
- Why did you start a verge garden?
- How would you describe a verge garden space to someone who has never seen one before?
- Which part of the verge garden is most meaningful for you?
- What compels you to keep gardening?
- How often do you garden?
- How often do you use the garden produce for cooking?
- Do you often give away garden produce?
- Does the garden have any social value to you?
- Have you learned about other culture's food traditions through verge gardens?
- What makes a verge garden appealing or not appealing to you?
- Which verge garden is most interesting to you on this street?
- What is your favorite part of verge gardening?

**Transmission of knowledge, practices, values to individuals/household**
- Has participating with verge gardens, influenced...
  - the way you think or live?
  - your beliefs about food?
  - your knowledge about food
  - your food values?
  - your health?
  - your spiritual beliefs?
  - your/household's diet?
  - the way you plan your meals?
  - the way you shop for food?
  - your food choices?
  - the way you throw away food?
  - your daily schedule?
  - the busyness of your life?
  - your social life? (i.e. getting to know neighbors; sharing food)
  - your family life?
- What new vegetables/medicinal plants have you learned about since starting a verge gar

# APPENDIX C: Dairy-Keeping Prompts

**Mapping Exercise**
Make a simple map of your immediate neighborhood and mark your verge garden's location. What role does your garden play in the life of your community? Sketch out neighborhood connections to your garden, including (as applicable):
- neighbors who always stop and visit to look and/or forage,
- other gardens that have started because of your garden,
- new people you have met because of your garden
- various activities that happen at your garden
- where your plants came from; and where clippings have gone
- relationships with nearby institutions (i.e. shops, schools, churches, etc.)
- any other items important or meaningful to your garden and its connection to the neighborhood

**Education-Related**
- What sorts of educational opportunities does your verge garden provide for your neighborhood?
- What are the informal ways that people are educated through your garden?
- Why did you choose the current plantings in your garden?
- (if you have signage), why did decide to include signage? And why that particular type/design of signage?
- Have any neighbors learned how to garden (and previously had no gardening experience); acquired a taste of new vegetables/herbs because of your verge garden?

**Design & Neighborhood Perception**
- What are the range of attitudes/opinions about your garden?
- What sort of negative attitudes/complaints do people have, if any, about your garden? If so, is there any sort of educational interventions that can mitigate these (additional signage, changing design features, having council-sponsored workshops, etc.)?
- Why have you chosen your particular design for the garden? Does its aesthetic design have any relationship to how it is perceived by the neighborhood? Are there any heavily-stylized features of your garden, and if so, why have you chosen them (i.e. planting in wine barrels, including unusual signage, etc.

**Household Usage**

- How often do you garden? What are the daily/weekly/monthly/season rhythms for your garden (i.e. in terms of whats growing, how it is cared for, etc.)
- How often do you harvest from your garden? What do you do with the various harvested items (i.e. cooking, preserving, freezing, give them away, etc.)
- Are there any items that you do not have to buy from the supermarket anymore because you grow enough of it (i.e. chills, oregano, rosemary, etc.)?

**Community Usage**

- What are the main ways that people access your garden?
- Who are the neighbors using the garden, and why they use it?
- How often do neighbors forage/garden/browse/etc your garden?
- What would your neighborhood/community lose if your garden was turned back into grass?
- What are the interesting stories that accompany your garden?
- Does the garden catalyze any sort of food/vegetable sharing in your neighborhood?
- Has your garden led to the creation of other verge or house gardens in your area?
- If people forage from your garden, what time of the day does that usually happen (and why)?
- What demographic characterizes the people who use your garden(i.e. age, race, sex, ethnicity, social

**Environmental Impact**

- How does your garden improve the microclimate/microenvironment of your street/footpath?
- Do you notice an increase of beneficial and/or native fauna (i.e. European & native bees) because of your garden?
- Does your garden help mitigate "heat island effects" from your footpath and street during the hotter months?
- Does your garden noticeably help absorb some stormwater run-off during rain events?
- Have you become more familiar with the rhythms of seasons (and climate/ecosystem patterns) because of gardening?

**Food Traditions**
- What cultures traditionally use the types of items that you grow in their cooking, medicinally, or for other uses (i.e. mulch, clothing/fiber, rituals, etc.)?
- Does your garden have any bush tucker?
- Are any ethnic food traditions enabled because of your verge garden (i.e. communal cooking, communal feasting, specific ethnic foods/dishes, etc.)

# GLOSSARY OF TERMS

**Aesthetics** – cultural perceptions of beauty, orderliness, harmony, and care (Crawford, Lee, & Beatty 2015)

**Binding** – the feeling of in/security in a space depending on the degree of enclosure

**Center Margin** – elements are perceived as more important placed in center compared to those near the 'edges' of a composition or space

**Circumstance** – the physical and social context surrounding the garden.

**Coding Orientation** – a given sociocultural standard that a space's modality is based on such as governmental, institutional, commercial, corporate, domestic/social modalities (Ravelli & McMurtrie, 2016)

**Connotation** – meanings related to "preconceived ideas, historical location,

**Contact** – nature and degree of eye contact that a passerby has with the space

**Control** – the degree of physical and regulatory limitations imposed on a person from a space

**Denotation** – the plain meaning and function of a space
experience, knowledge, and familiarity" (Ravelli and McMurtrie, 2016: 29)

**Framing** – the degree of separation of the inside to the outside.

**Given-New** – In predominantly Western cultures, left-positioned elements are typically perceived as old information, while right-positioned elements are perceived as new information. When moving through a space, physically closer elements are perceived as old information ('Given') and elements further away are perceived as new information ('New'). For non-Western cultures, the Given-New relationship may be oriented in a different direction.

