Saving energy in the workplace: Why, and for whom?

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ARTICLE INFO

ABSTRACT

Saving energy at work might be considered altruistic, because often no personal benefits accrue. However, we consider the possibility that it can be a form of impure-altruism in that the individual experiences some rewards. We develop a scale to measure motivations to save energy at work and test its predictive power for energy-saving intentions and sustainable choices. In two studies (N = 293 and N = 94) motivations towards helping their organization and the planet were rated as important motivations, as was warm-glow (feeling good), indicating that impure-altruism does exist in this context. Energy saving was predicted by environmental concern and the desire to help one's organization. Notably, the stronger the motivations to promote one's reputation were, the weaker was the intention to save energy. Promoting motivations, particularly those that focus on benefits to the organization, may be an effective addition to environmental messages typically used as motivations in campaigns.

1. Introduction

To help prevent damage to the environment due to climate change, the UN set a target to keep the earth's temperature rise to well below 2° Celsius above preindustrial levels within the Paris Agreement (UNFCCC, 2015). Within this, the EU has proposed to reduce its emissions to 40% below 1990 levels by 2030 (European Commission, 2012). Given pressures of climate change, energy security and affordability, there is an increasing interest across sectors in how to change current energy use. One key area of behavior change in this context is people's energy use behavior in non-domestic buildings (Janda, 2011; Schelly, Cross, Franzen, Hall, & Reeve, 2011; Schipper, Bartlett, & Hawk, 1989). It has been suggested that around 33% of greenhouse gas emissions in the UK and 17% in the US are released from shared buildings within the business sector (non-industrial) (DECC, 2011; United States Department of State, 2010). Current advances on reducing energy use in workplaces has mostly focused on improving physical infrastructure, appliances, system efficiency, or appointing key personnel with energy responsibilities (e.g., facilities managers, eco-champions) (Aragón-Correa, Matías-Reche, & Senise-Barrio, 2004; Christmann, 2000; Cordano & Frieze, 2000). There has been little

investigation of how to encourage normal, individual workers (with no energy responsibilities) to change their own energy use behavior to reduce emissions. This gap in the literature is the focus of this paper. Since energy use is not an element of most employees' job assignments, and is usually not taken into account in performance evaluations, it might be argued that people simply will not care about, or act to save energy.

The extent to which employees will try to reduce their energy use might depend on a number of motivations including if they see it as a key aim of their job (Rioux & Penner, 2001) or if they are motivated by more proactive prosocial behavior among employees, such as organizational citizenship behavior (Nisiforou, Poullis, & Charalambides, 2012; Schelly et al., 2011). The aim of the present research is to investigate what motivates employees to reduce their energy use at work when their job specifications do not include it. Indeed, energy saving can be considered an "extra-role" behavior (Ramus & Killmer, 2007) or an example of organizational citizenship behavior, as for the individual it is not normally directly or explicitly rewarded, but collectively is positive for the organization (LePine, Erez, & Johnson, 2002; Organ, 1997).

1.1. Promotion of energy saving among employees

Existing research on environmental behavior in the workplace shows that employees can be encouraged to adopt energy saving behaviors (Lo, Peters, & Kok, 2012). Using the Theory of Planned Behavior (TPB, see Ajzen, 1991), Greaves et al. (Greaves, Zibarras, &

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Stride, 2013) found that, in general, employees intended to turn off their computers when they left their desk for 1 h or more, and particularly if they think switching things off is a good thing (notably for the environment), and if the social norms of the workplace fit this behavior (see also Zhang, Wang, & Zhou, 2014). Goal setting has also proven an effective intervention (McCalley & Midden, 2002), as well as the use of rewards, (Handgraaf, Van Lidth de Jeude, & Appelt, 2013), individual feedback (Murtagh et al., 2013), group discussions (Werner, Cook, Colby, & Lim, 2012), and group feedback and peer education (Carrico & Riemer, 2011).

We highlight that, to date, the *purpose* of energy saving in the workplace, that is for what or for whom employees would save energy, has not been studied as a precursor of energy saving intentions. Importantly, research indicates that to change (environmental) behavior, via any intervention or a communication, the goal [of the behavior] promoted by the intervention must be activated (Unsworth, Dmitrieva, & Adriasola, 2013). This gap in the existing literature indicates that previous research and applied interventions may therefore have miscommunicated energy savings in ignoring the reasons that employees may have for saving energy. We adopt a functional approach as we are interested in identifying the goal(s) which energy saving behavior helps to fulfill (Snyder, 1993). We want to investigate whether saving energy in the workplace can have *multiple functions*. Indeed people could, for example, have the goal to help their organization, and saving energy could have the function to help attain this goal. Other goals could include feeling good about themselves (warm-glow), gain reputation as a good person or just because no-one else does (reluctant altruism; Ferguson, 2015). In this, saving energy in the workplace could have multiple functions for different people or even multiple functions for the same person. We want to look at various potential motivations to save energy and investigate their importance, as these could be drivers, to different degrees, to adopt energy saving behaviors in the workplace.

