



Identifying beliefs underlying home composting behaviours in the City of Whitehorse

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Executive summary

The City of Whitehorse's 2011 Waste Management Plan outlines strategies and actions to be undertaken over the next five years such that, in 2016, 55% of municipal waste will be diverted from landfill. As part of the Plan, the Council hopes to apply several communication and regulatory tools that focus on facilitating behaviours that support this goal. One focal area is to influence more local residents to undertake composting behaviours at home. As the Council moves to increase the incentives to compost (as well as the disincentives not to), there is a need for research to better understand the reasons why residents do and don't compost at home, such that the Council can better facilitate the uptake of home composting behaviours. By understanding the beliefs of local residents related to home composting, the Council would avoid the risk of developing materials that might have little relevance to the beliefs of residents about such behaviours. To this end, the Council commissioned BehaviourWorks Australia at Monash University to conduct focus groups to elicit beliefs to guide the development of information, resources and strategies to more effectively influence the composting behaviours of residents in the City of Whitehorse.

Six focus groups were organised to identify beliefs related to the following behaviours and topics:

1. Undertaking composting at home (general).
2. Undertaking worm farming at home.
3. Referring others to home composting.
4. Starting home composting (and difficulties encountered).
5. Becoming a "best practice" home composter.

Focus groups were organised by those already performing the behaviours (three groups of "compliers") and those who were not (three groups of "non-compliers"), noting that the label of "non-compliers" to this group was not completely accurate because they were already part of the Council's trial composting program, and had undertaken some composting behaviours at the time of the focus groups. To this end, they can more accurately be considered "early compliers". Nevertheless, this exercise is still valuable in distinguishing between those who have recently begun composting and those who have been composting for some time. Future research should recruit participants who are more representative of non-composting residents.

To look for differences between compliers and non-compliers, we used a behaviour change model known as the "theory of planned behaviour". Based on this model, focus group participants were asked questions relating to:

1. Their attitude toward the behaviour (is it a good or bad thing to do?).
2. Their sense of social pressure (pressure from peers or other people to do or not do the behaviour).
3. Their perceived level of control (do they have the skills, resources and/or opportunities to do the behaviour).

Across the different behaviours and topics, this exercise yielded over 100 individual beliefs.

Key results from these focus groups were that:

- Both compliers and non-compliers were well aware of the benefits associated with home composting and related behaviours, such as the benefits to the garden and reducing the amount of waste going to landfill. As such, these beliefs are well entrenched within these audiences and therefore might only

offer limited persuasion potential in future campaigns. Nevertheless, these beliefs might still be important for those who have not tried composting at all (as once you start, these beliefs seem to become some of the most salient advantages of home composting).

- The perceived negative outcomes of home composting activities such as smell, attracting pests, and unhygienic and unsightly buckets and bins were elicited more from non-compliers than compliers, suggesting that undertaking composting behaviours dispels some of these beliefs. Public demonstration composting projects could assist in showing non-compliers that these beliefs are unfounded.
- In the case of worm farming, many of the perceived benefits were described as advantages over a traditional compost heap or bin. These advantages included that worm farms weren't as smelly, they decompose material more quickly and that they produce liquid fertiliser.
- The neighbours of both compliers and non-compliers were mentioned as disapprovers of home composting because of issues of smell, attracting pests etc. In contrast, neighbours were cited as approvers of worm farming because worm farms typically don't have these problems when compared to a compost bin or heap.
- Having appropriate knowledge as well as written and visual information was an important determinant for carrying out composting and worm farming behaviours, especially in relation to specific "process" questions (e.g., siting, layering, what types of waste material). Having such information and knowledge was also seen as a valuable prerequisite for referring others. However, when participants were asked about any difficulties they encountered when starting out with home composting, it was apparent that some of the information, messages and equipment provided by the Council was at times confusing or missing certain elements. It is therefore important that Council has, and disseminates, clear information about composting and worm farming.
- While participants saw the merits of referring others to home composting and worm farming through the creation of a sense of community and reducing overall waste going to landfill, concerns were raised about being held accountable for other's failed attempts at composting, people not listening to them, or being viewed as a "nutty green".
- There were also beliefs that were less prevalent or conspicuously absent. For example, only a few people mentioned having more space in their regular bin as an advantage of home composting. With the planned introduction of smaller general waste bins, we anticipate that this belief will take on greater importance in the future.
- The potential financial costs of setting up a home compost or worm farm were not mentioned to any great extent, which was no doubt a consequence of participants being provided with free composting products as part of the Council's home composting trial. As such, it is anticipated that beliefs related to costs are likely to be more apparent among the general population of local council residents.

The catalogue of beliefs detailed in this report represents an important step in developing messages, approaches and strategies designed to more effectively influence home composting behaviours in the City of Whitehorse. Rather than relying on their own intuition to develop materials that they believe would resonate with local residents, this research provides the Council with a set of beliefs from the target audience (using their language) that can help tailor information, messages and strategies in a way that is more relevant to particular drivers and barriers connected to home composting and the residents of the City of Whitehorse.

Background

The City of Whitehorse has a track record of leading on environmental sustainability issues, utilising a range of communication and regulatory tools to improve the Council's performance across a number of environmental indicators. Within this overall agenda, a current focus of the Council is to decrease the amount of household waste going to landfill. While collection and disposal of household waste for landfill is costly, there are several other environmental reasons for encouraging less waste going to landfill, such as lowering carbon emissions, greater recovery and reuse of materials, and reductions in odour (City of Whitehorse, 2011a).

The City of Whitehorse developed a Waste Management Plan which was adopted in July 2011. The Plan outlines the strategies and measurable actions to be undertaken over the next five years such that, in 2016, 55% of municipal waste will be diverted from landfill (City of Whitehorse, 2011a). As part of the Plan, the City of Whitehorse hopes to apply several communication and regulatory tools, including the phasing in of 80-litre waste bins from mid-2013. Prior to doing this, the Council wants to focus on developing and facilitating behaviours that support this move. A 2010 audit conducted by the City of Whitehorse showed that organic waste comprises a significant proportion of waste going to landfill (40% food waste, 15% garden organics), and as a result, the Council applied for, and was granted, funding for a home composting and food waste avoidance trial with residents.

Along with the trial, the Council has a rebate scheme in place to assist residents in purchasing composting equipment. However, a relatively small number of residents are taking up the rebate (69 people in 2011) (City of Whitehorse, 2011b). As the Council moves to increase the incentives to compost (as well as the disincentives not to), there is a need to understand the reasons why residents do and don't compost, such that the Council can take actions to facilitate the broader uptake of home composting behaviours.

Aims and objectives

BehaviourWorks Australia was engaged by the City of Whitehorse in October 2012 to conduct research with the aim of identifying key beliefs underlying home composting behaviours of local residents. Through discussions with key staff, the Council was particularly interested in the following research questions:

1. What are the main drivers and barriers to undertaking home composting and/or worm farming?
2. What are the main drivers and barriers to referring others to home composting and/or worm farming?
3. What are the main motives for starting home composting and/or worm farming and what (if any) difficulties were encountered?
4. What are the main drivers and barriers to becoming a "best practice" home composter and/or worm farmer?

By asking local residents these questions, the Council would avoid the risk of developing materials that might have little relevance to the beliefs of residents regarding composting behaviours. To this end, the research would provide the Council with a catalogue of beliefs that would allow them to tailor information, tools and various resources more strategically to influence the composting behaviours of residents in the City of Whitehorse.

Our approach

BehaviourWorks Australia is a research collaboration that brings together interdisciplinary researchers at Monash University with leading practitioners in government and business who share an interest in behaviour change research and environmental sustainability. As a university-based research organisation, our approach to this project was guided by the application of theory and evidence-based behaviour change research relevant to understanding audience beliefs.

