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Research article

Storying energy consumption: Collective video storytelling in energy efficiency social marketing

Ross Gordon [a, *], Gordon Waitt [b], Paul Cooper [c], Katherine Butler [a]

[a] Department of Marketing and Management, Faculty of Business and Economics, Macquarie University, Sydney, Australia
[b] School of Geography and Sustainable Communities, Faculty of Social Sciences, University of Wollongong, Wollongong, Australia
[c] Sustainable Buildings Research Centre, Faculty of Engineering and Information Sciences, University of Wollongong, Wollongong, Australia

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ABSTRACT

Despite calls for more socio-technical research on energy, there is little practical advice to how narratives collected through qualitative research may be melded with technical knowledge from the physical sciences such as engineering and then applied in energy efficiency social action strategies. This is despite established knowledge in the environmental management literature about domestic energy use regarding the utility of social practice theory and narrative framings that socialise everyday consumption. Storytelling is positioned in this paper both as a focus for socio-technical energy research, and as one potential practical tool that can arguably enhance energy efficiency interventions. We draw upon the literature on everyday social practices, and storytelling, to present our framework called 'collective video storytelling' that combines scientific and lay knowledge about domestic energy use to offer a practical tool for energy efficiency management. Collective video storytelling is discussed in the context of Energy+Illawarra, a 3-year cross-disciplinary collaboration between social marketers, human geographers, and engineers to target energy behavioural change within older low-income households in regional NSW, Australia.

1. Introduction

Household energy efficiency is a key environmental management focus in a context of climate change, energy security, rising energy prices, and energy poverty (Yergin, 2006; Simshauser et al., 2011; Council of Australian Governments, 2015). Domestic energy consumption is associated with various climate change effects including changing atmospheric conditions, topography, and damage to water systems and wildlife (Akhmat et al., 2014). Energy efficiency is also at the fore of the United Nations' Environment Programme. It is estimated that household energy efficiency could contribute up to one-fifth of carbon emissions reductions that are stated as being necessary by the Intergovernmental Panel on Climate Change (United Nations Environment Programme, 2014). The problem is how to reduce the amount of energy required to provide and perform everyday functions to maintain household health and wellbeing within bio-physical and social preconditions.

It is well established in the energy literature that making energy policy and delivering energy efficiency programmes requires an understanding of bio-physical and social preconditions (Guy and Shove, 2000; Shove, 2010). Energy researchers who have embraced ideas from social practice theory have identified that domestic energy use is always a reciprocal relationship between the material fabric of the house, technologies, social norms, routines, bodily skills and habits (Strengers, 2013; Mackley and Pink, 2013; Shove and Walker, 2014; Judson and Maller, 2014; Strengers and Maller, 2015). This literature suggests that domestic energy consumption is integral to making and maintaining the house-as-home. On top of this, the work of scholars deploying narratives frameworks are pivotal to critical enquiry of environmental management, including energy consumption (Hitchings and Day, 2011; Day and Hitchings, 2011). Narrative analysis can provide scholars and practitioners with a means to attend to how energy stories help to constitute social-political-material life including the everyday practices of households (Waitt et al., 2016), the decisions of corporations (Ngoasong, 2014), and policy rhetoric (Trutnevyte et al., 2015). Narrative frameworks offer crucial insights as to how particular domestic energy knowledge is produced, circulated, and understood to help sustain specific practices,

* Corresponding author.
E-mail address: ross.gordon@mq.edu.au (R. Gordon).

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subjectivities, and living spaces in a home (Moezzi et al., 2017).

In this paper, we introduce collective video storytelling as an approach used as part of Energy+Illawarra, a community energy efficiency social marketing programme in regional New South Wales, Australia involving interdisciplinary collaboration between social marketers, engineers, and human geographers. Environmental management has been invigorated by the possibilities offered by social marketing approaches to address several pressing challenges including water usage, recycling, and energy efficiency (Andreasen, 2006; Department of the Environment, Food and Rural Affairs, 2008; McKenzie-Mohr, 2011; Haq et al., 2013; Sheau-Ting et al., 2013; Jensen and Chappin, 2017). However, building on more recent socio-cultural and critical work in social marketing (see Stead et al., 2013; Lafreniere et al., 2013; French and Gordon, 2015; Waitt et al., 2016; Spotswood et al., 2017) our core concern is the use of narratives to influence energy efficiency social marketing behaviour change, and the ways that the scientific and technical knowledge about energy efficiency are framed within the lay domestic energy knowledges.

We offer an environmental management approach that responds to the call for a new *modus operandi* that brings together divergent epistemic foundations of energy knowledge from the social and physical sciences to create new energy realities formed from dialogue, reflexivity, and learning from clashes in ontology (Castree and Waitt, 2017; Gordon et al., 2017). Considering this, we offer a practical social marketing strategy we name 'collective video storytelling' that brings together engineering science with the 'critical' thinking of narrative approaches. Collective video storytelling involves melding together building physics, and thermodynamics with cognitive concerns (evidence, reason, practical efficacy) and the embodied, aesthetic, moral, economic, political, and personal concerns of older low income residents.

Our argument is structured as follows. First, we present our theoretical framework, by aligning a narrative framework (Green and Brock, 2002; van Laer et al., 2014) within a social practice theory paradigm. The subsequent sections present our method for designing what we term 'collective video storytelling', discussing how we melded lay narratives from qualitative social science research with technical narratives from engineers as part of an energy efficiency social marketing programme. We then illustrate our application of 'collective video storytelling' with older low income people in the regional New South Wales, Australia. Collective video storytelling is one example of active engagement across disciplinary lines so that engineering science is socialised for behaviour change. In the context of collective video storytelling the scientific knowledge to help reduce energy bills makes social sense. Engineers and scientists can thereby play a central role in 'opening up', rather than 'closing down' discussion with households about what is feasible and socially desirable by bringing together lay narratives and scientific knowledge.

2. Literature review and theoretical framework

2.1. Broadening perspectives in environmental management

In environmental management circles academics and practitioners are discussing how the humanities and social sciences need to work alongside the natural sciences to tackle issues such as climate change, and energy efficiency (see Castree, 2016; Cooper, 2017). In the context of domestic energy, scientific and technical knowledge is important because it can help answer questions that householders may have about where does energy go and how much energy is used by different appliances (Dieu-Hang et al., 2017).

However, environmental management needs to incorporate and socialise the knowledge of engineers, scientists, and social scientists to provide greater context and understanding about the how, what and why of energy use, climate change, etc. and to demonstrate how these issues intersect with the social world. Therefore, humanity and social science scholars have opened-up new perspectives in environmental management by drawing attention to diverse social norms, aspirations, embodied competencies, technologies, and desires (see Shove, 2003; Gibson et al., 2013; Head et al., 2013; Strengers and Maller, 2015). The starting point of a more 'interdisciplinary' enquiry towards environmental management insists on thinking about how science may speak to the different material, technical, social, and embodied relationships that constitute the problem of energy efficiency and how they may be rearranged (Schmidt and Weigt, 2015). Hence, here, we examine how social practice theory aligned with a narrative framework offers a useful lens to help recruit and activate engineering science in a practical way that is alive to both the social and material elements that comprise energy use.