**Image** – one of the three components of the social practice theory triad referring to social meanings derived from a specific practice

**Imaginary** – According to Taylor (2002), a "common understanding that makes possible common practices and a widely shared sense of legitimacy" (p.106).

**Information Values** – interprets specific areas within a text as conveying more importance than others according to fundamental organizing structures (listed immediately below)

**Interactional Metafunction** – one of three layers of meaning communicated by a space (theorized by multimodal discourse analysis) which focuses on one's participation and interactions with a space.

**Involvement** – the level of engagement of a person with a space

**Landscape** – from the framework of the multilevel perspective (MLP), this macro-level includes larger environmental, social, political, and cultural trends that create pressure on existing regimes.

**Metafunction** – A layer of meaning that communicates by any given semiotic system (i.e. space, language, music, and etc.). There are three in relation to space: representational metafunction, interactional metafunction, and organizational metafunction.

**Modality** – manner and degree of truth that is perceived based upon one's idealized image of a space.

**Modality Marker** – specific evaluative criteria of a space such as layout, noise, and ambience to be used to determine a space's modality in relation to a coding orientation

**Narrative Process** – A process type that is dynamic as evidenced by movement or activity

**Navigational Path** – walking route taken while interacting with space

**Network Pedagogies** – learning processes occurring through the social practices that embeds a space in networks of local spaces and actors which, in turn, generates discourse about the space

**Niches** – from the framework of the multilevel perspective (MLP), these are the emergent spaces and/or objects of innovation (i.e. solar power, green roofs, autonomous cars)

**Nucleus - Satellite** – elements linked physically or perceptually ('Satellite') to another usually a more visually prominent element ('Nucleus') are dependent on that element for meaning. 'Meanings' associated with the Nucleus element is conferred to 'Satellite' elements.

**Organizational Metafunction** – one of three layers of meaning communicated by a space (theorized by multimodal discourse analysis) which focuses on how the elements of a space are arranged in relationship to each other and to the whole of the space.

**Place Pedagogies** – learning processes that are situated within the social practices of a space that act to transition a space to becoming a distinct place.

**Power** – the feeling of dominance that a space holds over a person through its overall physical size (vertical and/or horizontal) and weightiness

**Public Pedagogy** – the agency of (urban agriculture) spaces to transmit discourse, knowledge, practices, and values for the wider public.

**Process** – static or dynamic 'events' that are expressed in a space

**Real-Ideal** – elements that are vertically higher are perceived as being more important compared to elements that are vertically lower

**Regimes** – from the framework of the multilevel perspective (MLP), these are "established practices and associated rules that stabilize existing systems" (Geels 2011, p. 26).

**Representation (of Urban Space)** – the notion that that urban space is its own 'language', or a meaning-making system based upon one's multisensory engagement with the space

**Representational Metafunction** – one of three layers of meaning communicated by a space (theorized by multimodal discourse analysis) which focuses on "what" is being portrayed.

**Salience** – elements that are most prominent within a space

**Skills** – one of the three components of the social practice theory triad referring to competencies required to enter in a specific practice

**Social Distance** – "literal and figurative" closeness between a person and the spatial text (a space that acts as a meaning making system) during interaction, (Kress and Van Leeuwen, 1996).

**Social Semiotics** –  a field of studying communications that examines "how people communicate by a variety of means in particular social settings" using socioculturally defined meanings conveyed by "shared options (or 'semiotic resources') (MODE, 2012)

**Stuff** –  one of the three components of the social practice theory triad referring to technologies, materials, and artifacts needed for a specific practice

**Technological and Material Infrastructure** –  the validation of certain policies, tools, projects, and other elements associated a specific urban imaginary (Senger, 2016).

**Transactional Process** – An action with an 'actor' and an 'object' of that action (i.e. a child, or 'actor' is looking at a flower, or 'object')

**Urban Food Imaginary** – the social expectations of the spatialities and materialities of the urban food system and its activities, including how food is grown, procured, processed, exchanged, cooked, consumed, disposed

**Urban Coordination Tool** – physical structures that direct knowledge and learning to move and circulate throughout the city, while also conveying a certain representation of the city which can "stimulate [or limit] the imagination" of how cities should be (Macfarlane 2011, p.13)

**Vector** – directional movement communicated within a space

**Verge Garden** – An edible garden constructed in the street verge, or the space between the residential lot and road, which often contains a sidewalk

**Visual Culture** – a field of study and object of inquiry which emphasizes the role of everyday visual experiences with "images, objects, sites" in mediating values and beliefs (Tavin, 2003, p. 207)

**Walking Ethnography**  – a qualitative data collection method combining walking,  photographing, and observations which brings our bodies into "conversation" with the environments we move through" (Yi'En, 2013, p. 3).

# REFERENCES

Ackerman, K., Conard, M., Culligan, P., & Plunz…, R. (2014). Sustainable food systems for future cities: The potential of urban agriculture. *The economic and social …*, 18-30. Retrieved from http://www.esr.ie/article/viewFile/136/82

Aldo, L. (1971). *A Sand County Almanac: With Other Essays on Conservation from Round River*. Oxford: Oxford University. Retrieved from http://books.google.com.au/books?id=NMiIAQAACAAJ&hl=&source=gbs_api

Alias, S. (2004). A semiotic study of Singapore's Orchard Road and Marriott Hotel. In K. L. O'Halloran (Ed.), *Multimodal Discourse Analysis: Systemic Functional Perspectives* (pp. 55-82).