Within the field of behaviour change research, there are a number of key stages that need to take place for any endeavour that seeks to effectively influence human behaviour. These are articulated in Table 1. While this project focuses predominantly on Stage 2, it is worth spending some time on discussing Stage 1 (“Identifying the target behaviour”), as getting that right is vital to any behaviour change program.

Table 1: Steps in a behaviour change process

Stages	Things to consider
1. Identify (and prioritise) the target (i.e., desired) behaviour/s that you want to influence.	<ul style="list-style-type: none"> • Need to understand behaviours as <i>observable events</i> (involving a target, action, context and time). • How <i>impactful</i> is the behaviour? • What level of <i>penetration</i> has the behaviour already achieved? • How <i>probable</i> is it that those who are not yet doing the behaviour will adopt it? • Can the behaviours be <i>observed or measured</i>? • What <i>audiences</i> will be targeted?
2. Understand the key determinants that influence the target behaviour/s.	<ul style="list-style-type: none"> • Attitudes • Social norms • Capacity • External constraints • Habits • Emotions
3. Select appropriate behaviour change techniques and strategies to address these influential determinants	<ul style="list-style-type: none"> • Education (Increase knowledge or understanding) • Persuasion (Communication to induce positive or negative feelings or to motivate action) • Incentives (Provide incentives or creating an expectation of a reward) • Coercion (Create an expectation of punishment or cost) • Training (Impart skills) • Restriction (Using rules to increase the opportunity to engage in the target behaviour and reduce opportunities for competing/problem behaviours) • Environmental restructuring (Changing the physical or social context) • Social modelling (Providing an example for people to aspire to or follow) • Enablement (Increasing means/reducing barriers to increase capability and opportunities)
4. Evaluate the effectiveness of these interventions in terms of their impacts on the determinants and the behaviour	<ul style="list-style-type: none"> • Changes in behavioural determinants • Changes in intentions • Changes in behaviours • Changes in environmental quality

(source: Darnton, 2008; McKenzie-Mohr, Lee, Schultz, & Kotler, 2012; Michie, van Stralen, & West, 2011; Steg & Vlek, 2009)

The process of clearly articulating the target or desired behaviour (i.e., what you want people to do; *not* what you don't want them to do) can be complex. It typically begins with a broad issue that needs to be addressed (e.g., reducing organic material going to landfill), identifying the problem behaviours that contribute to the issue, developing alternative *target* behaviours that you want people to perform instead, and ascertain what segments of the population you want to carry out these behaviours. The definition of the target behaviour will not only guide how the behaviour is assessed, but also how the determinants of the behaviour are conceptualised and measured.

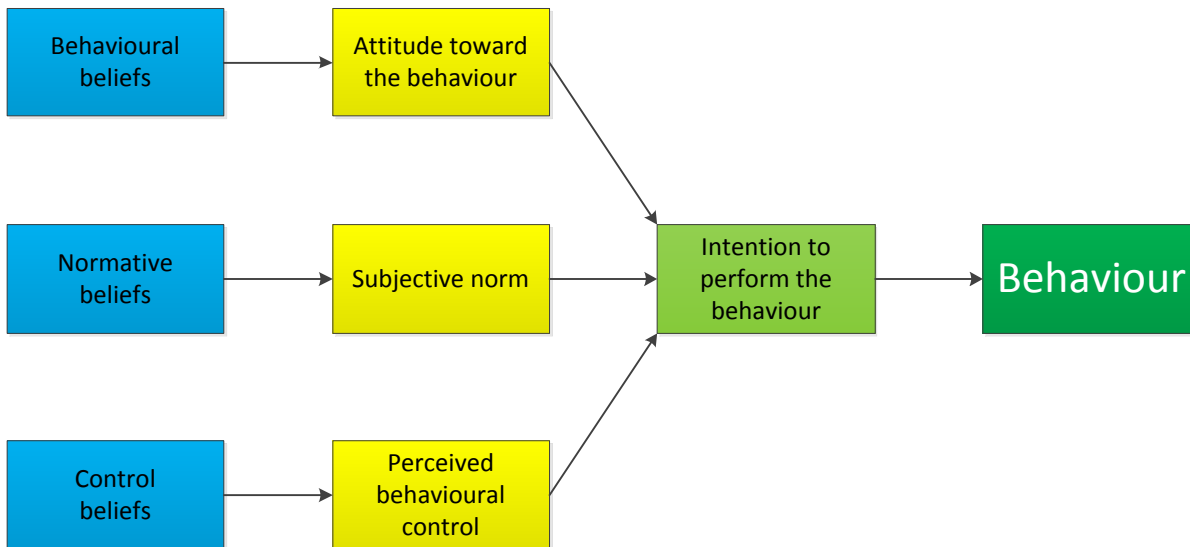
Critically, behaviours need to be understood as “observable events” that are typically composed of four distinct components: the *action* performed, the *target* the action is directed at, and the *context* and *time* in which it occurs (Fishbein & Ajzen, 2010). Using a purchasing behaviour as an example, a desired behaviour might be defined as buying (action) a four star or above energy efficiency fridge (target) at Harvey Norman (context) over the next 12 months (time). In this example, each of the four components is reasonably specific. In reality, the level of specificity can vary. Nevertheless, defining behaviour with these considerations in mind is beneficial for the following reasons:

1. It is easier to identify the reasons why target audience members do or don't do the behaviour.
2. Because of (1), it is easier to design interventions targeting these behaviours.
3. It is easier to measure levels of success and adjust the message or approach where required.

Accompanying the need for a precise definition of the target behaviour is also the need to identify “who” you want to perform the behaviour. In behaviour change and marketing research, audience-specific interventions are crucial to any effort to encourage change (Abrahamse, Steg, Vlek, & Rothengatter, 2005).

A critical step linking the target behaviour and audience with the choice of behaviour change technique or strategy is an understanding of the influential variables or causal determinants underlying the behaviour. This is Stage 2 in Table 1, and is the main focus of this report. Remarkably, this step is often overlooked, as the choice of intervention strategy is often based on implicit behaviour change assumptions (Michie et al., 2011). In reality, a large body of research has been devoted to developing and testing theories of behaviour, meaning that evidence-based decisions can be made on the workings and influences on target behaviours. In the context of the current project, we applied a Ajzen's (1991) Theory of Planned Behaviour, which is recognised (along with the model's predecessors and successors) as one of the leading models of human behaviour, resulting in over a thousand published articles that provide robust support for the model across a diverse range of behavioral domains (Fishbein & Ajzen, 2010). A diagram of the model is shown in Figure 1.

Figure 1: The Theory of Planned Behaviour



(Ajzen, 1991)

At its core, the theory attempts to capture the complexity of human behaviour within a structured and concise framework. According to the theory, the primary determinants of any behaviour are three categories of “beliefs” (i.e., statements that individuals believe to be true), which are shown on the left-hand side of the model:

1. **Behavioural beliefs** about the positive or negative consequences a person might expect from performing the behaviour. Taken together, these beliefs inform a person’s **attitude** (i.e., whether the behaviour is a good or bad thing to do).
2. **Normative beliefs** about whether important social referents (peers) would approve or disapprove of a person performing the behaviour. Taken together, these beliefs give rise to a sense of social pressure (referred to in the model as **subjective norm**).
3. **Control beliefs** about the presence of factors that might help or impede a person’s attempts to perform the behaviour. Taken together, these beliefs inform a person’s **perceived behavioural control**.

On the right-hand side of the model are **behavioural intention** and **behaviour**. As the diagram shows, the combination of a person’s attitude toward the behaviour, his or her sense of social pressure, and whether the person feels a sufficient level of control over the behaviour’s performance will lead to an intention to undertake it. As a general rule, the more favourable the attitude and subjective norm, and the greater perceived behavioural control, the stronger a person’s intention should be to perform the behaviour. Finally, given a sufficient degree of actual control, a person is expected to carry out their intentions when the opportunity arises to engage in the behaviour (Ajzen, 1991).