2.2. Social practice theory and energy research

To think about the social and material arrangements that underpin energy use we take our lead from Schatzki (2002) and Reckwitz (2002). For these scholars, practices refer to everyday embodied habits that simultaneously constitutes, and is constituted by the social and physical milieu. The primary focus in social practice theory in energy research is therefore on the arrangement of the material and social elements that constitute practices themselves and not the performers. Social practice theory has gained currency in domestic energy efficiency research because it takes seriously materiality (such as refrigerators or building form), alongside social norms, and bodily competencies (see Chappells and Shove, 2005; Gram-Hanssen, 2010; Shove, 2010; Shove et al., 2012; Shove and Walker, 2014).

For example, the work of Strengers (2013) is pivotal to opening-up a different conversation with Australian consumer advocacy groups and decision makers on the possibilities of smart energy technologies to reduce or shift energy demand for low income households. Social practice theory points to the importance of narratives in establishing, fixing and challenging shared social norms about specific technologies, policies and behaviours within a particular milieu (see Cupples et al., 2003; Kjerulf Petersen, 2008; Hitchings and Day, 2011; Hitchings et al., 2015). For our purposes, it is how social practice theory can help understand how fixity, and change, in patterns of energy consumption occurs within social groups that may help socialise engineering science.

2.3. Narrative as an element of social practice

Alive to the importance of far reaching implications of narratives in fixing and challenging domestic energy arrangements we turned to literature that offered insights to how stories transmit and challenge socio-cultural ideas, norms, and structures (Visconti et al., 2010; Moore, 2012). Narrative scholars argue that shared stories are integral to the process of differentiation between and legitimation of social groups (Barthes, 1975; Rohse et al., 2013). Barthes (1975) proposed that shared stories have a common structure of functions, actions, and discourses that facilitate the processes of story-telling, listening and interpretation, and help making the story possible, believable, and pleasurable (van Laer et al., 2014).

Shared narratives operate to produce particular knowledge of the world, that help shape and reshape our experience of what are 'acceptable' and 'unacceptable' ways to behave. After Foucault (1972), these may be understood as 'regimes of truth'. For

example, engineers and energy authorities often advocate for purchasing appliances with high energy star ratings as the 'wise' choice for both the planet and financial savings (Office for Environment and Heritage, 2009; Borg and Kelly, 2011). However, such actionable ideas may assist in working towards energy efficiency, they do not emerge relative to specific social framings of households – and leave no opportunity for resolving value conflicts, emotions and aspirations for different ways of living.

The arguments of Groves et al. (2016) bespeak of storytelling as an important method in energy research because narratives allow key aspects of the social to be explicitly addressed – things such as drama, emotions, subjectivities, power, and contradictions of everyday life. How stories retrain the unfolding details of a particular situation, or issue, gives us insights into not only what energy is used for to make places homely or not, but how particular emotion and affects alongside social aspirations helps to sustain the use of particular fuels, ambient room temperatures, domestic appliances and 'fresh air' (see Reeve et al., 2013; Galvin, 2013). Furthermore, energy narratives provide important insights into knowledges of being a 'good' host (Wilhite et al., 1996), parent (Henning, 2004), as well as particular ways of 'doing' age (Day and Hitchings, 2011) and gender (Cupples et al., 2003). In this paper, we take this a step further by considering how scientific knowledge from engineers about how 'best' to use energy may be socialised by harnessing lay energy narratives to encourage people to reflect, and mobilise change.

2.4. Narrative-transportation theory as a social action framework

Narrative-transportation theory provides a useful framework for considering how new energy choices may arise through storytelling. In what van Laer et al. (2014) call a 'transportation-imagery framework' they offer some welcome clarity to how narratives may help change everyday practices and provides clues to the potential of storytelling in energy social marketing. As van Laer et al. (2014, p799) explain, the potential of new realties are purposefully created through an ontological logic: "the story-receiver's consumption of the story through which he or she does not just read the story but also makes it readable in the first place… in short, a narrative is a story the consumer interprets in accordance with his or her prior knowledge, attention, personality, demographics, and significant others". Rather than the story-receiver revealing an objective world, we take van Laer et al.'s (2014) definition of narrative to refer to an interpretation process that encourages reflection on how the story-receiver dwells in their world.

2.4.1. Stories should feature identifiable characters

van Laer et al. (2014) suggest three key elements of the transportation-imagery framework that relate to the storyteller: identifiable characters, imaginable plot, and verisimilitude. Identifiable characters relate to how storytellers use narrative framing to refer to characters (van Laer et al., 2014; Slater and Rouner, 2002). van Laer et al. (2014, p802) defined identifiable characters as "invented personas the story-receiver clearly pinpoints from the storyteller's use of context-derived assumptions". For narrative-transportation to occur, stories require storytellers to be clear about whom they are talking about, and formulate characters according to identifiable characteristics that can aid the story receiver's identification with and possible empathy for the characters. Here it is important to ensure that story-receivers can understand the experience of the characters, and know and feel the world in a similar way (Escalas and Stern, 2003). Narrative-transportation is conceived to occur as story-receivers vicariously experience the beliefs and emotions of the story characters, and begin to empathise with them as they become engrossed in the story (Slater and Rouner, 2002).

2.4.2. Stories should have an imaginable plot

Second, storytellers should create an imaginable story plot that is articulated clearly and believably for narrative-transportation to be facilitated (van Laer et al., 2014; Green, 2006). The temporal sequence of events that happen to the characters in a given setting needs to happen in a way that is imaginable by audiences (Escalas, 1998). If the story plot is imaginable in people's minds, they can identify with it and make connections to their own real life experiences, entering the narrative world (Green, 2006). An imaginable story plot can influence narrative-transportation by helping people imagine it could be them experiencing what story characters are experiencing (Green et al., 2008).

2.4.3. Stories should possess verisimilitude

Third, verisimilitude - the likelihood that story events may actually happen -, or "lifelikeness", (Bruner, 1986, p11) or "believability" Bal et al. (2011, p 362), is according to van Laer et al. (2014) a critical element of stories to influence behaviour change. Bruner (1986) identified that people evaluate analytical expressions in relation to the epistemic founds of their 'truth'.

2.4.4. Stories should acknowledge spaces and places

Finally, the question of where a story is told is given less attention in the narrative transportation literature. This is despite research from socio-cultural studies identifying the importance of situated knowledge; that is knowledge is always constituted somewhere (Markula-Denison and Pringle, 2006). Furthermore, following Reckwitz (2002) situated knowledge matters given how the stories we tell about particular places help shape energy practices. For example, Hitchings et al. (2015) argue that the lack of winter warming practices in Wollongong, New South Wales, is in part due to shared narratives of this city as a summer place. This spatial imperative we argue is an integral component of energy narratives. In what follows we illustrate the potential role a transportation-imagery framework could play in designing social marketing strategies to address household energy efficiency.

3. Methodology: collective video storytelling

3.1. Study design and sample

The first step in our approach was to conduct empirical qualitative research with householders to collect lay energy narratives. Our project design involved 11 qualitative focus group interviews (n = 55, 35 females and 20 males), and ethnographic interviews with 37 households (n = 51, 30 females, 21 males) aged 60+ years that are homeowners or private tenants (i.e. not living in public housing) in regional NSW, Australia. All participants had a personal disposable income below $26,104 per annum, the Australian Bureau of Statistics' threshold for low-income at the time of data collection (Australian Bureau of Statistics, 2011).