Alkon, A. (2008). Paradise or pavement: the social constructions of the environment in two urban farmers' markets and their implications for environmental justice and sustainability. *Local Environment*, *13*(3), 271-289. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/13549830701669039Alkon, A. H. (2008). From value to values: Sustainable consumption at farmers markets. *Agriculture and Human Values*, *25*(4), 487-498. Retrieved from https://link.springer.com/article/10.1007/s10460-008-9136-y

Arefi, M. (1999). Non-place and placelessness as narratives of loss: Rethinking the notion of place. *Journal of Urban Design*, *4*(2), 179-193. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/13574809908724445

Baker, L. E. (2004). Tending cultural landscapes and food citizenship in Toronto's community gardens. *Geographical Review*, *94*(3), 305-325. doi:10.1111/j.1931-0846.2004.tb00175.x

Barnes, C. (2017). Mediating good food and moments of possibility with Jamie Oliver: Problematising celebrity chefs as talking labels. *Geoforum*, *84*, 169-178. doi:10.1016/j.geoforum.2014.09.004

Barthel, S., Folke, C., & Colding, J. (2010). Social-ecological memory in urban gardens-Retaining the capacity for management of ecosystem services. *Global Environmental Change*, *20*(2), 255-265.

Bell, D., Hollows, J., & Jones, S. (2017). Campaigning culinary documentaries and the responsibilization of food crises. *Geoforum*, *84*, 179-187. doi:10.1016/j.geoforum.2015.03.014

Bendt, P., Barthel, S., & Colding, J. (2013). Civic greening and environmental learning in public-access community gardens in Berlin. *Landscape and Urban planning*, *109*(1). Retrieved from https://www.researchgate.net/profile/Stephan_Barthel/publication/261031771_Civic_greening_and_environmental_learning_in_public-access_community_gardens_in_Berlin/links/59e73c064585151e5465c6ea/Civic-greening-and-environmental-learning-in-public-access-community-gardens-in-Berlin.pdf

Bernstein, B. (1996). *Pedagogy, symbolic control, and identity: Theory, research, critique*. London: Taylor and Francis.

Bernstein, B. (2003). *Class, codes and control*. London: Routledge.

Berry, W. (1992). The pleasures of eating. *Cooking*. Retrieved from http://www.tamramccarthy.org/uploads/1/8/6/4/18640950/erwcpoliticsfood_readingpkt.pdf

Bezemer, J., & Kress, G. (2008). Writing in multimodal texts: A social semiotic account of designs for learning. *Written Communication*, *25*(2), 166-195. Retrieved from https://www.cul.gu.se/digitalAssets/1360/1360556_writing-in-multimodal-texts.pdf

Biesta, G. (2012). Becoming Public: Public Pedagogy, Citizenship and the Public Sphere. *Social and Cultural Geography*, *13*(7), 683-697.

Blomley, N. (2012). 2011 Urban Geography Plenary Lecture—Colored Rabbits, Dangerous Trees, and Public Sitting: Sidewalks, Police, and the City. *Urban Geography*, *33*(7), 917-935. Retrieved from http://www.academia.edu/download/31432226/UG_33_7_0917-0935_1-1.pdf

Brinkley, C., & Vitiello, D. (2014). From Farm to Nuisance: Animal Agriculture and the Rise of Planning Regulation. *Journal of Planning History*, *13*(2), 113-135. doi:10.1177/1538513213507542

Brown, J. (2001). Knowledge and Organization: A Social-Practice Perspective. *Organization Science*, *12*(2), 198-213.

Bunker, R., Holloway, D., & Randolph, B. (2005). Building the connection between housing needs and metropolitan planning in Sydney, Australia. *Housing Studies*, *20*(5), 771-794. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/02673030500214035

Chappell, S. V. (2011). Utilizing an Aesthetics of Destabilization to Read the Public: Pedagogy in Young

People's Community-based Social Justice Artworks. *JCT (Online)*, *27*(3). Retrieved from http://journal.jctonline.org/index.php/jct/article/viewFile/161/12Chappell.pdf

Charles, T. (2004). *Modern Social Imaginaries*. Durham and London: Duke University Press. Retrieved from http://books.google.com.au/books?id=5vFjIflzod8C&hl=&source=gbs_api

Christie, M. E. (2004). Kitchenspace, fiestas, and cultural reproduction in Mexican house-lot gardens. *Geographical Review*, *94*(3), 368-390. doi:10.1111/j.1931-0846.2004.tb00178.x

Classens, M. (2015). The nature of urban gardens: toward a political ecology of urban agriculture. *Agriculture and Human Values*. Retrieved from https://link.springer.com/article/10.1007/s10460-014-9540-4

Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education* (Eighth edition. ed.). New York: Routledge.

Cohen, N. (2015). Transitioning the food system: A strategic practice management approach for cities. *Environmental Innovation and Societal Transitions*, *17*, 199-217.

Colasanti, K. J. A., Hamm, M. W., & Litjens, C. M. (2013). The City as an "Agricultural Powerhouse"? Perspectives on Expanding Urban Agriculture from Detroit, Michigan. *Urban Geography*, *33*(3), 348-369. doi:10.2747/0272-3638.33.3.348

Colding, J. (2013). Urban green commons: Insights on urban common property systems. *Global Environmental Change*, *23*(5), 1039-1051. doi:10.1016/j.gloenvcha.2013.05.006

Community spirit to grow in the garden on the footpath. (2015). *Starts at 60*. Retrieved from https://startsat60.com/news/community-spirit-to-grow-in-the-garden-on-the-footpath

Crane, C. (2014). Planting on nature strips is a go-go. *Geelong Advertiser*.