Over the past 10-15 years, the author of the theory, along with many other researchers and practitioners, has focused on applying it to identify strategies and messages to influence behaviour. As part of this approach, it is necessary to first understand the beliefs of the target audience through what is typically known as a “belief elicitation” exercise. This involves asking a sample of the target audience a series of open-ended questions based on the belief categories of the theory. The premise of this exercise is that the more that is understood about these beliefs, the more likely an effective intervention can be developed to influence behaviour. The belief elicitation exercise serves three key purposes:

1. It identifies a pool of salient beliefs underlying the target behaviour.
2. The responses to the open-ended questions provide researchers and practitioners with terminology and wording in the language of the target audience for later use in interventions.
3. If it is possible to distinguish between compliers and non-compliers of the behaviour, preliminary analyses can be conducted to identify belief differences between the two groups that could potentially be addressed by an intervention (Curtis, Ham, & Weiler, 2010; Middlestadt, Bhattacharyya, Rosenbaum, Fishbein, & Shepherd, 1996).

Within the scope of the current project, the belief elicitation exercise involved a series of focus groups organised by the City of Whitehorse to identify the beliefs of existing compliers (people doing the target behaviour/s) and non-compliers (people not doing the target behaviour/s). The beliefs that would emerge from these focus groups would then provide guidance to the Council as to what approaches and messages might be effective to promote the greater uptake of home composting behaviours.

The behaviours

There are a number of potential behaviours that fall under the banner of “home composting”. These might include behaviours related to composting specific material (e.g., lawn trimmings, vegetable scraps), composting methods (e.g., compost heaps, worm farms, Bokashi buckets), product purchases (e.g., compost bins), siting (e.g., garden, kitchen, verandas), and the eventual use of the composted material. Each of these represent fundamentally different behaviours (based on the components of target, action, context and time), and as such, beliefs will vary across the behaviours.

Through discussions with council staff, and in light of the available resources, it was decided to concentrate the focus group questions on home composting more generally, but include specific reference to worm farming among focus groups that were known to include worm farmers. In an effort to “spread the word” of the benefits of composting, the Council was also interested in beliefs regarding “referring others” to composting. Finally, the Council was interested in collecting insights about what motivated people to start composting in the first place (including any difficulties they encountered), as well as the factors that make becoming a “best practice” home composter easy or difficult.

With all this in mind, the focus group questions explored beliefs related to the following behaviours and topics:

1. Undertaking composting at home (general).
2. Undertaking worm farming at home.
3. Referring others to home composting.
4. Starting home composting (and difficulties encountered).
5. Becoming a “best practice” home composter.

While the above behaviours and topics don’t include a “time” component, and are pitched at a more general level of specificity for practical purposes, they nevertheless provided a suitable basis for developing questions to be administered to the focus groups.

Methods

Focus groups

The Council recruited participants for the focus groups through two avenues. Some were invited from a list of residents who had responded to a survey about recycling and waste where they indicated whether they compost at home. Others were selected following a recruitment campaign where the Council publicly advertised their trial home composting project. Those who responded were asked to complete the same survey, which allowed the Council to recruit people from certain desired cohorts. These included current composters (including worm farmers), non-composters (or failed composters), families with children, and retirees. These cohorts were selected because the Council believed they represented groups who could influence community behaviour and be part of the behaviour change process. More specifically, the Council was interested in families with children because this group is often too busy to compost, and retirees because they could be a “force for good” in sharing their composting experience (or taking up composting) because they are perceived to have more time.

Inevitably, the Council received a mix of respondents (not just within the preferred cohorts), but were nevertheless accepted as part of a broad mix to ensure the Council had sufficient numbers of participants and to make the sample as representative of the community as possible.

The Council organised six one-hour focus group sessions for the purpose of collecting data related to residents’ beliefs about home composting and other behaviours. The schedule of focus groups, as well as the respective cohorts, is detailed in Table 2. Each focus group was run by a trained facilitator who was familiar with the underlying theoretical principles. With the exception of the final focus group, a Council staff member was also in attendance to answer any questions participants might have at the end of the session.

Table 2: Focus group schedule

Group No.	Date	Status	Behaviours	Audience category
1	18/10/2012	Compliers	Composting	Retirees
2	18/10/2012	Compliers	Composting	Young families
3	26/10/2012	Compliers	Composting & worm farming	Retirees & young families
4	14/12/2012	Non-compliers	Composting & worm farming	Young families
5	14/12/2012	Non-compliers	Composting & worm farming	Retirees
6	09/02/2013	Non-compliers	Composting & worm farming	Retirees & young families

Two points are worth noting here. First, all participants volunteered to be part of the project, raising the potential for “self-selection bias” in the results. That is, people who choose to participate (rather than being randomly selected) will not necessarily be representative of the population of interest. Second, the “non-compliers” who were originally recruited had just started to engage in some composting behaviours at the time of the focus groups, as they had been provided with free composting products (e.g., worm farms, composting bins) as an incentive for being part of the Council’s home composting trial. While BehaviourWorks Australia had emphasised that this was not an ideal scenario for a pure comparison of compliers and non-compliers (it is perhaps better framed as a comparison of “established compliers” and “early compliers”), the latter’s inexperience in home composting was viewed in this case as a “proxy” for

non-compliance beliefs. In the future, we would recommend the recruitment of participants who are more representative of non-composting residents.

Questions

Following the standard measurement procedures for applying the theory of planned behaviour (e.g., Curtis et al., 2010; Fishbein & Ajzen, 2010; Middlestadt et al., 1996; Sutton et al., 2003), focus group participants were asked a series of open-ended questions to elicit beliefs based on the belief categories of the theory. For the behaviours of home composting (general) and worm farming, as well as referring others, these questions are detailed in Table 3.

Table 3: Belief questions regarding composting-related behaviours

Home composting (general)/worm farming	
Behavioural beliefs	
1.	What do you see as the advantages or good things of home composting and/or worm farming?
2.	What do you see as the disadvantages or bad things of home composting and/or worm farming?
Normative beliefs	
3.	Who (people/groups whose opinions matter to you) do you think supports or approves of you home composting and/or worm farming?
4.	Who (people/groups whose opinions matter to you) do you think objects or disapproves of you home composting and/or worm farming?
Control beliefs	
5.	What factors or circumstances make it easy for you to home compost and/or worm farm?
6.	What factors or circumstances make it difficult for you to home compost and/or worm farm?
Referring others	
Behavioural beliefs	
1.	What do you see as the advantages or good things of referring others to home composting and/or worm farming?
2.	What do you see as the disadvantages or bad things of referring others to home composting and/or worm farming?
Normative beliefs	
3.	Who (people/groups whose opinions matter to you) do you think supports or approves of you of referring others to home composting and/or worm farming?
4.	Who (people/groups whose opinions matter to you) do you think objects or disapproves of you of referring others to home composting and/or worm farming?
Control beliefs	
5.	What factors or circumstances make it easy for you to refer others to home composting and/or worm farming?
6.	What factors or circumstances make it difficult for you to refer others to home composting and/or worm farming?

For the topic of “getting started” and any difficulties that were encountered at the time, the following two questions were asked:

- What motivated you to get started with home composting and/or worm farming?
- What difficulties did you have when starting home composting and/or worm farming?

Finally, the questions related to becoming a “best practice” composter were framed as follows:

- What would make it easy for you to become a best practice home composter?
- What would make it difficult for you to become a best practice home composter?

Given that the focus groups typically only ran for an hour, it was agreed in consultation with Council staff to give priority to the belief questions related to home composting and/or worm farming, followed by the questions related to “referring others”. If time permitted, questions regarding the topics of “getting started” and “best practice” were asked.