Our sample focus was guided by the specificities of the research-funding scheme, but also due to important policy debates and social trends. The Australian population is experience a rising age profile, with the proportion of the total population aged over 65 years of age estimated to increase from 14% to 24% between 2012 and 2056 (Australian Bureau of Statistics, 2013). Furthermore, statistics suggest that around 33% of low-income households may face profound and enduring fuel poverty by 2026 (Simshauser et al., 2011). Therefore, older low-income households can be a population at risk of fuel poverty and are often concerned about energy efficiency (Waitt et al., 2016). This has led to an increased policy focus on energy efficiency and low-income households

(Department of Resources, Energy and Tourism, 2012).

3.2. Data collection

Focus group participants were recruited using a purposive sampling approach. This involved the researchers approaching several known networks including community social groups, service providers, and providers of independent living units and residential aged-care homes. Ethnographic interview participants were recruited as a sub-sample of a cohort of household participants recruited using random digit dialling telephone sampling who were taking part in a community energy efficiency programme. Group interviews were conducted in homes, community venues, or at the university according to participants' preference and convenience. Ethnographic interviews were conducted in participants' homes. All participants received an information sheet and provided written informed consent. All participants were presented with a $50 gift voucher as recompense for their time. Approval for the study was obtained from the University Human Research Ethics Committee.

A semi-structured interview schedule elicited narratives regarding energy use, energy efficiency, and everyday practices. Questions to start conversations included, “How do you use energy in the home and what do you do?” “What do you think are some of the major contributors to electricity use in your home?” “How did you learn about how to save energy?” Participants were encouraged to tell their own stories about important topics and practices regarding domestic energy use. Focus group interviews averaged around one hour. Ethnographic interviews averaged around 90 min. All focus groups and ethnographic interviews were audio recorded and professionally transcribed verbatim and then entered into the QSR NVivo 10 qualitative data software tool in preparation for analysis.

3.3. Analysis

Once the data was collected and loaded into QSR NVivo 10, the researchers initially reviewed the data, and met several times to discuss emergent themes around domestic energy use and efficiency. A draft coding structure related tree nodes to prominent energy use practices such as washing and drying clothing, or cooking. Within each tree node, free nodes were created with a focus on narrative text relating to different energy use practices. Data was categorised and coded in NVivo by two of the researchers, with inter-coder reliability checks conducted on all coding decisions, and with a third researcher resolving any coding disagreements. The researchers then met several times during an iterative process of reading of the text, analysis and interpretation, discussion and reflection, and then further interpretation and representation. Our analysis of the qualitative data focused on understanding key concerns shaping participants' energy consumption and collecting and creating lay energy narratives that could be used to create a series of narrative videos using an approach we term collective video storytelling.

3.4. Creating and distributing the narrative videos

As discussed further in the outcomes section, the creation of the videos involved developing a script re-telling lay energy narratives from the qualitative research, and then socialising scientific knowledge of engineers to address key concerns identified during the research. Once each video was scripted, video producers were employed to help film them. A selection of project participants were invited to feature in the narrative videos, and provided written informed consent and signed a talent release form giving permission for the videos to be used in the Energy+Illawarra social marketing programme and dissemination of project findings. These narrative videos were produced in participants' homes and local community venues, and featured participants acting out scripts that were based on the lay energy narratives collected from the qualitative research, melded with technical knowledge on how to be energy efficient.

The narrative videos were then distributed widely as a component of the community energy efficiency social marketing programme. The videos were posted on the Energy+Illawarra project website (see www.energyplusillawarra.com.au/?page_id=84) and on YouTube, were promoted to project participants and the wider community through newsletters, community events, and on social media (Facebook and Twitter), and they were also featured on LCD brochures that were distributed to community and health centres and other community organisations engaged with older people in the project region. Our collective video storying focused on 10 practices that research suggests consume a high proportion of household energy (see McGee, 2013), and which emerged as important concerns to our participants (Cooper et al., 2016). Table 1 lists the 10 practices and web links to the corresponding narrative videos produced for this project.

To help guide researchers with the practical task of employing narratives to socialise science in energy social marketing, we provide three questions about designing collective video stories: How was the narrative made? Who tells the narrative? Where is it told?

4. Outcomes

4.1. How were the narratives made?

Our starting point was ‘creating’ a series of lay narratives by weaving together extracts of the stories told to us in the focus groups and ethnographic interviews about concerns arising from different domestic energy practices (including lighting, heating, cooking, hot-water, refrigerators). We then drew on transformation-narrative theory (van Laer et al., 2014) to create the narrative videos, paying particular attention to the use of language and narratives, and how these also described the use of bodies, materials, places, and everyday concerns, subjectivities, and practicalities in domestic energy use. In addition, we worked closely with the engineers engaged on the project who provided explanations of the way houses operate in lay terms from an energy and thermal comfort perspective.

This included how the appliances within participants' homes are used and how these issues influence the overall energy consumption and comfort of each household. Part of the process of developing the narrative videos involved myth-busting by the engineering team of some energy related misconceptions held by many participants and the community generally. The process of editing together lay energy narratives from the qualitative research, supplemented with technical explanations of basic building physics and appliance energy consumption where relevant, enabled us to offer participant oriented collective narratives as the script for each of our narrative videos.

4.1.1. Resourcefulness among older low-income people

Our selection of stories for the narrative videos was guided by three key findings from our analysis of participants' energy narratives: resourcefulness, thriftiness, and common concerns. First, many older low-income people are often already engaging in many energy efficiency practices out of economic necessity, notions of waste and/or to sustain generational difference (Butler et al., 2016; Waitt et al., 2016). For example, one participant told us “we just switch lights on as much as we need them” commenting that doing

Table 1
Energy use practices and web-links to corresponding narrative videos.

Energy Use Practices	Narrative Video
Using fridges	https://www.youtube.com/watch?v=_RRoyEyr-YE
Considering star ratings when buying and using household appliances	https://www.youtube.com/watch?time_continue=2&v=B-Gi-YT1Xbo
Lighting in the home	https://www.youtube.com/watch?v=PDL_Yg5V2fk
Doing the laundry	https://www.youtube.com/watch?v=OfTXuybRjiE
Using hot water	https://www.youtube.com/watch?v=ZtEDu4ksR-Y
Heating	https://www.youtube.com/watch?v=KJHGCEr5Hc4
Cooking	https://www.youtube.com/watch?v=XltTvoLyqDQ
Personal cooling	https://www.youtube.com/watch?v=yw6PbhkVgfY
Active cooling - using fans and air conditioning	https://www.youtube.com/watch?v=UBYb-Hn6UMg
Using curtains, blinds, shading and awnings to regulate temperature in the home.	https://www.youtube.com/watch?v=ew2akvXhScQ

otherwise would we wasteful and negligent. Therefore, we endeavoured to ensure that our narrative videos acknowledged and helped reinforce the strategies and capabilities of energy efficiency already practiced by older low-income people. Crucially, participants were not told what to do, but asked to reflect on the outcomes of particular domestic energy practices. For example, the heating narrative video features a narrative on how the participant performs certain practices of keeping warm: “I have a blanket that I wrap myself up in. I try to warm up that way first before I put the heater on”. This helps reinforce the existing energy efficient practices that older low-income people use.