Crawford, P., Lee, E., & Beatty, M. (2015). Aesthetic Perception of Urban Streetscapes and the Impact of Form-Based Codes and Traditional Zoning Codes on Commercial Signage. *Current Urban Studies*, *3*(3), 199-215. doi:10.4236/cus.2015.33017

Cronon, W. (1995). *Uncommon ground: toward reinventing nature* (1. ed. ed.). New York NY [u.a.]: Norton.

Cushing, D. F., & Pennings, M. (2017). Potential affordances of public art in public parks: Central Park and the High Line. *Proceedings of the Institution of Civil Engineers - Urban Design and Planning*, *170*(6), 245-257. doi:10.1680/jurdp.16.00042

Davison, A. (2006). Turbulent times for urban nature: conserving and re-inventing nature in Australian cities. *Australian Zoologist*, *33*(3), 306-314. doi:10.7882/AZ.2006.004

de Saint-Georges, I. (2004). Materiality in discourse: the influence of space and layout in making meaning. In P. LeVine & R. Scollon (Eds.), *Discourse and Technology:*

*Multimodal Discourse Analysis* (pp. 794-803). Washington, D.C.: George Washingon University Press.

Deelstra, T., & Girardet, H. (2000). Urban agriculture and sustainable cities. In N. Bakker, M. Dubbeling, S. Gundel, U. Sabel-Koschela, & H. de Zeeuw (Eds.), *Growing Cities, Growing Food: Urban Agriculture on the Policy Agenda* (pp. 43-65). Feldafing, Germany: Deutsche Stiftung fur Internationale Entwicklung (DSE).

Deriu, D. (2001). Opaque and Transparent: Writings on Urban Representations and Imaginations. *Journal of Urban History*. Retrieved from http://journals.sagepub.com/doi/pdf/10.1177/009614420102700607

Dicks, B. (2014). Action, experience, communication: three methodological paradigms for researching multimodal and multisensory settings. *QUALITATIVE RESEARCH*, *14*(6), 656-674.

Dixon, J., & Isaacs, B. (2013). Why sustainable and 'nutritionally correct' food is not on the agenda: Western Sydney, the moral arts of everyday life and public policy. *Food Policy*, *43*, 67-76. Retrieved from https://www.sciencedirect.com/science/article/pii/S0306919213001140

Docking, A. (2009). Invigorating town centres through alternate local produce marketing strategies. *International Cities Town Centres and Communities*. Retrieved from http://www.ictcsociety.org/papers/docking.pdf

Donald, J. (1999). *Imagining the modern city*. Minneapolis: University of Minnesota. Retrieved from http://italianstudies.nd.edu/assets/68854/donald.pdf

Donofrio, G. A. (2007). Feeding the city. *Gastronomica*. Retrieved from http://www.jstor.org/stable/10.1525/gfc.2007.7.4.30

Düttmann, A. (2016). The ABC of visual culture, or a new decadence of illiteracy. *Journal of Visual Culture*,

*1*(1), 101-103.

Earl, C. (2016). Doing Pedagogy Publicly: Asserting the Right to the City to Rethink the University. *Open Library of Humanities*, *2*, 441. doi:10.16995/olh.95

Ellsworth, E. (2005). *Places of learning: Media, architecture, pedagogy*. London: Psychology Press.

Fantasia, R. (1995). Fast food in France. *Theory and Society*, *24*(2), 201-243. Retrieved from https://pdfs.semanticscholar.org/6758/a2326b6c3d32c1ec69143807da299931bcfa.pdf

Garoian, C. (2004). The Spectacle of Visual Culture. *STUDIES IN ART EDUCATION*, *45*, 298-312.

Gaztambide-Fernández, R., & Arraiz-Matute, A. (2013). Pushing against: Relationality, intentionality, and the ethical imperative of pedagogy. In J. Burdick, J. A. Sandlin, & O. MP (Eds.), *Problematizing Public Pedagogy* (pp. 52-64). New York: Routledge.

Geels, F. W., & Verhees, B. (2011). Cultural legitimacy and framing struggles in innovation journeys: A cultural-performative perspective and a case study of Dutch nuclear energy (1945–1986). *Technological Forecasting and Social Change*, *78*(6), 910-930. doi:10.1016/j.techfore.2010.12.004

Gelasso, T. (2017). Lumberton works to reverse beekeeping ban. *WTBW New 13*. Retrieved from www.wbtw.com/news/lumberton-works-to-reverse-beekeeping-ban/918270763

Giroux, H. A. (2000). PUBLIC PEDAGOGY AS CULTURAL POLITICS: STUART HALL AND THE 'CRISIS'OF CULTURE. *Cultural studies*. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/095023800334913

Giroux, H. (2003). *Public spaces, private lives : democracy beyond 9-11*. Lanham (Maryland): Rowman & Littlefield.

Giroux, H. (2004). Cultural studies, public pedagogy, and the responsibility of intellectuals. *Communication and Critical Cultural Studies*, *1*, 59-79.