1.2. Motivations to save energy in the workplace

Many studies focusing on interventions to reduce energy in the workplace do not specify the reason or goal they used to encourage people to reduce their energy use (Carrico & Riemer, 2011; Handgraaf et al., 2013; Staats, Leeuwen, & Wit, 2000) and indeed a lack of motivation has been highlighted in some instances (Murtagh et al., 2013). Whilst motivations to save energy often differ between individuals/user groups, determining commonalities would help to highlight the most effective ways to frame energy saving campaigns in different contexts. For example, cost is often a key motivation for users to save energy in residential contexts (Brandon & Lewis, 1999; Spence, Demski, Butler, Parkhill, & Pidgeon, 2017), and is often used to encourage people to save energy in behavioral interventions (Abrahamse, Steg, Vlek, & Rothengatter, 2005, 2007; Midden, Meter, Weenig, & Zieverink, 1983). However, research suggests that cost savings are often so low at the individual level that consumers may not consider behavior change worthwhile (Spence, Leygue, Bedwell, & O'Malley, 2014). In the workplace, for most workers or employees, saving electricity does not mean saving costs for oneself, as is the case for domestic use. Hence referring to energy in terms of costs might have a weaker impact on motivations in the workplace and other aspects of energy use may have a broader impact. On the other hand, cost saving potential as a collective may be much greater and motivating. In fact this technique of aggregating energy savings at the group level has been used successfully before, where university staff and students were told how much energy and costs in total would be saved if all the classrooms' lights were turned off every day. Though, we note this was not compared to other methods of calculating savings, e.g. in terms of carbon or non-aggregated (Werner et al., 2012). There is currently little evidence about whether, and how, motivations to save energy in the workplace context do differ from a residential context.

Given the lack of cost incentive in the workplace, current research and interventions aiming at reducing the energy use of employees has mostly focused on the benefits of this behavior for the environment (Scherbaum, Popovich, & Finlinson, 2008; Unsworth et al., 2013) which may not capture the whole spectrum of motivations involved. One reason for this is that sometimes energy saving behavior is studied as one of several environmental behaviors (Bamberg & Möser, 2007; Lo et al., 2012). However, we propose that reducing one's energy use in the workplace could serve other functions and fulfill different goals other than environmental concern. Most people acknowledge the problems associated with climate change (Spence, Venables, Pidgeon, Poortinga, & Demski, 2010), but only a smaller proportion tend to feel they must or can do something to reduce it (Spence et al., 2010; Whitmarsh, Seyfang, & O'Neill, 2011). Targeting goals other than concern for the environment may therefore be useful in engaging every employee with saving energy in the workplace. We identify a number of theoretically relevant domains of motivation below.

1.3. Pure, impure, reluctant altruistic, and selfish motivations

At the organizational level, "corporate greening" has already been conceptualized as a pro-social behavior (Ramus & Killmer, 2007). At the individual level, given that most workplaces do not currently recognize or reward their employees for adopting energy saving behaviors, motivations to save energy at work may be mostly considered, at least in part, other-oriented or *altruistic* (Ramus & Killmer, 2007). Altruism is defined as a desire to maximize the welfare of others (e.g., by reducing their suffering) at a personal cost, without personal benefit (Andreoni, 1990; Ferguson & Lawrence, 2016). Indeed, saving energy for environmental reasons (i.e., to reduce carbon emissions) can be considered as an altruistic act, as the benefits will mostly affect others (e.g., the planet, future generations), while it will be costly to the individual (time, effort) (Sober & Wilson, 1998). Saving energy in the workplace could also be considered an altruistic act towards one's company. Employees might want to help their company reduce its energy costs by reducing their own energy use (Werner et al., 2012). In addition, helping their company reduce their energy use and its impact on the environment might help it increase or obtain a positive public image. Indeed, a survey of 8000 consumers in the United States revealed that 80% of high education/high income people would change brand if a company was negatively portrayed by the media on their social responsibility, and sustainability is now an important factor within corporate social responsibility (ACCA, 2004; DEFRA, 2006). This of course, should depend on the extent to which employees feel positive towards their company and their job, so should be affected by the organization's culture, and employees' commitment and identification towards the organization (Allen & Meyer, 1990; Mael & Ashforth, 1992). However, if a company is benefited through reduced costs or improved public image, an employee could feasibly indirectly benefit through the improvement in company status, e.g. with increased job security, or a potential increase in opportunities, so motivations here may not be purely altruistic. Finally, by helping their company's (green) image the employee will also be able to indirectly enhance their self-image as one working for a 'green' company. So by improving