An important consideration to note is that belief elicitation studies of this type usually involve interviews with a small sample of the target population (e.g., 20-60 people) until a point of “saturation” is reached (i.e., when no new beliefs are forthcoming). Responses are then reviewed by two coders to develop universal categories that reliably capture similar meaning responses into fewer categories. These coded responses are then presented in tables with percentage values showing how frequent individual responses were mentioned. Typically, only the most frequently mentioned beliefs to each question (e.g., 4-5 beliefs) are presented in the tables.

In the current study, the use of focus groups did not allow for such frequency measures, as the format did not provide an opportunity to accurately determine how many participants within each focus group subscribed to certain beliefs (without being influenced by opinions of others within the focus group). Instead, the beliefs were transcribed into tables that highlighted which focus groups mentioned particular beliefs and which ones did not.

Results

Home composting beliefs

Table 4 presents a summary of beliefs related to home composting (in general) across all the focus groups. Because of the large number of beliefs that were elicited, only beliefs that were mentioned by at least two focus groups are included. Further details underlying some of these beliefs are highlighted in Appendix 1. For example, for the control belief “having more detailed information on how to do it”, Appendix 1 contains specific examples of participant responses regarding what this information might entail.

Table 4: Participant beliefs regarding home composting

1. What do you see as the advantages or good things of home composting?	1	2	3	4	5	6
"It will produce organic fertiliser which will benefit my garden."	x	x	x	x	x	x
"It will reduce waste going to landfill."	x	x	x	x	x	x
"There will be more space in my bin."	x			x		
"It is a way of educating children."		x		x	x	x
"It raises awareness about waste."				x	x	x
"It saves the Council money because there is less waste to collect and dispose."	x		x			
"It saves me money."		x			x	x
"It makes me feel good because I'm doing 'the right thing'."	x			x	x	x
"It creates good relationships with others."	x	x			x	
"I plan my food purchases better."				x		x
2. What do you see as the disadvantages or bad things of home composting?	1	2	3	4	5	6
"It can smell."	x	x	x	x	x	x
"It can attract rats, rodents, possums, insects, flies, spiders."	x	x	x	x	x	
"The bucket in the kitchen can be unhygienic."		x	x	x	x	x
"The compost itself can be ugly, intrusive and not attractive."		x			x	x
"The breaking down takes time."		x				x

3. Who do you think supports or approves of you home composting?	1	2	3	4	5	6
Family	x	x		x	x	x
Husband		x	x			
Friends	x	x		x	x	x
Work colleagues (who are "green")	x	x		x	x	
Schools, kindergartens (i.e., teachers and students)	x	x		x		
People with similar values, like-minded people		x	x			
Neighbours		x				x
4. Who do you think objects or disapproves of you home composting?	1	2	3	4	5	6
Neighbours	x	x	x	x	x	x
Friends		x		x		
5. What factors or circumstances make it easy for you to home compost?	1	2	3	4	5	6
"Having <u>visual</u> information."	x		x		x	
"Having <u>detailed</u> information how to do it."	x	x	x	x	x	x
"Getting information from friends or family who compost."				x	x	
"Having more time."		x		x		
"Having a backyard/space."		x		x		
"Having the right sized, clean container in the kitchen."	x	x		x		
"The Council providing the compost bin."				x	x	
"Having the equipment."				x		x
6. What factors or circumstances make it difficult for you to home compost?	1	2	3	4	5	6
"Time constraints."	x	x		x	x	
"Not having anything to compost."	x		x		x	
"Not having space/a garden."	x			x	x	x
"Having a lack of knowledge."	x		x	x	x	x
"The physical effort which is needed."	x		x		x	x
"Walking to compost in winter when it is cold and dark."		x			x	
"Not knowing what to do with the soil."			x		x	

Key themes

Tables like the above present a number of potential “stories” regarding what are the key drivers and barriers to home composting. While it is beyond the scope of this report to extrapolate all such stories, some key themes that we see emerging from the table include the following:

- The positive behavioural beliefs “It will produce organic fertiliser” and “It will reduce waste going to landfill” were held across all the focus groups. As such, these beliefs appear well entrenched within these audiences and therefore might only offer limited persuasion potential in future campaigns. Nevertheless, these beliefs might still be important for those not having tried composting at all (as once you start, these beliefs seem to become some of the most salient advantages of home composting).
- The belief “There will be more space in my bin” was only mentioned by two groups, so it is not such a prevalent belief. But we suspect that this belief will become VERY important when smaller general waste bins are introduced by the Council. To this end, promoting this positive outcome of home composting might be important to communicate in the future given its current lack of salience (i.e., being “top of mind”) among participants.
- “Non-compliers” were more likely to mention the beliefs “It is a way of educating children”, “It raises awareness about waste” and “It makes me feel good”. This suggests there might be some initial novelty, educational or “empowerment” value when starting out with home composting (which might

be further symbolised by the fact that only non-compliers mentioned the connected behaviour of planning food purchases better). Research on the phenomenon of “spillover” hypothesises that the performance of one pro-environmental behaviour has the potential to alter an individual’s perception of themselves as someone who cares for the environment, increasing the likelihood that they will perform other related behaviours (Thøgersen & Crompton, 2009).

- The belief “It creates good relationships with others” seems more important for established compliers rather than those just starting out. Similarly, compliers cited a broader range of positive sources of social influence (i.e., positive normative beliefs) compared to non-compliers.
- The elicited beliefs regarding the negative outcomes of home composting suggest the presence of an obvious “yuck” factor. In pro-environmental behaviour research, there is some evidence to suggest that while a lot of people are well aware of the benefits of performing certain pro-environmental or pro-social behaviours (known as “instrumental beliefs”), the inconvenience or “yuck” factor can be quite powerful in overwhelming such benefits (known as “experiential beliefs”) (Fishbein & Ajzen, 2010).
- While “family” and “friends” were commonly mentioned as positive social referents, “neighbours” were cited as a disapprover across all the focus groups (based on the potential negative outcomes of home composting such as smell, attracting animals etc.).
- With regards to factors that make it easy or difficult to home compost, beliefs covered the spectrum of information/knowledge, space in the garden, time, equipment, and physical capability. More specifically, the additional details provided in Appendix 1 suggest that the information and knowledge-related beliefs held across all the focus groups emphasise more the “process” of home composting (e.g., siting, layering, types of material). Furthermore, the provision of a compost bin from the Council and receiving information from friends and family seemed particularly important in facilitating the uptake of home composting among non-compliers. Finally, while time constraints were mentioned as a barrier by *both* retirees and young family participants, the former were more likely to mention barriers related to the physical effort required.
- It is important to note that “costs” are not mentioned as a barrier to home composting. Its absence is no doubt a result of many participants being involved in the Council trial and receiving free equipment. In reality, we suspect costs are likely to be more of a factor than is suggested here.

Worm farming beliefs

Table 5 presents the beliefs from participants regarding worm farming. Unlike the previous table, beliefs that were mentioned by only one focus group *are* included here due to the smaller belief set and the fact that focus groups 1 and 2 were not asked these questions, as they did not contain any worm farmers (in other words, at the start of the project, Council staff recruited participants for focus groups 1 and 2 as compliers of home composting, not as non-compliers of worm farming, which dictated the focus of the questions given potential time limitations). Once again, further details for some of the beliefs can be found in Appendix 1. Rather than repeating all the general home composting beliefs from Table 4 that were also relevant to worm farming (which was often the case), this table only contains beliefs specific to worm farming (note however that while some beliefs do indeed appear in both tables, Appendix 1 shows that some of the underlying example responses differ).