Gobster, P. (2007). The shared landscape: what does aesthetics have to do with ecology. *Landscape Ecology*, *22*(7), 959-972. doi:10.1007/s10980-007-9110-x

Guijarro, J. M., & Sanz, M. J. P. (2008). Compositional, interpersonal and representational meanings in a children's narrrative: A multimodal discourse analysis. *Journal of Pragmatics*. Retrieved from https://www.researchgate.net/profile/Arsenio_Guijarro/publication/240418297_Compositional_interpersonal_and_representational_meanings_in_a_children's_narrrative_A_multimodal_discourse_analysis/links/58d27d76a6fdccefe0a38636/Compositional-interpersonal-and-representational-meanings-in-a-childrens-narrrative-A-multimodal-discourse-analysis.pdf

Hall, S. (1997). Representation: Cultural representations and signifying practices. *Sage*.

Hargreaves, T., Longhurst, N., & Seyfang, G. (2013). Up, Down, round and round: Connecting Regimes and Practices in Innovation for Sustainability. *Environment and Planning A*, *45*(2), 402-420. doi:10.1068/a45124

Harris-Lovett, S. R., Binz, C., Sedlak, D. L., Kiparsky, M., & Truffer, B. (2015). Beyond User Acceptance: A Legitimacy Framework for Potable Water Reuse in California. *Environ Sci Technol*, *49*(13), 7552-7561. doi:10.1021/acs.est.5b00504

Harvey, D. (1989). From managerialism to entrepreneurialism : the transformation in urban governance in late capitalism. *Geografiska Annaler. Series B, Human Geography*, *71*(3), 3-17.

Hayes, E. R., & Gee, J. P. (2010). Public Pedagogy through Video Games: Design, Resources, and Affinity Spaces. In J. A. B. D. S. B. Sandlin (Ed.), *Handbook of Public Pedagogy* (pp. 185-193). New York: Routledge.

Head, L., & Muir, P. (2006). Suburban life and the boundaries of nature: resilience and rupture in Australian backyard gardens. *Transactions of the Institute of British Geographers, New Series*, *31*(4), 505-524. doi:10.1111/j.1475-5661.2006.00228.x

Hickey-Moody, A. (2010). Pedagogy writ large: public, popular and cultural pedagogies in motion. *Critical Studies in Education*, *51*(3), 227-236. doi:10.1080/17508487.2010.508767

Hinrichs, C. (2003). The practice and politics of food system localization. *Journal of rural studies*, *19*(1), 33-45. doi:10.1016/S0743-0167(02)00040-2

Hinrichs, C. (2014). Transitions to sustainability: a change in thinking about food systems change. *Agriculture and Human Values*, *31*(1), 143-155. doi:10.1007/s10460-014-9479-5

Hodson, M. (2009). Cities mediating technological transitions: understanding visions, intermediation and consequences. *Technology Analysis & Strategic Management*, *21*(4), 515-534.

Hogan, T. (2003). Nature Strip': Australian suburbia and the enculturation of nature. *Thesis Eleven*, *74*(3), 54-74. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.863.6875&rep=rep1&type=pdf

Horst, M., McClintock, N., & Hoey, L. (2017). The Intersection of Planning, Urban Agriculture, and Food Justice: A Review of the Literature. *Journal of the American Planning Association*, *83*(3), 277-295. doi:10.1080/01944363.2017.1322914

Hou, J. (2012). Making Public, Beyond Public Space. In R. Shiffman (Ed.), *Beyond Zuccotti Park : freedom of assembly and the occupation of public space* (1st ed. ed., p. 89=98). Oakland CA: New Village Press.

Jasanoff, S. (2009). Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea. *Minerva*, *47*(2), 119-146.

Johnston, J., & Goodman, M. K. (2015). Spectacular Foodscapes: Food Celebrities and the Politics of Lifestyle Mediation in an Age of Inequality. *Food, Culture & Society*, *18*(2), 205-222. doi:10.2752/175174415X14180391604369

Kate, A. (2011). Pigs in the Backyard or the Barnyard: Removing Zoning Impediments to Urban Agriculture. *Boston College Environmental Affairs Law Review*, *38*(2), 537-566.

Kennedy, E. H., Cohen, M. J., & Krogman, N. T. (2016). Social practice theories and research on sustainable consumption. In E. H. Kennedy & M. J. Cohen (Eds.), *Putting Sustainability into Practice: Applications and Advances in Research on Sustainable Consumption* (pp. 3-24). Northampton: Edward Elga Publishing.

Kennedy, R., Zapasnik, J., McCann, H., & Bruce, M. (2013). All those little machines: Assemblage as transformative theory. *Australian Humanities Review*, *55*, 45-66.

Kim, A. M. (2015). *Sidewalk city: Remapping public space in Ho Chi Minh City*. Retrieved from https://books.google.com/books?hl=en&lr=&id=TzDJBwAAQBAJ&oi=fnd&pg=PR5&dq=Sidewalk+city:+Remapping+public+space+in+ho+chi+minh+cit&ots=DVHaVa0Ybi&sig=mkNwTqX-Ft6YfAHi7Dz4gItpBlY

Kimber, C. T. (2004). Gardens and dwelling: People in vernacular gardens. *Geographical Review*, *94*(3), 263-283. doi:10.1111/j.1931-0846.2004.tb00173.x

Kovacs, Z. I., LeRoy, C. J., Fischer, D. G., Lubarsky, S., & Burke, W. (2006). How do aesthetics affect our ecology? *Journal of Ecological Anthropology*, *10*(1), 61-65. Retrieved from http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1049&context=jea

Kress, G., & Van Leeuwen, T. (2006). *Reading images : the grammar of visual design*. New York: Routledge.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press. Retrieved from http://www.universidad-de-la-calle.com/Wenger.pdf

Lee, S. (2007). Relationship between landscape structure and neighborhood satisfaction in urbanized areas. *Landscape and Urban Planning*, *85*(1), 60-70.