4.1.2. *The tyrannies of thrift regarding energy use*

Second, our qualitative research found that being ‘thrifty’ in their domestic energy practices could potentially impact upon older low-income people's comfort, health, and wellbeing. For example, one participant recalled that: “I know a friend who used to use the street lights at night through the window instead of turning lights on. He had a fall in the bathroom and ended up in hospital”. This creates contradictions and tensions in the discourses of energy efficiency. Here it emerges that older low-income people who understand energy efficiency as ‘thrifty’ may risk their health and comfort. This led us to attempt to address discourses of what we termed the ‘tyrannies of thrift’ (Waitt et al., 2016). In response, our narrative videos introduced counter narratives of energy efficiency using energy smartly to live within means but to maintain comfort. As Fig. 1 shows, this included redefining energy efficiency as not just concerned with cutting-back and using less, but to encompass maintenance of comfort and wellbeing.

4.1.3. *Common concerns about being energy efficient*

Third, we identified concerns about energy use and being energy efficient among participants. For example, as one participant said:

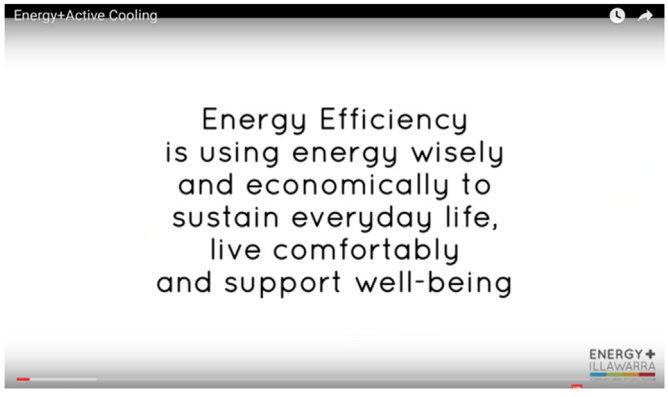

Fig. 1. Addressing ‘tyrannies of thrift’ by redefining energy efficiency.

I often wonder about silly things like that, what opening and closing the fridge door does to my energy usage. I don't know the answer to how to most efficiently open the fridge to get the milk out to put in my coffee and then I put the milk back in. Should I close the door in between or should I leave the door open?

Another concern emerged from our participants related to a perception of many that reverse cycle air conditioning is an expensive, inefficient heating option: “I've got reversible air conditioning, but I don't use that either because it's too expensive”. This concern was addressed by utilising technical expertise and knowledge of the engineers in our team, who provided scientific knowledge to address this participant narrative by providing information that a reverse cycle air conditioner is one of the most energy efficient ways to heat a house (Fuller and Luther, 2003). It is a basic thermodynamic fact that a reverse cycle air conditioner supplies heating thermal energy to a home at a rate far greater than the rate of electricity consumed by the appliance, since additional ‘free’ thermal energy is captured from the outside environment. The ‘coefficient of performance’ of such reverse cycle air conditioning appliances is significantly larger than unity (often greater than 2.5), so that the householder receives more than 2.5 times the amount of heating for the same amount of electricity consumption as would be provided by ‘direct’ electrical heating, i.e. by a ‘fan heater’, or an oil-filled portable radiator. Our engineering and social marketing teams worked together closely to develop clear and simple video resources to illustrate this fact, and related technical issues, to our participants. These resources were not only clear and simple but, importantly, also scientifically accurate.

A further concern was that buying a high-efficiency appliance is the most important consideration relating to energy efficiency when making a purchase. A star-rating system is used for major household appliances in Australia, such as refrigerators, air conditioners, washing machines, etc. Our engineering team also identified the fact that it was also important that households choose appropriately sized appliances, so that householders should then examine appliance ‘energy labels’ for both the appliance efficiency (star rating) and the kWh-per-annum energy consumption to properly assess the impact of their new appliance on their energy bills (see http://www.energyrating.gov.au), and this knowledge was reproduced in our narrative video (see Fig. 2).

Another example of where quite complex scientific/engineering issues were socialised was the case of ‘active cooling’ of homes, i.e. using air conditioners or fans, during periods of warm or hot weather. Conveying the concept that air movement provided by a pedestal or ceiling fan can reduce the perceived temperature of air in a householder's home is important, as shown in Fig. 3. The engineers also worked closely with the social marketing team to take this concept a step further suggesting that participants can significantly reduce their air conditioning energy consumption by combining the use of their fan and their air conditioner, which can

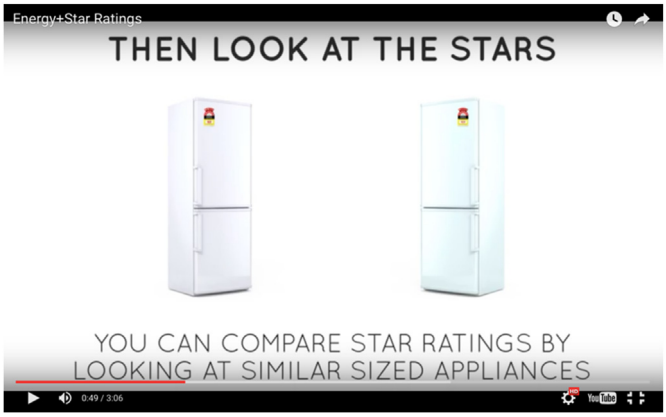

Fig. 2. Star ratings on appliances.

then be set at a higher 'set-point temperature' as shown in Fig. 3. Therefore, animations in the narrative videos were designed to meld the scientific knowledge and recommendations of the engineers in our team, with the lay narratives of participants. In effect, our videos consider how domestic appliance narratives are produced, circulated and given credibility. More broadly, the narrative videos contest the perceived gap between scientific and lay knowledge of domestic energy use as mutually exclusive.

4.2. Who tells the narrative and where is the narrative told?

4.2.1. Identifiable characters

Our collective video storytelling was informed by the constructs for narrative-transportation identified by van Laer et al. (2014), and Reckwitz's (2002) concept of social practice. Hence, questions of who told the narrative and where the narrative is told are crucial. In each narrative video the narrators and characters are identifiable characters relatable to older low-income people. The narrative videos feature participants' voices, faces, bodies, technologies and homes. By featuring research participants, we helped to create identifiable characters for older low-income viewers (see Fig. 4).

Character identifiability is an important consideration in social marketing narratives by facilitating narrative-transportation and relatability (Stern, 1994; Küntay, 2002). For example, Slater et al. (2003) reported that narratives featuring identifiable characters promoting a healthy lifestyle helped induce more nutritious eating habits among story-receivers. Likewise, Dal Cin et al. (2007) reported that narratives featuring identifiable characters may increase story-receivers' intentions to smoke.