Table 5: Participant beliefs regarding worm farming

1. What do you see as the advantages or good things of worm farming?	3	4	5	6
"It produces liquid fertiliser."		x	x	
"It is a more efficient way of composting because the worms do the work."	x			x
"It does not smell."	x			x
"It does not attract animals."	x			
"It decomposes quicker than a compost."				x
"The worms are 'pets' I can take care of."				x
2. What do you see as the disadvantages or bad things of worm farming?	3	4	5	6
"Not everything can be put in." (e.g. citrus and onion)	x	x	x	x
"Everything that gets put in needs to be cut up very small."		x		x
"Worms need to be looked after when I go on holidays."		x		x
"Worms can cook in summer."		x	x	
"The container in the kitchen can smell and go mouldy."			x	x
"The worm farm can be intrusive and not attractive."			x	
"It attracts animals."			x	x
"It can smell."			x	
"My child can make a mess with it"			x	
"It can be scary for children."			x	
"In case soil is needed, it does not produce it."			x	
3. Who do you think supports or approves of you worm farming?	3	4	5	6
Husband (who disapproves of composting) because worm farming produces liquid fertiliser.			x	
Neighbours (who disapprove of composting because of smell and rats) because worm farming does not encroach on them as much.		x	x	x
4. Who do you think objects or disapproves of you worm farming?	3	4	5	6
Husband			x	
Children if they are scared of worms			x	
Friends				x
5. What factors or circumstances make it easy for you to worm farm?	3	4	5	6
"The availability of commercial worm farms which have the right, productive worms."	x			
"Having the right number of worms."				x
"To be supplied with the worms and ready to go."		x		
"Having someone looking after the worms."		x		
"It is less work physically because no turning is necessary."			x	
"It needs less space than a compost."	x	x	x	x
"It can be put closer to the house than a compost."			x	x
"It is easier to site than a compost because the compost needs sun whereas the worm farm does not."			x	
"Having <u>visual</u> information/instructions."	x	x		
"Having <u>detailed</u> information how to do it."		x		x
"Having somebody coming to the house showing how to use it."		x		
6. What factors or circumstances make it difficult for you to worm farm?	3	4	5	6
"The cost of setting up a worm farm."	x			x
"Having a lack of knowledge."	x		x	x
"Not having anything to put in the worm farm."			x	
"Not having a shady spot in the garden."		x		
"Not having space"				x

Key themes

- Looking at the questions related to the positive and negative outcomes of worm farming, a key observation is the contrast in the number of negative behavioural beliefs mentioned, with compliers mentioning just one (keeping in mind that only one focus group contained worm farm compliers), while the non-compliers mentioned eleven negative outcomes (some of which contradicted the positive outcomes mentioned by compliers). And similar to home composting, there is again an emphasis on a “yuck” factor associated with worm farming (especially among participants in focus group 5).
- In terms of positive normative beliefs, both social referents are linked to particular positive outcomes of worm farming over home composting. For example, neighbours are cited as “approvers” of worm farming because worm farms are less likely to smell and attract pests.
- The positive control belief “It needs less space than a compost” was seen as a key advantage of worm farming across all the groups (in terms of making it easy), while a lack of knowledge was seen as a barrier. Interestingly, non-compliers were more forthcoming in listing factors that make it easy to worm farm, but this is no doubt partly a consequence to having only one “complier” focus group, and the fact that these so-called non-compliers had just started to undertake worm farming and were actively learning about the practices involved. Finally, retirees were more likely to mention certain “physical” advantages of worm farming (e.g., no turning is required, it can be located closer to the house).

Referring others beliefs

Table 6 presents beliefs from participants regarding referring others to home composting and/or worm farming. Further details for some of the beliefs can be found in Appendix 1. Due to time limitations and the priority given to the previous questions (which was agreed on in consultation with the Council), not all the groups were asked the full range of questions (this is indicated by the cells shaded grey). Focus group 6 was not asked these questions.

Table 6: Beliefs regarding referring others to home composting and/or worm farming

1. What do you see as the advantages or good things of referring others to home composting and/or worm farming?	1	2	3	4	5
"It creates a sense of community."	x	x		x	
"It will reduce waste going to landfill."		x	x	x	x
"There are more people to exchange knowledge and get advice."		x		x	
"It encourages people to behave for the benefit of the environment."		x			x
"It reinforces my own composting and encourages me to keep on doing it."					x
"It leads to waste being recognised as an issue."				x	
2. What do you see as the disadvantages or bad things of referring others to home composting and/or worm farming?	1	2	3	4	5
"I could be held responsible if they don't succeed."				x	x
"Others could expect the same outcomes and would be disappointed if they don't get it."		x			
"I could become very busy answering questions and this could become exhausting."					x
"I could be wasting my time and effort if people don't care."					x
"If the council started to charge for compost equipment, it could look bad on me."					x
"Being seen as a 'nutty green'"					x
"Giving out personal contact details, especially as a female."					x
"Talking to people who are not interested."					x
"A lack of public support."					x
"Meeting expectations/targets from the council."					x

3. Who do you think supports or approves of you referring others to home composting and/or worm farming?	1	2	3	4	5
Immediate friends		x			
The council		x			
4. Who do you think objects or disapproves of you referring others to home composting and/or worm farming?	1	2	3	4	5
Nobody		x			
5. What factors or circumstances make it easy for you to refer others to home composting and/or worm farming?	1	2	3	4	5
"Having experienced success."			x		x
"Having referral material to provide."		x	x		x
"Having less costs to start it."		x			x
"If composting was rewarded."					x
"Being paid for it."					x
"Knowing people can get good information from the council."					x
"Having a contact person."		x			
"Possibility to have a demonstration provided by the council on how it all works."			x		
6. What factors or circumstances make it difficult for you to refer others to home composting and/or worm farming?	1	2	3	4	5
"Expense for equipment to start."			x		x
"If I don't feel confident enough."		x			
"It takes time."					

Key themes

- While “creating a sense of community” and “reducing waste to landfill” were seen as positive outcomes of referring others to home composting and/or worm farming across most of the focus groups, non-complier participants in focus group 5 were particularly vocal in expressing a range of negative outcomes, particularly how such referral efforts might reflect on them personally in a negative way, as well as the time and effort involved. Furthermore, referring others potentially takes on a sense of accountability which did not necessarily sit well with participants.
- In terms of control beliefs, having information, success stories, contact details etc. were seen as assisting in making the referral process easier.

Getting started

Table 7 presents beliefs from participants regarding what motivated them to get started with home composting and/or worm farming, as well as any difficulties they encountered at the time. Due to the nature of the questions (and the anticipated limited time available to ask them), these followed an alternative question structure.

Table 7: What motivated you to get started?

1. What motivated you to get started with <u>home composting</u> ?	1	2	3	4	5	6
"My neighbours that did composting."	x					
"Remembering that as a child my father composted and always had a good garden."	x					
"Having a huge amount of grass which needed to go somewhere."		x				
2. What motivated you to get started with <u>worm farming</u> ?	1	2	3	4	5	6
"Producing my own fertiliser to improve my plants in the garden."			x		x	x

"Recycling my own waste."			x			
"Having a full green bin."					x	
"Getting a free bin."					x	x
"The fact that MY council cares."					x	
"Having the council involved which helps to prevent failure."					x	
"Having links to contact people."					x	
"The public discussion about climate change and sustainability."						x
3. What difficulties did you have when starting with <u>home composting</u>?	1	2	3	4	5	6
"I was missing information on how to do it right."	x	x	x			
"Poor soil in my garden made it hard to set the compost up."		x				
"It was difficult to turn the compost over."			x			
"I was confused with the manual provided by the council."						x
"In the beginning there was some equipment missing."						x
"I had to get in the habit of weighing my waste."						x
"Confusing emails from the council."						x
4. What difficulties did you have when starting with <u>worm farming</u>?	1	2	3	4	5	6
"I had a fear of the new system not working."			x			
"I wasn't sure if I needed to protect the worms during hot summer days."			x			
"I did not know what exactly can be put into a worm farm so I put the wrong food in and the worms died."			x			
"I was confused with the manual provided by the council."						x

Key themes

- Given that not all the focus groups were able to be asked these questions due to time restrictions, there is less scope to pull out key themes. Nevertheless, the Council's involvement seemed a particular positive in motivating people to start worm farming. In terms of difficulties, there seemed some missing elements in the information/equipment provided by council, as well as concerns related to looking after the worms themselves.