Leeuwen, T. V. (2004). *Introducing social semiotics*. New York: Routeledge. Retrieved from http://www.academia.edu/download/33842558/Introducing_Social_Semiotics_Theo_van_Leeuwen_.pdf

Leopold, A. (1995). *A Sand County almanac, and sketches here and there*. Norwalk Conn.: Easton Press.

Lim, F. V., O'Halloran, K. L., & Podlasov, A. (2012). Spatial pedagogy:Mapping meanings in the use of classroom space. *Cambridge Journal of Education*, *42*(2), 235-251. doi:10.1080/0305764X.2012.676629

Lin, B. (2015). The future of urban agriculture and biodiversity-ecosystem services: Challenges and next steps. *Basic and Applied Ecology*, *16*(3), 189-201.

Lindemann-Matthies, P. (2016). Does urban gardening increase aesthetic quality of urban areas? A case study from Germany. *Urban Forestry and Urban Greening*, *17*, 33-41. doi:10.1016/j.ufug.2016.03.010

Lonard, C. (2012). *Urban fringe agriculture and its potential contribution to sustainable cities: a case study of Western Sydney*. Bachelors.

Lopes, A. M., & Shumack, K. (2015). "Please Ask Us" Conversation Mapping as Design Research: Social Learning in a Verge Garden Site. *Design Philosophy Papers*, *10*(2), 119-132. doi:10.2752/089279312X13968781797832

Mansfield, L. (2013). Public health pedagogy, border crossings and physical activity at every size. *Critical Public Health*, *23*(3), 356-370. doi:10.1080/09581596.2013.783685

Mason, D., & Knowd, I. (2010). The emergence of urban agriculture: Sydney, Australia. *International Journal of Agricultural Sustainability*, *8*(1), 62-71. doi:10.3763/ijas.2009.0474

McFarlane, C. (2011). *Learning the city: knowledge and translocal assemblage*. Oxford: WIley-Blackwell.

McMurtrie, R. (2011). The meaning of [exiting]: towards a grammaticalization of architecture. *Text & Talk*, *31*(6), 705-731.

Meenachi-Sunderam, D., & Thompson, S. (2007). *The Nature Strip: An Environmental and Social Resource for Local Communities*. State of Australian Cities Research Network.

Mendes, W. (2008). Implementing Social and Environmental Policies in Cities: The Case of Food Policy in Vancouver, Canada. *International Journal of Urban and Regional Research*, *32*(4), 942-967. doi:10.1111/j.1468-2427.2008.00814.x

Mendes, W., Balmer, K., Kaethler, T., & Rhoads, A. (2008). Using Land Inventories to Plan for Urban Agriculture: Experiences From Portland and Vancouver. *Journal of the American Planning Association*, *74*(4), 435-449. doi:10.1080/01944360802354923

Meng, A. (2004). Making history in from colony to nation: A multimodal analysis of a museum exhibition in Singapore. In K. L. O'Halloran (Ed.), *Multimodal Discourse Analysis: Systemic Functional Perspectives* (pp. 28-54). London: Continuum.

Morgan, K. (2015). Nourishing the city: The rise of the urban food question in the Global North. *Urban Studies*, *52*(8), 1379-1394. doi:10.1177/0042098014534902

n.a. (1985). *Achieving a Self-Reliant Neighborhood. A Seven Step Decision Making Framework*. Washington DC: Neighborhood Reinvestment Corporation.

n.a. (n.d.). The Sidewalk Garden Project.

Nassauer, J. (2012). Landscape as medium and method for synthesis in urban ecological design. *Landscape and Urban Planning*, *106*(3), 221-229.

Nassauer, J. (2014). Urban vacancy and land use legacies: A frontier for urban ecological research, design, and planning. *Landscape and Urban Planning*, *125*, 245-253.

Noble, G. (2015). Pedagogies of Civic Belonging. In M. G. N. Watkins, G. & C. Driscoll (Eds.), *Cultural Pedagogies and Human Conduct* (pp. 32-44). New York: Routledge.

Nyers, E. (2013). Sustainability - on the verge. *Public Administration Today*, 36), 56-58.

Orsini, F. (2014). Exploring the production capacity of rooftop gardens (RTGs) in urban agriculture: the potential impact on food and nutrition security, biodiversity and other ecosystem services in the city of Bologna. *Food Security*. doi:10.1007/s12571-014-0389-6

Petrini, C. (2007). *Slow food nation : why our food should be good, clean, and fair*. New York :: Rizzoli Ex Libris.

Phillipov, M. (2017). *Media and food industries : the new politics of food*. Cham, Switzerland: Palgrave Macmillan.

Pink, S. (2012). Situating everyday life: Practices and places. *Sage Publications*.

Pitt, H. (2016). Scaling up and out as a Pathway for Food System Transitions. *Sustainability*, *8*(12), 1025.

Ponte, S., & Birch, K. (2014). Guest editorial: The imaginaries and governance of `biofueled Futures'. *Environment and Planning A*, *46*(2), 271-279.