4.2.2. An imaginable plot

To help create an imaginable plot for viewers we requested video participants to act out everyday energy use practices. While

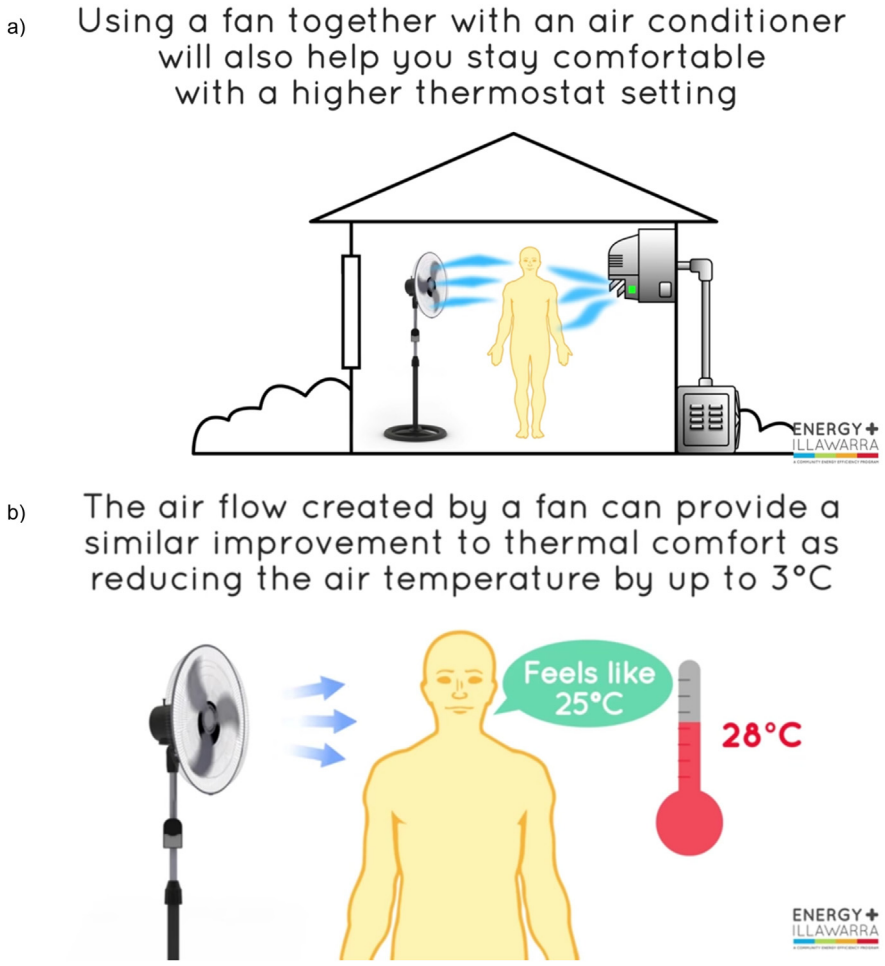

Fig. 3. Info-graphics from the Active Cooling narrative video: a) demonstration of how air movement from a fan will reduce the apparent temperature in a room; b) combined use of the air conditioner and fan can significantly reduce electricity consumption in summer.

Fig. 4. Identifiable characters - Project participants in the narrative videos.

the narrative story is read, practices are shown being performed on the screen and the audio of the narrative can be heard. For example, the cooking video features Jeannette preparing a meal as she would do normally using her own food and kitchenware, and technologies such as her fridge and oven. This synergy between narrative, places, performers and practices is designed to help the viewer imagine the plot; making it more likely they will enter the narrative world (Green and Brock, 2002).

One of the important aspects of the project that influenced the creation of an imaginable plot in the narrative videos was that the engineering team did much more than deal with technical issues from a theoretical point of view. They were also actively engaged with the other project team members in engaging with participant households that had energy consultations, monitoring equipment installed in their homes (to measure indoor temperatures, energy use, etc.), and had energy efficiency improvements made to their homes. This meant that the engineering team had many personal insights into the participants and their views on energy efficiency in the home, which facilitated understanding of the social and economic contexts of the participants' lives. These face-to-face interactions allowed the engineers to progressively develop believable and relevant ways of explaining the technical issues that were eventually embodied in the plot of the narrative videos.

4.2.3. Verisimilitude

Verisimilitude was likewise achieved through project participants reading from and acting out according to a script – effectively speaking and living the collective narratives while situated in their homes. Essentially our aim was to create lifelikeness, and a sense of believability in the collective narrative videos. As Bal et al. (2011) identify, believability is more important than consistency or continuity in narratives. In the personal cooling video Peter can be seen entering an air-conditioned shopping mall during hot weather. He then collects a drink and snack from a stall and then sits at a table, where he meets a woman who he appears to know. However, Peter and the woman are not actually talking about anything and this segment it is entirely acted out. Our collective video narratives were produced in ways to appear believable and lifelike, creating a sense of verisimilitude.

4.2.4. Situated knowledge

The spatial dimension and spatially situated knowledge of our participants was also brought to the fore in each narrative video. With the consent of participants, the start of each narrative video identifies who the participants are, and where they live (see Fig. 5). The video narrators are in their own homes, using their own appliances and materials, or in local community spaces and places, as relevant to the topic of the video. This contributes to creating identifiable characters (van Laer et al., 2014) and brings to the fore the spatial elements of social practices (Reckwitz, 2002).

Acknowledgement of the spatial dimensions points out how energy use and its relationship with thermal comfort is more than measuring kilowatts and temperature, because the various practices that consume energy helps to sustain the social, emotional and sensual relations that comprise home-places.

The importance of this issue to our narrative videos was exemplified in the description by the narrators of how they configure their homes to minimise their cooling and heating energy consumption in hot or cold weather, respectively. The narrators mention how they will typically shut doors, windows and blinds, for example, to semi-isolate the room they are occupying from the rest of the house, thereby reducing the cooling/heating energy needed to keep their immediate environment/space within their thermal comfort band. This behaviour aligns with other recent research on effective energy efficient household practices (e.g. Saman et al., 2013). In addition, the narratives also refer to other adaptive behaviours that low income householders can adopt, for example by visiting air conditioned public spaces (such as retail centres) during the hottest times of hot days – although regular use of air conditioned buildings can hinder thermal acclimatisation. This type of advice is particularly important due to the increased mortality risk that has been identified for both high and low environmental temperatures in recent international studies such as that of Gasparrini et al. (2015). Thus, by explicitly situating the narrative videos in participants' homes and communities, they avoid the common narrative approach of 'erasing' consideration of the spatial, and underscores the importance of situated knowledge in social marketing narrative videos.

5. Discussion and conclusions

In this paper, we present a theoretically based methodology we term 'collective video storytelling' to illustrate how narratives may be deployed in energy efficiency social marketing programmes that contribute to environmental management. As such, we build on the work of Rotmann (2017) who identifies the potential of storytelling for energy efficiency by bringing together different socio-technical narratives across disciplines. Energy researchers working from a scientific perspective can bring important technical insights into the quantitative influences of energy consumption by heating and cooling technologies, and other appliances, on thermal comfort and wellbeing in the home.

In the case of the present work the team of engineers and social

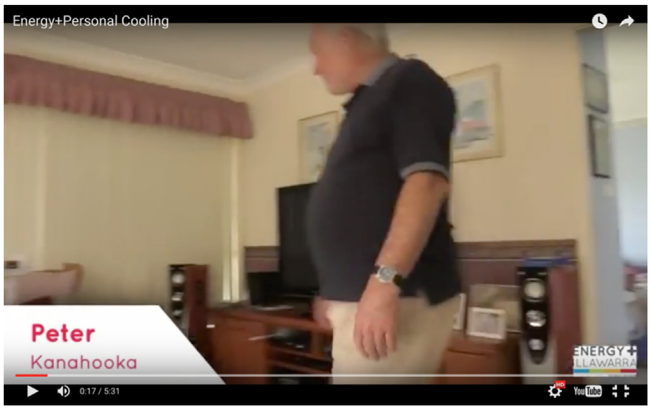

Fig. 5. Situated knowledge and spaces and places in the narrative.

scientists not only analysed the thermo-physical characteristics of participants' homes, but they also worked closely with individual householders to understand how the latter used their home and appliances. This provided the engineers with a rich social context from which they could tailor their explanations/narratives of energy use in the home to the needs of the layperson and the participants in this study. Social marketers and human geographers working out of a social science and 'social practice' paradigm on the project brought to the fore through energy narratives the importance of the domestic cultural realm and not only what people know, but what people do (Barton et al., 2013).

