



## Research Paper

## Exploring social and cultural norms to promote ecologically sensitive residential garden design



Hannah V. Uren\*, Peta L. Dzidic, Brian J. Bishop

Curtin University, Australia

## HIGHLIGHTS

- The drivers of native gardening mirror those previously found to drive non-native gardening.
- To create change, there is a need to understand the unique cultural drivers of landscaping choices.
- Verge gardening can generate a sense of community and connection to nature.

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## ABSTRACT

Western Australia (WA) is experiencing severe water shortages associated with a drying climate. Suburban gardens in and around WA's capital city of Perth however, continue to be dominated by water dependent European style gardens featuring green lawns and introduced species. One area in metropolitan Perth going against this norm is the local government district of Fremantle. Residents within this city council have shown widespread adoption of native gardens: a seemingly obvious means of reducing water use and increasing local biodiversity. In an endeavour to understand the differences in garden design preferences, the aim of this research was to explore cultural and psychological drivers of native gardening within the city of Fremantle. Twelve in-depth, face-to-face semi-structured interviews were conducted with Fremantle homeowners. Participants had converted their garden from a traditional European design in favour of an aesthetic based on native species. Drivers such as knowledge, functionality, and social norms emerged, and interestingly resembled the same sorts of drivers previously identified as driving European style gardening practices in Australia. We account for the tension of same drivers yet different design due to differences in social and cultural values. Specifically, the dominant worldview in Fremantle is pro-environmental and this driver appears to shape the social context in which gardening decisions are made, making for a more accepting setting for residents to adopt alternative garden designs. Findings from this research are of value to water and environmental policy makers, urban local governments, and environmental educators.

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## 1. Introduction

The choices residents make when landscaping and managing their home gardens result in a broad range of ecological, psychological, and social consequences (Brumand & Larson, 2012; Cook, Hall, & Larsen, 2012). In this paper we examine this complexity. Since Western colonisation, suburban domestic gardens in the city of Perth, Western Australia, have been dominated by

European gardening styles; a continued attachment to aesthetics and practices alien to the local natural environment (Syme, Quanxi, Murni, & Campbell, 2004). These gardens assume the availability of fresh water supplies, as well as requiring pesticides, fertilisers, and human intervention to achieve desired results (Webb, 2013). At a time of unprecedented environmental change, including; ongoing biodiversity loss, decreased rainfall, and increasing temperatures, the incompatibility between the colonial European garden and the Perth climate is becoming increasingly clear (Webb, 2013). To maximise the future well-being of people and the natural environment, residential landscapes need to reflect local environmental conditions, and converting lawns into native landscapes is a seemingly obvious solution to many issues. Adoption of native gardens can serve to conserve water, decrease urban temperatures,

\* Corresponding author at: Curtin University, School of Psychology and Speech Pathology, Faculty of Health Sciences, GPO Box U1987, Perth, Western Australia 6845, Australia. Tel.: +61 8 9266 7842; fax: +61 8 9266 2464.

E-mail address: [Hannah.Uren@postgrad.curtin.edu.au](mailto:Hannah.Uren@postgrad.curtin.edu.au) (H.V. Uren).

and increase biodiversity (Larson, Casagrande, Harlan, & Yabiku, 2009). Yet despite this, lawn remains ubiquitous with 86.5% of Perth homes retaining lawn (ABS, 2010).

This is thought to be due to the colonial European garden embodying idealised socially constrained practices of order and good citizenship as well as being a symbol of status and control (Askew & McGuirk, 2004). Generally Australians prefer neat, manicured landscapes which provide safety (Kurz & Baudains, 2012). Conversely, native landscapes have often been described negatively as unkempt, messy and as an indication of a lazy owner (Mustafa, Smucker, Ginn, Johns, & Connely, 2010).

However one area moving away from this trend is the local government area of Fremantle in the Perth metropolitan region. Fremantle has been identified as a local government with a greater uptake of native style residential gardens than surrounding areas (Kurz & Baudains, 2012). Local government area was also found to be the strongest predictor of landscape preference. This suggests that local social norms might be a stronger driver of garden design than individual demographic factors such as income, age and ethnicity. Identification of the social and local government-level drivers of native garden design are needed to inform the ways in which garden owners might be motivated to change their environmentally incompatible gardening practices to ones more suited to the environment (van Heezik, Dickinson, & Freeman, 2012). Now we briefly review the psychological literature surrounding environmental behaviour and residential landscapes.