Pothukuchi, K., & Kaufman, J. L. (1999). Placing the food system on the urban agenda: The role of municipal institutions in food systems planning. *Agriculture and Human Values*, *16*(2), 213-224. doi:10.1023/A:1007558805953

Pothukuchi, K. (2004). Community Food Assessment: A First Step in Planning for Community Food Security. *Journal of Planning Education and Research*, *23*(4), 356-377. doi:10.1177/0739456X04264908

Pothukuchi, K. (2017). Vacant land disposition for agriculture in Cleveland, Ohio: Is community development a mixed blessing. *Journal of Urban Affairs*, 1-22. doi:10.1080/07352166.2017.1403855

Pothukuchi, K. (2017). "To allow farming is to give up on the city": Political anxieties related to the disposition of vacant land for urban agriculture in Detroit. *Journal of Urban Affairs*, *39*(8), 1169-1189. doi:10.1080/07352166.2017.1319239

Ravelli, L. (2000). Beyond shopping: Constructing the Sydney Olympics in three-dimensional text. *Text and Talk*, *20*, 489-516.

Ravelli, L. (2007). *Museum Texts : Comunication Frameworks*. Hoboken: Taylor & Francis.

Ravelli, L., & Stenglin, M. (2008). Feeling space: Interpersonal communicationa and spatial semiotics. In G. Antos & E. Ventola (Eds.), *Handbook of Interpersonal Communication* (pp. 355-396). Berlin: Walter de Gruyter GmBH & Co.

Ravelli, L. (2015). Analysing space: Adapting and extending multimodal semiotics. In L. Unsworth (Ed.),

*Multimodal Semiotics: Functional Analysis in Contexts of Education* (pp. 17-33). New York: Continuum International.

Ravelli, L. (2018). *Multimodality in the built environment: Spatial discourse analysis.* New York: Routledge.

Raven, R. (2004). Dung, sludge, and landfill : biogas tecnology in the Netherlands, 1970-2000. *Technology and culture.*

Reed, M. S., Evely, A. C., Cundill, G., Fazey, I., Glass, J., Laing, A., . . . Stringer, L. C. (2010). What is Social Learning? *Ecology and Society*, *15*(4). Retrieved from http://www.ecologyandsociety.org/vol15/iss4/resp1/

Sandlin, J. (2015). "Mixing Pop (Culture) and Politics": Cultural Resistance, Culture Jamming, and Anti-Consumption Activism as Critical Public Pedagogy. *Curriculum Inquiry*, *38*(3), 323-350.

Sandlin, J. A., O'Malley, M. P., & Burdick, J. (2011). Mapping the Complexity of Public Pedagogy Scholarship: 1894–2010. *Review of Educational Research*, *81*(3), 338-375. doi:10.3102/0034654311413395

Sanyé-Mengual, E., Anguelovski, I., Oliver-Solà, J., Montero, J. I., & Rieradevall, J. (2016). Resolving differing stakeholder perceptions of urban rooftop farming in Mediterranean cities: promoting food production as a driver for innovative forms of urban agriculture. *Agriculture and Human Values*, *33*(1), 101-120. doi:10.1007/s10460-015-9594-y

Savage, G. (2013). Chasing the Phantoms of Pubic Pedagogy. In J. Burdick, J. A. Sandlin, & M. P. O'Malley (Eds.), *Problematizing Public Pedagogy* (pp. 79-90). New York: Routledge. Retrieved from https://books.google.com/books?hl=en&lr=&id=4UFGAQAAQBAJ&oi=fnd&pg=PA79&dq=Chasing+the+Phantoms+of+Public+Pedagogy&ots=TKuhh84iwV&sig=QdN37pb4Udi78oxXCfU5fJ-_87g

Savage, G. C. (2010). Problematizing "Public Pedagogy" in Educational Research. In J. A. B. D. S. B. Sandlin (Ed.), *Handbook of Public Pedagogy* (pp. 103-115). New York: Routledge.

Schatzki, T. R. (2011). Where the action is (on large social phenomena such as sociotechnical regimes). *Sustainable Practices Research Group* …. Retrieved from https://pdfs.semanticscholar.org/f3ec/3188fdff5fb14c1d346d34c6b3f8a55bb265.pdf

Sengers, F. (2016). Cycling the city, re-imagining the city: Envisioning urban sustainability transitions in Thailand. *Urban Studies*, *54*(12), 2763-2779.

Seyfang, G. (2007). Cultivating Carrots and Community: Local Organic Food and Sustainable Consumption. *ENVIRONMENTAL VALUES*, *16*(1), 105-123. doi:10.3197/096327107780160346

Shove, E., Pantzar, M., & Watson, M. (2012). *The dynamics of social practice: Everyday life and how it changes*. Retrieved from https://www.ihs.ac.at/fileadmin/public/soziologie/user_upload/se_lit_shove12.pdf

Shove, E., Watson, M., & Spurling, N. (2015). Conceptualizing connections: Energy demand, infrastructures and social practices. *European Journal of Social Theory*, *18*(3), 274-287. doi:10.1177/1368431015579964

Slocum, R. (2007). Whiteness, space and alternative food practice. *Geoforum*, *38*(3), 520-533. doi:10.1016/j.geoforum.2006.10.006

Smit, J., & (Canada), I. D. R. C. (1996). *Urban agriculture, progress and prospect: 1975-2005*. Ottawa Canada: IDCR.

Sofoulis, Z. (2006). Big Water, Everyday Water: A Sociotechnical Perspective. *Continuum*, *19*(4), 445-463. doi:10.1080/10304310500322685

Spaaragren, G., & Oosterveer, P. (2012). Green Consumption Practices and Emerging Sustainable Food Regimes: The Role of Consumers. In P. Oosterveer, A. Loeber, & G. Spaargaren (Eds.), *Food Practices in Transition:*
*Changing Food Consumption, Retail and Production in the Age of Reflexive Modernity* (pp. 131-152). New York: Routledge.

Spaargaren, G. (2011). Theories of practices: Agency, technology, and culture. Exploring the relevance of practice theories for the governance of sustainable consumption practices in the new world-order. *Global Environmental Change*, *21*(3), 813-822.