Best practice

If time permitted, participants were asked what they thought would make it easy or difficult for them to become a "best practice" home composter. Only a limited number of opportunities presented themselves to ask these questions, and the responses that were collected essentially mirrored beliefs that had already been repeated previously. In particular, becoming a best practice composter was linked to having the right information and knowledge (e.g., through brochures containing pictures, easy to understand and simple 'Dos and don'ts for composting', having a forum on the internet), as well as having the "right" worms. Difficulties to becoming a best practice home composter were based on a lack of information and time.

Discussion and conclusions

In an effort to increase the number of residents undertaking composting behaviours at home, the current study was commissioned by the City of Whitehorse to identify a range of beliefs connected to home composting behaviours and related topics. The premise of this work was that such a catalogue of beliefs elicited from the target audience would provide the Council with a resource to guide the future

development of messages, strategies and resources to assist in promoting the uptake of home composting, while at the same time reduce the amount of waste going to landfill.

From this exercise, which was informed by leading behaviour change theory and practice, over 100 individual beliefs were elicited across six focus groups made up of residents from the local council area. Based on the catalogue of beliefs that emerged, we believe there are a number of considerations that the Council would benefit “keeping in mind” when developing future materials and messages.

From the residents we talked to, it was readily apparent that they were well aware of a number of common benefits associated with home composting (in general), worm farming, and referring others to undertake such behaviours. These included particular benefits to the garden, reducing waste going to landfill, the creation of opportunities for knowledge sharing and awareness raising, and fostering a sense of community with others. Furthermore, in the case of worm farming, many of the perceived benefits were described as advantages over a traditional compost heap or bin rather than broader waste and gardening issues, suggesting a possible message “frame” for worm farming communications. However, what was equally apparent were the perceived negative outcomes of the “experience” of home composting activities, such as smell, the presence of rats, flies and other pests, and unhygienic and unsightly buckets and bins (many of these factors were raised across both composting and worm farming, even though the latter is often promoted as being better able to tackle some of these issues). People’s overall attitude towards home composting therefore seems to involve a weighing-up of certain “objective” advantages against more emotionally-driven beliefs related to certain undesirable elements of the home composting and worm farming experience (to some degree, this also extended to the topic of “referring others”, as some participants expressed concern about being held accountable for other’s failed attempts at composting, people not listening to them, or being viewed as a “nutty green”). This seemed particularly the case with non-compliers who were more likely to raise these negative outcomes, suggesting that undertaking composting behaviours might actually dispel some of these beliefs. In our view, the Council would be well served to address some of the negative perceptions associated with the experience of home composting and worm farming. While the Council is no doubt already doing this, additional effort and strategies might be required (e.g., public demonstration composting projects that show non-compliers that their beliefs related to certain negative outcomes are unfounded).

These perceived negative consequences also materialised in beliefs about who would approve or disapprove of home composting. Specifically, neighbours were universally mentioned as disapprovers of home composting because of issues of smell, attracting pests etc. In contrast, neighbours were cited as approvers of worm farming because worm farms typically don’t have these problems when compared to a compost bin or heap. So once again, beliefs regarding the negative experience of home composting are also found in normative beliefs. If what neighbours think is such an issue (as suggested with the home composting beliefs), the advantages of worm farming over home composting (in terms of smell, pests etc.) might be an important advantage to communicate.

Finally, as the beliefs related to what makes it easy or difficult to home compost or worm farm show, there are intricacies to these behaviours that need to be understood so they can be successfully carried out. To this end, having appropriate information and knowledge was seen as an important determinant for these behaviours, especially in relation to “process” beliefs (e.g., siting, layering, what types of waste material), with specific examples of what this might entail included in Appendix 1. Having such information and knowledge was also seen as a valuable prerequisite for referring others. However, when participants were asked about any difficulties they encountered when starting out, it was apparent that some of the information, messages and equipment provided by the Council was sometimes confusing or missing certain

elements. This suggests that some clearer messaging is required, which can be aided by using the “language” of participants represented in the elicited beliefs (including the additional details provided in Appendix 1).

While drawing attention to certain belief themes that emerged from the focus groups is valuable, it is also worth noting beliefs that were not mentioned or were under-represented in our view. As we have stated elsewhere in this report, only a few people mentioned the belief “there will be more space in my bin” as an advantage of home composting. With the planned introduction of smaller general waste bins, we anticipate that this belief will (or should) take on greater importance in the future, and may need to be communicated more explicitly. Furthermore, the potential financial costs of setting up a home compost or worm farm were not mentioned to any great extent, which was no doubt a consequence of participants being provided with free composting products as part of the Council’s home composting trial (indeed, such free items and the support of the Council were mentioned as key factors as motivating people to get started with home composting and worm farming). As such, we anticipate beliefs related to costs are likely to be more apparent among the general population of local council residents. To address this, the Council might want to consider a “policy bundling” approach that brings together initiatives such as the introduction of smaller general waste bins, a potential lowering of waste collection rates as a result, and how these savings can offset the costs of setting up a home compost or worm farm. For more information on policy bundling, see Milkman, Mazza, Shu, Tsay, and Bazerman (2012).

Furthermore, while the Theory of Planned Behaviour provides a means of capturing “who” might approve or disapprove of someone performing a behaviour, the theory is not designed to capture what we call “descriptive norms” (what a person thinks others do in a particular situation). And even if people are asked questions related to descriptive norms, the research shows that people notoriously underestimate how much they really are influenced by knowing how other people “like them” behave in similar situations (Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). Yet such descriptive norms can be highly influential in fostering behaviour change, which has been demonstrated across a range of behavioural domains (Cialdini, 2003; Gockeritz et al., 2010; Goldstein et al., 2008; Griskevicius, Cialdini, & Goldstein, 2008; Martin, Bassi, & Dunbar-Rees, 2012). To this end, the Council would most likely benefit conveying some “compelling” figures describing the current or growing number of people performing home composting behaviours, although this might require some “creativity” to find such a compelling figure. For example, saying that 30% of residents home compost creates an opposing descriptive norm – that is, most people don’t home compost. In this context, it might be more valuable to describe that compost rates have increased by a certain percentage that is seen as “high”, even though the actual numbers might still be low.

Finally, after looking at the beliefs presented in this report, the Council might feel that they are already addressing many of the beliefs articulated by participants through various education and incentive programs. To this end, it is important to note that the uptake of home composting behaviours detailed in this report might involve people changing previous behaviours under the influence of “habits”. By this we mean behaviours that are performed frequently in similar contexts without much conscious thought or elaboration (Verplanken, 2010b). In the context of trying to encourage people to compost at home, this might involve breaking previous habits related to putting organic kitchen waste in the general waste bin. The problem with habits is that they are difficult to influence using conventional approaches to behaviour change (e.g., information, incentives) that assume that people are paying attention, which is typically not the case when habits are involved. To this end, we would recommend that the City of Whitehorse give some consideration to the “timing” of interventions that promote home composting at certain “moments of change” when related habits become vulnerable or unstable. According to leading habits researchers,

this might involve timing an intervention when people move house, enter a different lifecycle (e.g., retirement, parenthood), or after the introduction of a major new government policy (Verplanken, 2010a; Verplanken & Wood, 2006). In the case of the City of Whitehorse, we might suggest that the introduction of smaller general waste bins might represent a “teachable moment” (McBride, Emmons, & Lipkus, 2003) where people will be more open to receive information about reducing their waste through home composting behaviours.