5.1. Theoretical implications

The task for environmental management is to move beyond using narrative for interpretation, to using energy narratives to effect social change that draws on socio-technical knowledge. van Laer et al. (2014) and Gearty et al. (2013) gesture towards the role of narratives as a valuable aid for reflection. Here, we conceptually extend the narrative literature by identifying how lay narratives and scientific and social science knowledge can come together to form collective video storytelling to encourage people to reflect on their energy practices. Our work also suggests that the extended narrative transportation-imagery framework (van Laer et al., 2014) could be further extended by adding a spatial dimension. Our collective video storytelling featured identifiable characters, an imaginable plot, and verisimilitude, but also incorporated situated knowledge – as practices, and stories are always told by someone, somewhere (Pink, 2012).

5.2. Practical implications

Practically, we argue that collective video storytelling can be used by energy researchers trying to influence people in everyday life. Our narrative approach suggests that response to environmental management debates cannot be simply to tell people what do. There are often significant constraints on energy efficient behaviours such as poor housing quality, affordability of appliances, and everyday concerns regarding practices of care, comfort, and convenience in the home (Simshauser et al., 2011; Shove and Walker, 2014).

By including older low-income participants in our collective storytelling approach, we also respond to the argument of Day (2015, p250) that "more inclusive design is needed if older people are to benefit" from energy efficiency policies. We argue that rather than attempt to offer substantive messages about 'rightness' or 'wrongness' of certain kinds of energy practices, or nudge them in a particular direction, a legitimate role of energy social marketing is to encourage energy consumers to become reflexive of their energy consumption in particular situations.

To constitute a different future requires embracing narratives that can socialise scientific knowledge alongside lay voices, and offer more nuanced understandings of how people make energy related choices. Our collective video storytelling approach offers a useful way forward. In terms of evaluation of our narrative videos, cognitive neuroscience research identified that they appeared to successfully engage the priority group of older low income people, and invoked positive emotional responses and memory processing (Gordon et al., 2018). Furthermore, evaluation of the community energy efficiency programme, of which they narrative videos were a key component, demonstrated statistically significant changes in energy related knowledge, attitudes, value, and behaviours, as well as perceptions of thermal comfort (Cooper et al., 2016).

Our paper contributes to the energy efficiency and environmental management discourse by identifying how collective video storytelling may be used as an important part of multi-level and multi-component energy efficiency social marketing programmes. If environmental management is to use narratives to tackle energy efficiency (Rotmann, 2017), then we argue that socio-technical perspectives that enable learning from ontological clashes and bring together lay, social and scientific narratives is important. This has important practical implications. For example, the Australian Government (see http://www.yourhome.gov.au), and New South Wales State Government (see Curtis et al., 2016) could adapt their energy efficiency social marketing by bringing together scientific knowledge, such as facts and technical advice, and consumer narratives in the form of video narratives or vignettes on relevant websites that feature real people in real communities around the country.

Although our project featured low income older people, other consumer groups such as families, and young adults could also be targeted by these approaches. Such video narratives could pose important questions or concerns that householders have, such as how can they most efficiently keep cool in summer. The conclusion of such narratives could then provide technical facts and guidance for householders that answer the questions posed. This would help bring together scientific and lay narratives as espoused by some energy researchers (Castree, 2016). Narratives could also be used by energy providers in their marketing communications to promote energy efficient behaviours among vulnerable or hardship customers.

5.3. Limitations and future research

Finally, there are some important limitations of the present study, and reflections on future research that are important to acknowledge. Our collective video storytelling method was based upon a qualitative sample of low income older people in regional New South Wales, Australia. Therefore, our findings are not generalisable and future research would need to consider how well narrative videos could be used in energy efficiency management approaches that involve working with different age groups, and in different geographic locations. We also acknowledge that there can be privacy concerns regarding the use of video narratives distributed in the public domain, which in our project required our team to develop trust and strong relationships with our video participants. Also, video participants may not always act naturally in a video and therefore care and attention is required by videographers to try to represent as naturalistic an account of everyday practices as possible.

Furthermore, our paper presents only one element, collective video storytelling, of an overall community energy social marketing programme. Storytelling has been suggested as an effective approach for influencing some, though not all consumers, and other social marketing approaches such as provision of energy saving products, or lobbying for policy change may be more influential among certain groups (Sheau-Ting et al., 2013). This work also identifies some important practical considerations when applying collective video storytelling in future research and energy efficiency programmes; in that they should be citizen oriented, informed by narrative research with participants, feature actual project participants, and meld lay and technical knowledge.

5.4. Conclusion

Our example of collective video storytelling also identifies the importance of interdisciplinary expertise, including in our case the melding of our participants' domestic energy narratives, and the knowledge of the engineers, building physicists, social marketers, and human geographers who collaborated on the project.

Acknowledging these different perspectives on domestic energy use and energy efficiency can help to ensure that stories feature identifiable characters and story elements that reflect recognisable social practices that are relevant to the viewer, but also that factual information provided in the narratives are robust. We encourage future research that employs collective video storytelling as an integral part of energy efficiency social marketing programmes working in different contexts and with different social groups. We hope to encourage ongoing debate on the use of narratives and the importance of socio-technical research in environmental management.

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References

Akhmat, G., Zaman, K., Shukui, T., Sajiid, F., 2014. Does energy consumption contribute to climate change? Evidence from major regions of the world. Renew. Sustain. Energy Rev. 36, 123–134.

Andreasen, A., 2006. Social Marketing in the 21st Century. Sage, Thousand Oaks, CA.

Australian Bureau of Statistics, 2011. Household expenditure survey and survey of income and housing: user guide 2003–2004. cat. no. 6503.0. Available online at. http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/5BCF25BEABB47CF3CA25715600159C04/$File/65030_2003-04.pdf. (Accessed 2 March 2015).

Australian Bureau of Statistics, 2013. Population by Age and Sex, Regions of Australia, 2012, Catalogue Number 3235.0. Commonwealth of Australia, Canberra.

Bal, P.M., Butterman, O.S., Bakker, A.B., 2011. The influence of fictional narrative experience on work outcomes: a conceptual analysis and research model. Rev. Gen. Psychol. 15 (4), 361–370.

Barthes, R., 1975. An introduction to the structural analysis of narrative. N. Lit. Hist. 6 (2), 237–272.

Barton, B., Blackwell, S., Carrington, G., Ford, R., Lawson, R., Stephenson, J., Thorsnes, P., Williams, J., 2013. Energy Cultures: Implications for Policymakers. Centre for Sustainability, University of Otago, Dunedin.

Borg, S.P., Kelly, N.J., 2011. The effect of appliance energy efficiency improvements on domestic electric loads in European households,. Energy Build. 43, 2240–2250.

Bruner, J., 1986. Actual Minds, Possible Worlds. Harvard University Press, Cambridge, MA.