Spaargaren, G., Oosterveer, P., & Loeber, A. (2012). Sustainability Transitions in Food Consumption, Retail and Production. In *Food Practices in Transition:*
*Changing Food Consumption, Retail and Production in the Age of Reflexive Modernity* (pp. 1-31). New York: Routledge.

Spaargaren, G., & Oosterveer, P. (2012). *Food practices in transition changing food consumption, retail and production in the age of reflexive modernity*. New York: Routledge.

Specht, K. (2014). Urban agriculture of the future: an overview of sustainability aspects of food production in and on buildings. *AGRICULTURE AND HUMAN VALUES*, *31*(1), 33-51. doi:10.1007/s10460-013-9448-4

Spilková, J. (2013). Farmers' markets in Prague: a new challenge within the urban shoppingscape. *Agriculture and Human Values : Journal of the Agriculture, Food, and Human Values Society*, *30*(2), 179-191. doi:10.1007/s10460-012-9395-5

Spurling, N., McMeekin, A., Shove, E., Southerton, D., & Welch, D. (2013). Interventions in practice: re-framing policy approaches to consumer behaviour. Retrieved from http://www.sprg.ac.uk/projects-fellowships/theoretical-development-and-integration/interventions-in-practice---sprg-report

Stake, R. (2010). *The art of case study research* ([Nachdr.] ed.). Thousand Oaks Calif. [u.a.]: Sage Publ.

Steel, C. (2013). *Hungry city : how food shapes our lives*.

Stenglin, M. (2004). *Packaging curiosities : towards a grammar of three-dimensional space.*

Stevenson, G. W., & Ruhf, K. L., Sharon Clancy, Kate. (2009). Warrior, Builder, and Weaver Work: Strategies for Changing the Food System. In C. C. Hinrichs & T. A. Lyson (Eds.), *Remaking the North American food system: strategies for sustainability* (pp. 33-62).

Tavin, K. (2003). Wrestling with Angels, Searching for Ghosts: Toward a Critical Pedagogy of Visual Culture. *STUDIES IN ART EDUCATION*, *44*, 197-213.

Thompson, S. (2007). *The Role of Community Gardens in Sustaining Healthy Communities*. State of Australian Cities Research Network.

Tibbs, H. (2011). Changing cultural values and the transition to sustainability *Journal of Futures Studies*.

Uren, H. (2015). Exploring social and cultural norms to promote ecologically sensitive residential garden design. *Landscape and Urban Planning*, *137*(2), 76-84.

Vallianatos, M., Gottlieb, R., & Haase, M. A. (2016). Farm-to-School: Strategies for Urban Health, Combating Sprawl, and Establishing a Community Food Systems Approach. *Journal of Planning Education and Research*, *23*(4), 414-423. doi:10.1177/0739456X04264765

Vannini, P. (2007). Social Semiotics and Fieldwork: Method and Analytics. *QUALITATIVE INQUIRY*, *13*(1), 113-140.

Vileisis, A. (2008). *Kitchen literacy: How we lost knowledge of where food comes from and why we need to get it back*. Retrieved from https://books.google.com/books?hl=en&lr=&id=X8muajvmQmkC&oi=fnd&pg=PT1&dq="How+we+lost+knowledge+of+where+food+comes+from+and+why+we+need+to+get+it+back'&ots=BuZWmTF0DX&sig=Z50guLb54dJu1o8FEfUVnKOFqas

Vorvilas, G., T., K., & Ravanis, K. (2011). Designing learning objects: A genre-based approach. *Journal of Baltic Science Education*, *10*(2), 114-126.

Walter, P. (2013). Theorising community gardens as pedagogical sites in the food movement. *Environmental Education Research*, *19*(4), 521-539. doi:10.1080/13504622.2012.709824

Warner, J., Talbot, D., & Bennison, G. (2012). The cafe as affective community space: Reconceptualizing care and emotional labour in everyday life. *Critical Social Policy*, *33*(2), 305-324. doi:10.1177/0261018312449811

Watkins, M., Noble, G., & Driscoll, C. (2015). Pedagogy: The unsaid of socio-cultural theory. *Cultural Pedagogies and Human …*, 1-16. Retrieved from http://www.academia.edu/download/36724205/331_01_Cultural_Pedagogies.pdf

Wekerle, G. R. (2016). Food Justice Movements: Policy, Planning, and Networks. *Journal of Planning Education and Research*, *23*(4), 378-386. doi:10.1177/0739456X04264886

WinklerPrins, A. M. G. A., & Sousa, P. S. (2009). House Lot Gardens as Living Space in the Brazilian Amazon. *Focus on Geography*, *52*(3-4), 31-38. doi:10.1111/j.1949-8535.2009.tb00252.x

Yi'En, C. (2014). Telling stories of the city: Walking ethnography, affective materialities, and mobile encounters. *Space and Culture*, *17*(3), 211-223.

Young, E. (2016). Wembley dream garden demolition provokes fiery debate on Perth's verges. *Western Australia News*.

Zezza, A. (2010). Urban agriculture, poverty, and food security: Empirical evidence from a sample of

developing countries. *Food Policy*, *35*(4), 265-273.

Zsuzsi, I. How do Aesthetics Affect our Ecology. *Journal of Ecological Anthropology*, *10*(1).

Zukin, S. (1999). From Coney Island to Las Vegas in the urban imaginary: Discursive practices of growth and decline. *Journal of Planning Literature*, *13*(4).