As with any study, it is important to acknowledge certain limitations that might have biased the results. In our view, the main limitation we see are the types of participants who were involved in this project. As has been stated previously, given that participants “self-selected” and were all involved in performing some level of home composting at the time of the focus groups, the beliefs presented in this report are likely to be skewed towards people who have some degree of motivation, interest and experience in home composting. To this end, we anticipate that the full spectrum of beliefs related to home composting among residents in the City of Whitehorse are not captured in their entirety, and so the Council just needs to be mindful that there might be other beliefs at play among people who currently have no experience, little interest or no incentive (in terms of a free bin or worm farm) to home compost.

In conclusion, the catalogue of beliefs detailed in this report represents an important step in developing messages, approaches and strategies designed to more effectively influence home composting behaviours in the City of Whitehorse. Rather than relying on their own intuition to develop materials that they believe will resonate with local residents, this belief elicitation exercise commissioned by the Council provides them with a set of beliefs from the target audience that can help tailor information, messages and strategies in a way that is more relevant to particular drivers and barriers connected to home composting and the residents of the City of Whitehorse.

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Appendix 1: Belief categories with example responses

Focus group schedule

Group No.	Date	Status	Behaviours	Audience category
1	18/10/2012	Compliers	Composting	Retirees
2	18/10/2012	Compliers	Composting	Young families
3	26/10/2012	Compliers	Composting & worm farming	Retirees & young families
4	14/12/2012	Non-compliers	Composting & worm farming	Young families
5	14/12/2012	Non-compliers	Composting & worm farming	Retirees
6	09/02/2013	Non-compliers	Composting & worm farming	Retirees & young families

Home composting

7. What do you see as the advantages or good things of home composting?	1	2	3	4	5	6
"It will produce organic fertiliser which will benefit my garden." <ul style="list-style-type: none"> enrich soil less chemicals, more natural improving own vegetables in veggie patch 	x	x	x	x	x	x
"It will reduce waste going to landfill." <ul style="list-style-type: none"> way of reusing food waste in the garden instead of putting it in the bin 	x	x	x	x	x	x
"There will be more space in my bin."	x			x		
"It is a way of educating children." <ul style="list-style-type: none"> worms are interesting for children pass on the benefits of recycling and the importance of a sustainable lifestyle 		x		x	x	x
"It raises awareness about waste." <ul style="list-style-type: none"> thinking about wasted vegetables 				x	x	x
"It saves the Council money because there is less waste to collect and dispose."	x		x			

<p>"It saves me money."</p> <ul style="list-style-type: none"> • there is no need to get a green bin • there is no need to buy fertiliser 		x			x	x
<p>"It makes me feel good because I'm doing 'the right thing'."</p> <ul style="list-style-type: none"> • doing something for the environment • it is 'wrong' to put green waste in the rubbish bin." 	x			x	x	x
<p>"It creates good relationships with others."</p> <ul style="list-style-type: none"> • can be a family activity • creates a relationship with neighbours • new social topic 	x	x			x	
<p>"I plan my food purchases better."</p> <ul style="list-style-type: none"> • I don't want to waste vegetables now that I am composting, therefore I buy less. 				x		x
<p>Other (beliefs mentioned by only one group)</p> <ul style="list-style-type: none"> • "I get exercise when tumbling/turning the compost." • "I am able to put clippings in there." • "The fact that everything can go in the compost." (unlike worm farms) 						
8. What do you see as the disadvantages or bad things of home composting?	1	2	3	4	5	6
<p>"It can smell."</p> <ul style="list-style-type: none"> • this limits the location where it can be sited 	x	x	x	x	x	x
<p>"It can attract rats, rodents, possums, insects, flies, spiders."</p>	x	x	x	x	x	
<p>"The bucket in the kitchen can be unhygienic."</p> <ul style="list-style-type: none"> • smell • flies • mould • can also impact looks of kitchen negatively 		x	x	x	x	x
<p>"The compost itself can be ugly, intrusive and not attractive."</p>		x			x	x
<p>"The breaking down takes time."</p> <ul style="list-style-type: none"> • I need to wait and be patient 		x				x
<p>Other (beliefs mentioned by only one group)</p> <ul style="list-style-type: none"> • "Water needs to be used to wash the bucket." • "If compost gets full, space for a new one needs to be found." • "The concern that the council has a hidden agenda to increase costs/rates." • "Not everything can go in" 						
9. Who do you think supports or approves of you home composting?	1	2	3	4	5	6
Family	x	x		x	x	x

Husband		X	X			
Friends	X	X		X	X	X
Work colleagues (who are "green")	X	X		X	X	
Schools, kindergartens (i.e., teachers and students)	X	X		X		
People with similar values, like-minded people		X	X			
Neighbours		X				X
Other (beliefs mentioned by only one group)						
<ul style="list-style-type: none"> • Council • Church groups • Fellow gardeners in the local neighbourhood 						
10. Who do you think objects or disapproves of you home composting?	1	2	3	4	5	6
Neighbours	X	X	X	X	X	X
Friends		X		X		
Other (beliefs mentioned by only one group)						
<ul style="list-style-type: none"> • Family • Husband 						
11. What factors or circumstances make it easy for you to home compost?	1	2	3	4	5	6
"Having <u>visual</u> information."	X		X		X	
<ul style="list-style-type: none"> • film on a DVD which makes it easy to go back and forth • step-by-step video • pictures • video showing potential problems that can arise and how to solve them 						
"Having <u>detailed</u> information how to do it."	X	X	X	X	X	X
<ul style="list-style-type: none"> • what can be composted • what to put in to avoid the smell • how to layer compost • siting the compost • diet specific information on what can be composted (e.g. people from an Asian background where rice can be a key part of their diet) • web-page with information • booklet provided by the council 						
"Getting information from friends or family who compost."				X	X	
"Having more time."		X		X		
"Having a backyard/space."		X		X		

"Having the right sized, clean container in the kitchen."	x	x		x		
"The Council providing the compost bin."				x	x	
"Having the equipment." • having the right tools to turn the compost.				x		x
Other (beliefs mentioned by only one group)						
<ul style="list-style-type: none"> • "Having a compost bin not too far away from the house." • "Having healthy eating and dietary habits." • "Being involved in the Council's composting project." • "Having somebody to contact" • "Having someone come to the home and show you how to do it" • "Having other family members taking responsibility for composting." • "Having money to buy fresh fruit and vegetables." 						
12. What factors or circumstances make it difficult for you to home compost?	1	2	3	4	5	6
"Time constraints."	x	x		x	x	
"Not having anything to compost." • having a fast food diet • living in a single household • only having household waste and no garden waste to mix with	x		x		x	
"Not having space/a garden." • living in a unit/high-rise	x			x	x	x
"Having a lack of knowledge." • on getting the balance right • on how to initially set it up • having a fear of failure	x		x	x	x	x
"The physical effort which is needed." • walking to the compost bin • turning the compost	x		x		x	x
"Walking to compost in winter when it is cold and dark."		x			x	
"Not knowing what to do with the soil."			x		x	
Other (beliefs mentioned by only one group)						
<ul style="list-style-type: none"> • "It is hard to get the lid off the compost bin." • "Having the expense to start composting." • "With the rotating compost bin it is hard to get out the 'ready' soil without mixing it with new food scraps which are put in." • "With the tumbling compost bin, if I tumble it when it's dry and open the lid, I get dust in my face." 						

Worm farming

Focus groups 1 and 2 were not asked questions regarding worm farming, as neither group contained any worm farmers. Also, rather than repeating all the general home composting beliefs from the previous table that were also relevant to worm farming (which applied to many), this table only details beliefs that are specific to worm farming.