### 1.1. Psychological explanations of pro-environmental behaviour and landscape design

Pro-environmental behaviour change strategies are often emphasise that problematic behaviours exist out of ignorance, and that the provision of information will be sufficient to shift behaviours, or that behaviours can be easily manipulated using policy and pricing mechanisms (Kollmuss & Agyeman, 2002; Steg & Vlek, 2009; van Heezik et al., 2012). Consistent with these strategies, pro-environmental behaviours have most commonly been accounted for in the psychological literature by action theories such as the theory of planned behaviour (Ajzen, 1991). While theories such as the theory of planned behaviour have proven useful for predicting a range of pro-environmental behaviours including recycling (Mannetti, Pierro, & Livi, 2004) and environmental activism (Fielding, McDonald, & Winnfred, 2008), they emphasise rational decision making processes rather than affective and associative processes (Weber & Stern, 2011).

Discrepancies between environmental attitudes and garden design behaviour have consistently been demonstrated, rendering theories such as theory of planned behaviour inadequate (Rabinovich, Morton, Postmes, & Verplanken, 2012). For example, Australian studies by Askew and McGuirk (2004) and Miller and Buys (2008) found that while participants reported they felt responsible for water conservation, this attitude was not reflected in their day-to-day water use. In addition, van Heezik et al. (2012) found that while 76% of participants reported valuing native plants, only 17% of gardens were made up of native species. Therefore, the provision of information to households and their attitudes and values appear to have limited influence on landscaping practices (Cook et al., 2012). As such, it is suggested that long-term pro-environmental behaviour change requires the understanding of affective and seemingly 'irrational' drivers.

One affective influence on behaviour which has recently received a great deal of attention in the social psychology literature is the use of social norms. Social norms are beliefs about what others do and approve of, and, have been demonstrated to influence behaviours such as littering and stealing (Cialdini, Reno, & Kallgren, 1990; Cialdini et al., 2006). As a consequence, some have

suggested that landscape preferences are a result of and are sustained by pressure to conform to neighbourhood norms (e.g., Robbins, 2007). However, there is conflicting evidence on the impact of social norms on landscaping behaviour. An experimental study by Nassauer, Wang, and Dayrell (2009) found that people subconsciously adjusted their front garden landscaping preferences after being advised of the neighbourhood preferences. On the other hand, an Australian study by Kirkpatrick, Daniels, and Davison (2009), found there to be no relationship between neighbouring gardening practices.

Having a garden has been demonstrated to increase both satisfaction with the home and participation in community groups (Bramley, Dempsey, Power, Brown, & Watkins, 2009). Further, garden landscapes can be viewed as symbolic environments that reflect social, historical, and cultural representations of what societies, communities and individuals regard appropriate (Larsen & Harlan, 2006). Therefore, it is important to investigate the emotional connection residents have to their home and community, and whether ecological behaviours occur as a result of this connection.

The literature surrounding the drivers of landscape design is dominated by multidisciplinary research teams based in Northern America, looking at desert regions (for a review see Cook et al., 2012). While this can provide insight into the social and psychological forces influencing garden design, much work is needed to understand *context specific* drivers in Australia; particularly given statistics which illustrate the majority of household water use in Western Australia is used on the garden (Water Corporation, 2009).

### 1.2. The present study

In order to suggest ways in which gardening practices within the Australian cultural context can become more water sensitive and ecologically sustainable, it is of interest to examine the forces that drive gardening with native plants. This research is important as recent attempts to understand landscaping choices have focused on the continued ubiquity of lawn-dominated gardens, rather than the uptake of alternatives. In addition previous research has focused on individual factors such as attitudes towards the environment, which have proven to be of limited value (Cook et al., 2012). Understanding the cultural drivers of eco-garden design, such as those identified in the city of Fremantle, can contribute to a conversation on how to ensure that the future design of landscapes can be environmentally beneficial, promote human well-being as well as be aesthetically pleasing and socially revered. Given this, the aim of the research was to explore cultural and psychological drivers which prompt Fremantle home owners to adopt a native garden.

## 2. Methods

### 2.1. Research design

Face-to-face semi-structured interviews were deemed the most appropriate approach for exploring native garden design drivers. Causal layered analysis (CLA) was adopted as the data analytical approach used to analyse the interview transcripts (Inayatullah, 2004). CLA is a framework for deconstructing qualitative data whereby the researcher analyses the data according to a number of theoretically driven layers.

### 2.2. Participants

Inclusion criteria to participate stipulated that participants had to be home owners in the city of Fremantle vicinity, over 18 and identify as a key decision maker regarding home garden landscaping choices and maintenance. In total, 12 residents (5 males, 7 females) between 22 and 74 years of age were recruited. All had

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