Butler, K., Gordon, R., Roggeveen, K., Waitt, G., Cooper, P., 2016. Social marketing and value in behaviour? Perceived value of using energy efficiently among low income older citizens. J. Soc. Market. 6 (2), 144–168.

Castree, N., 2016. Geography and the new social contract for global change research. Trans. Inst. Br. Geogr. 41 (3), 328–347.

Castree, N., Waitt, G., 2017. What kind of socio-technical research for what sort of influence on energy policy? Energy Res. Social Sci. 26, 80–86.

Chappells, H., Shove, E., 2005. Debating the future of comfort: environmental sustainability, energy consumption and the indoor environment. Build. Res. Inf. 33 (1), 32–60.

Cooper, A., 2017. Building physics into the social: enhancing the policy impact of energy studies and energy social science research. Energy Res. Social Sci. 26, 80–86.

Cooper, P., Gordon, R., Waitt, G., Petkovic, D., Burroughs, N., Tibbs, M., Butler, K., Roggeveen, K., McDowell, C., Kokogiannakis, G., Ledo Gomis, L., Magee, C., 2016. EE3A: Pathways and Initiatives for Low-Income Older People to Manage Energy. Final Report. Department of Industry, Innovation and Science, Canberra. Available at. http://www.environment.gov.au/energy/programs.

Council of Australian Governments, 2015. National Energy Productivity Plan 2015-2030. Commonwealth of Australia, Canberra.

Cupples, J., Gutatt, V., Pearce, J., 2003. 'Put on a jacket, you wuss': cultural identities, home heating and air pollution in Christchurch, New Zealand. Environ. Plann. 39 (12), 2883–2898.

Curtis, J., Graham, A., Ghafoori, E., Pyke, S., Kaufman, S., Boulet, M., 2016. Facilitating adaptive management in a government program: a household energy efficiency case study. J. Environ. Manag. 187, 89–95.

Dal Cin, S., Gibson, B., Zanna, M.P., Shumate, R., Fong, G.T., 2007. Smoking in movies, implicit associations of smoking with the self, and intentions to smoke. Psychol. Sci. 18 (7), 559–563.

Day, R., 2015. Low carbon technologies in an ageing society – what are the issues. Energy Pol. 84, 250–256.

Day, R., Hitchings, R., 2011. 'Only old ladies would do that": age stigma and older people's strategies for dealing with winter cold. Health Place 17 (4), 885–894.

Department of Resources, Energy and Tourism, 2012. Energy White Paper. Canberra. Commonwealth of Australia, Canberra.

Department of the Environment, Food and Rural Affairs, 2008. Framework for Environmental Behaviours. The Stationery Office, London.

Dieu-Hang, T., Quentin Grafton, R., Martínez-Espiñeira, R., Garcia-Valiñas, M., 2017. Household adoption of energy and water-efficient appliances: an analysis of attitudes, labelling and complementary green behaviours in selected OECD countries. J. Environ. Manag. 197, 140–150.

Escalas, J.E., 1998. Advertising narratives: what are they and how do they work? In: Stern, B.B. (Ed.), Representing Consumers: Voices, Views, and Visions. Routledge, London, pp. 267–289.

Escalas, J.E., Stern, B.B., 2003. Sympathy and empathy: emotional responses to advertising dramas. J. Consum. Res. 29 (4), 566–578.

Foucault, M., 1972. The Archaeology of Knowledge, Translated by a. Sheridan Smith. Pantheon, New York.

French, J., Gordon, R., 2015. Strategic Social Marketing. Sage, London.

Fuller, R.J., Luther, M.B., 2003. Using small reverse cycle air conditioners in relocatable classrooms – a case study. Energy and Buidings 35, 619–629.

Galvin, R., 2013. Impediments to energy-efficient ventilation of German dwellings: a case study in Aachen. Energy Build. 56, 32–40.

Gasparrini, A., Guo, Y., Hashizume, M., Lavigne, E., Zanobetti, A., Schwartz, J., Tobias, A., Tong, S., Rocklöv, J., Forsberg, B., Leone, M., De Sario, M., Bell, M.L., Guo, Y.-L.L., Wu, C-f., Kan, H., Yi, S.-M., Coelho, M.S.Z.S., Hilario, P., Saldiva, N., Honda, Y., Kim, H., Armstrong, B., 2015. Mortality risk attributable to high and low ambient temperature: a multicountry observational study. Lancet 386, 369–375.

Gearty, M., Williams, M., Pivcevic, P., Reason, P., 2013. Piloting digital storytelling and action research as an approach to stimulate pro-environmental advocacy and behaviour change: A report to the Department for Environment, Food and Rural Affairs. University of Bath, Defra, London.

Gibson, C., Farbotko, C., Gill, N., Head, L., Waitt, G., 2013. Household Sustainability: Challenges and Dilemmas in Everyday Life. Edward Elgar, Cheltenham, UK.

Gordon, R., Ciorciari, J., van Laer, T., 2018. Using EEG to examine the role of attention, working memory, emotion and imagination in narrative transportation. Eur. J. Market. https://doi.org/10.1108/EJM-12-2016-0881.

Gordon, R., Waitt, G., Cooper, P., 2017. A social marketer, a human geographer and an engineer walk into a bar: reflections on doing interdisciplinary projects. J. Soc. Market. 7 (2), 366–386.

Gram-Hanssen, K., 2010. Residential heat comfort practices: understanding users. Build. Res. Inf. 38 (10), 175–186.

Green, M.C., 2006. Narratives and cancer communication. J. Commun. 56 (S1), S163–S183.

Green, M.C., Brock, T.C., 2002. In the mind's eye: transportation-imagery model of narrative persuasion. In: Green, M.C., Strange, J.J., Brock, T.C. (Eds.), Melanie C. *Narrative Impact: Social and Cognitive Foundations*. Erlbaum, Mahwah, NJ, pp. 315–341.

Green, M.C., Kass, K., Carrey, J., Herzig, B., Feeney, F., Sabini, J., 2008. Transportation across media: repeated exposure to print and film. Media Psychol. 11 (4), 512–539.

Groves, C., Henwood, K., Shirani, F., Butler, C., Parkhill, K., Pidgeon, N., 2016. Energy biographies: narrative genres, lifecourse transitions, and practice change. Sci. Technol. Hum. Val. 41 (3), 483–508.

Guy, S., Shove, E., 2000. A Sociology of Energy, Buildings and the Environment. Routledge, London.

Haq, G., Cambridge, H., Owen, A., 2013. A targeted social marketing approach for community pro-environmental behavioural change. Local Environ.: Int. J. Just. Sustain. 18 (10), 1134–1152.

Head, L., Farbotko, C., Gibson, C., Gill, N., Waitt, G., 2013. Zones of friction, zones of traction: the connected household in climate change and sustainability policy. Australas. J. Environ. Manag. 20, 351–362.

Henning, A., 2004. Social anthropological and interdisciplinary research on the conversion of electrically heated single family houses to heating by combined pellet-solar systems. Biomass Bioenergy 27, 547–555.

Hitchings, R., Day, R., 2011. How older people relate to the private winter warmth practices of their peers and why we should be interested. Environ. Plann. 43 (10), 2452–2467.

Hitchings, R., Waitt, G., Roggeveen, K., Chisholm, C., 2015. Winter cold in a summer place: perceived norms of seasonal adaptation and cultures of home heating in Australia. Energy Res. Social Sci. 8, 162–172.