7. What do you see as the advantages or good things of worm farming?	3	4	5	6
"It produces liquid fertiliser." <ul style="list-style-type: none"> • this is a more concentrated form • a lot is produced in a short time • it is easy to use • better than the soil produced from just composting 		x	x	
"It is a more efficient way of composting because the worms do the work."	x			x
"It does not smell."	x			x
"It does not attract animals."	x			
"It decomposes quicker than a compost."				x
"The worms are 'pets' I can take care of."				x
8. What do you see as the disadvantages or bad things of worm farming?	3	4	5	6
"Not everything can be put in." (e.g. citrus and onion) <ul style="list-style-type: none"> • as a result, some kitchen waste goes to landfill which is not a good thing • I really need to think about what can be put in or not. 	x	x	x	x
"Everything that gets put in needs to be cut up very small." <ul style="list-style-type: none"> • takes time 		x		x
"Worms need to be looked after when I go on holidays."		x		x
"Worms can cook in summer."		x	x	
"The container in the kitchen can smell and go mouldy." <ul style="list-style-type: none"> • attract flies 			x	x
"The worm farm can be intrusive and not attractive."			x	
"It attracts animals."			x	x
"It can smell."			x	
"My child can make a mess with it"			x	
"It can be scary for children."			x	
"In case soil is needed, it does not produce it."			x	

9. Who do you think supports or approves of you worm farming?	3	4	5	6
Husband (who disapproves of composting) because worm farming produces liquid fertiliser.			x	
Neighbours (who disapprove of composting because of smell and rats) because worm farming does not encroach on them as much.		x	x	x
10. Who do you think objects or disapproves of you worm farming?	3	4	5	6
Husband			x	
Children if they are scared of worms			x	
Friends				x
11. What factors or circumstances make it easy for you to worm farm?	3	4	5	6
"The availability of commercial worm farms which have the right, productive worms."	x			
"Having the right number of worms." • right proportion of worms to household size				x
"To be supplied with the worms and ready to go."		x		
"Having someone looking after the worms."		x		
"It is less work physically because no turning is necessary."			x	
"It needs less space than a compost." • easier to use in a unit • less intrusive	x	x	x	x
"It can be put closer to the house than a compost."			x	x
"It is easier to site than a compost because the compost needs sun whereas the worm farm does not."			x	
"Having <u>visual</u> information/instructions." • film on a DVD which makes it easy to go back and forth • photos • being shown what to do instead of having to read something • YouTube-link	x	x		
"Having <u>detailed</u> information how to do it." • how to set the worm farm up • how to maintain it • information on tools to clean it out		x		x
"Having somebody coming to the house showing how to use it." • showing the best spot in the garden to put it		x		
12. What factors or circumstances make it difficult for you to worm farm?	3	4	5	6

"The cost of setting up a worm farm." • not being able to afford more worms slows the process of breaking down	x			x
"Having a lack of knowledge." • how to do it • siting it • where to get more worms	x		x	x
"Not having anything to put in the worm farm." • no cooking • living in a single household • the worms need to be fed			x	
"Not having a shady spot in the garden."		x		
"Not having space" • living in a high-rise				x

Referring others

Cells shaded grey represent questions that were not asked to particular focus groups because of time restrictions. In particular, no responses were recorded for focus group 6 due to this fact.

7. What do you see as the advantages or good things of referring others to home composting and/or worm farming?	1	2	3	4	5
"It creates a sense of community." • creates friendships • connects to others • creates a spirit of sharing	x	x		x	
"It will reduce waste going to landfill."		x	x	x	x
"There are more people to exchange knowledge and get advice." • learn from others		x		x	
"It encourages people to behave for the benefit of the environment."		x			x
"It reinforces my own composting and encourages me to keep on doing it."					x
"It leads to waste being recognised as an issue."				x	
8. What do you see as the disadvantages or bad things of referring others to home composting and/or worm farming?	1	2	3	4	5
"I could be held responsible if they don't succeed."				x	x
"Others could expect the same outcomes and would be disappointed if they don't get it."		x			

"I could become very busy answering questions and this could become exhausting."					X
"I could be wasting my time and effort if people don't care."					X
"If the council started to charge for compost equipment, it could look bad on me."					X
"Being seen as a 'nutty green'"					X
"Giving out personal contact details, especially as a female."					X
"Talking to people who are not interested."					X
"A lack of public support."					X
"Meeting expectations/targets from the council."					X
9. Who do you think supports or approves of you referring others to home composting and/or worm farming?	1	2	3	4	5
Immediate friends		x			
The council		x			
10. Who do you think objects or disapproves of you referring others to home composting and/or worm farming?	1	2	3	4	5
Nobody		x			
11. What factors or circumstances make it easy for you to refer others to home composting and/or worm farming?	1	2	3	4	5
"Having experienced success."			x		X
"Having referral material to provide." • published results of this composting trial in an easy-to-understand way • information on the internet, e.g. webpage run by the council		x	x		X
"Having less costs to start it." • subsidy by the council • free trial kit for 3-6 months		x			X
"If composting was rewarded."					X
"Being paid for it."					X
"Knowing people can get good information from the council."					X
"Having a contact person."		x			
"Possibility to have a demonstration provided by the council on how it all works."			x		
12. What factors or circumstances make it difficult for you to refer others to home composting and/or worm farming?	1	2	3	4	5
"Expense for equipment to start."			x		X
"If I don't feel confident enough."		x			
"It takes time."					

Getting started

Cells shaded grey represent questions that were not asked to particular focus groups because of time restrictions or were not relevant to particular groups.

5. What motivated you to get started with <u>home composting</u> ?	1	2	3	4	5	6
"My neighbours that did composting."	x					
"Remembering that as a child my father composted and always had a good garden."	x					
"Having a huge amount of grass which needed to go somewhere."		x				
6. What motivated you to get started with <u>worm farming</u> ?	1	2	3	4	5	6
"Producing my own fertiliser to improve my plants in the garden." • fits well with the veggie garden			x		x	x
"Recycling my own waste."			x			
"Having a full green bin."					x	
"Getting a free bin." • modern bin • home delivery of the bin • offer from the council					x	x
"The fact that MY council cares." • emotional appeal by the council					x	
"Having the council involved which helps to prevent failure."					x	
"Having links to contact people."					x	
"The public discussion about climate change and sustainability."						x
7. What difficulties did you have when starting with <u>home composting</u> ?	1	2	3	4	5	6
"I was missing information on how to do it right." • having the right balance of household waste and grass	x	x	x			
"Poor soil in my garden made it hard to set the compost up."		x				
"It was difficult to turn the compost over."			x			
"I was confused with the manual provided by the council." • there were many questions left • had to Google it, looked it up on the website/in the forum						x
"In the beginning there was some equipment missing." • sticky tape for the bin • scales not working accurately						x

<ul style="list-style-type: none"> obtained very competent information from the woman on the phone at the council 						
<p>"I had to get in the habit of weighing my waste."</p> <ul style="list-style-type: none"> another thing to do. 						X
<p>"Confusing emails from the council."</p>						X
<p>8. What difficulties did you have when starting with <u>worm farming</u>?</p>	1	2	3	4	5	6
<p>"I had a fear of the new system not working."</p>			X			
<p>"I wasn't sure if I needed to protect the worms during hot summer days."</p> <ul style="list-style-type: none"> finding the right spot in the garden, so the compost worms don't get fried in summer 			X			
<p>"I did not know what exactly can be put into a worm farm so I put the wrong food in and the worms died."</p>			X			
<p>"I was confused with the manual provided by the council."</p> <ul style="list-style-type: none"> confusing information there were many questions left had to Google it, looked it up on the website/in the forum 						X