Jensen, T., Chappin, E.J.L., 2017. Reducing domestic heating demand: managing the impact of behaviour-changing feedback devices via marketing. J. Environ. Manag. 197, 642–655.
Judson, E., Maller, C., 2014. Housing renovations and energy efficiency: insights from homeowners' practices. Build. Res. Innovat. 42 (4), 501–511.
Kjerulf Petersen, L., 2008. Autonomy and proximity in household heating practices: the case of wood burning stoves. J. Environ. Pol. Plann. 10 (4), 423–438.
Küntay, A., 2002. Development of the expression of indefiniteness: presenting new referents in Turkish picture-series stories. Discourse Process 33 (1), 77–102.
Lafreniere, K.C., Deshpande, S., Bjornlund, H., Gordon Hunter, M., 2013. Extending stakeholder theory to promote resource management initiatives to key stakeholders: a case study of water transfers in Alberta, Canada. J. Environ. Manag. 129 (15), 81–91.
Mackley, K., Pink, S., 2013. From emplaced knowing to interdisciplinary knowledge: sensory ethnography in energy research. Senses Soc. 8 (3), 335–353.
Markula-Denison, P., Pringle, R., 2006. Foucault, Sport and Exercise: Power, Knowledge and Transforming the Self. Routledge, London.
McGee, C., 2013. Your Home: Energy. Australian Government, Canberra.
McKenzie-Mohr, D., 2011. Fostering Sustainable Behavior: Community-based Social Marketing. New Society Publishers, Gabriola Island.
Moezzi, M., Janda, K., Rotmann, S., 2017. Using stories, narratives, and storytelling in energy and climate change research. Energy Res. Social Sci. 31, 1–10.
Moore, S.G., 2012. Some things are better left unsaid: how word of mouth influences the storyteller. J. Consum. Res. 38 (6), 1140–1154.
Ngoasong, M.Z., 2014. How international oil and gas companies respond to local content policies in petroleum-producing developing countries: a narrative enquiry. Energy Pol. 73, 471–479.
Office for Environment and Heritage, 2009. Saving energy when using refrigerators and freezers. Available at. www.energyrating.gov.au/rfuse.html.
Pink, S., 2012. Situating Everyday Life: Practices and Place. Sage, London.
Reckwitz, A., 2002. Toward a theory of social practices: a development in culturalist theorizing. J. Soc. Theory 5 (2), 243–263.
Reeve, I., Scott, J., Hine, D., Bhullar, N., 2013. 'This is not a burning issue for me': how citizens justify their use of wood heaters in a city with a severe pollution problem. Energy Pol. 57, 204–211.
Rohse, M., Infanti, J.J., Sabnani, N., Nivargi, M., 2013. The Many Facets of Storytelling: Global Reflections on Narrative Complexity. Inter-Disciplinary Press, Oxford, UK.
Rotmann, S., 2017. ""Once upon a time..." Eliciting energy and behaviour change stories using a fairy tale story spine. Energy Res. Social Sci. 10, 303–310.
Saman, W., Boland, J., Pullen, S., de Dear, R., Soebarto, V., Miller, W., Pocock, B., Belusko, M., Bruno, F., Whaley, D., Pockett, J., Bennetts, H., Ridley, B., Palmer, J., Zuo, J., Ma, T., Chileshe, N., Skinner, N., Chapman, J., Vujinovic, N., Walsh, M., Candido, C., Deuble, M., 2013. A Framework for Adaptation of Australian Households to Heat Waves, National Climate Change Adaptation Research Facility. Gold Coast.
Schatzki, T.R., 2002. The Site of the Social: a Philosophical Account of the Constitution of Social Life and Change. Pennsylvania University Press, University Park, PA.
Schmidt, S., Weigt, H., 2015. Interdisciplinary energy research and energy consumption: what, why, and how? Energy Res. Social Sci. 10, 206–219.
Sheau-Ting, L., Mohammed, A.H., Weng-Wai, C., 2013. What is the optimum social marketing mix to market energy conservation behaviour: an empirical study. J. Environ. Manag. 131, 196–205.
Shove, E., 2003. Comfort, Cleanliness and Convenience: the Social Organisation of Normality. Berg, Oxford.
Shove, E., 2010. Beyond the ABC: climate change policy and theories of social change. Environ. Plann. 42 (6), 1273–1285.
Shove, E., Walker, G., 2014. What is energy for? Social practice and energy demand. Theor. Cult. Soc. 31 (5), 41–58.
Shove, E., Pantzar, M., Wilson, M., 2012. The Dynamics of Social Practice: Everyday Life and How it Changes. Sage, London.
Simshauser, P., Nelson, T., Doan, T., 2011. The boomerang paradox – Part II: policy prescriptions for reducing fuel poverty in Australia. Electr. J. 24 (2), 63–75.
Slater, M.D., Rouner, D., 2002. Entertainment - education and elaboration likelihood: understanding the processing of narrative persuasion. Commun. Theor. 12 (2), 173–191.
Slater, M.D., Buller, D.B., Waters, E., Archibeque, M., LeBlanc, M., 2003. A test of conversational and testimonial messages versus didactic presentations of nutrition information. J. Nutr. Educ. Behav. 35 (5), 255–259.
Spotswood, F., Chatterton, T., Morey, Y., Spear, S., 2017. Practice-theoretical possibilities for social marketing: two fields learning from each other. J. Soc. Market. 7 (2), 156–171.
Stead, M., Arnott, L., Dempsey, E., 2013. Healthy heroes, magic meals, and a visiting alien: community-led assets-based social marketing. Soc. Market. Q. 19 (1), 26–39.
Stern, B.B., 1994. Authenticity and the textual persona: postmodern paradoxes in advertising narrative. Int. J. Res. Market. 11 (4), 387–400.
Strengers, Y., 2013. Smart Energy Technologies in Everyday Life: Smart Utopia. Palgrave Macmillan, Angus & Robertson, Sydney.
Strengers, Y., Maller, C., 2015. Social Practices, Intervention and Sustainability: beyond Behaviour Change. Routledge, New York.
Trutnevyte, E., Strachan, N., Dodds, P., Pudjianto, D., Strbac, G., 2015. Synergies and trade-offs between governance and costs of electricity system transition. Energy Pol. 85, 170–181.
United Nations Environment Programme, 2014. The Emissions Gap Report 2014: a UNEP Synthesis Report. UNEP, Nairobi.
van Laer, T., de Ruyter, K., Visconti, L.M., Wetzels, M., 2014. The extended transportation-imagery model: a meta-analysis of the antecedents and consequences of consumers' narrative transportation. J. Consum. Res. 40 (5), 797–817.
Visconti, L.M., Sherry Jr., J.F., Borghini, S., Anderson, L., 2010. Street art, sweet art? Reclaiming the 'public' in public place. J. Consum. Res. 37 (3), 511–529.
Waitt, G., Roggeveen, K., Gordon, R., Butler, K., Cooper, P., 2016. Tyrannies of thrift: governmentality and older, low-income people's energy efficiency narratives in the Illawarra, Australia. Energy Pol. 90, 37–45.
Wilhite, H., Nakagami, H., Masuda, T., Yamaga, Y., 1996. A cross-cultural analysis of household energy use behaviour in Japan and Norway. Energy Pol. 24 (9), 795–803.
Yergin, D.H., 2006. Ensuring energy security. Foreign Aff. 85 (2), 69–82.