The British Psychological Society

# Going Green: The Psychology of Sustainability in the Workplace

*Edited by Dean Bartlett, London Metropolitan University*




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# Introduction

**Dean Bartlett**, *London Metropolitan University*

This report draws together a range of research and case studies which were developed as part of the British Psychological Society's Division of Occupational Psychology Going Green Symposium held in London in 2010. Its aim is to provide an illustration of the important contribution that the field of work and organisational psychology can make to understanding and promoting green behaviour in the workplace.

This first introductory chapter outlines what is in the other chapters, reflecting on their key messages and summarising some of the issues which they individually and collectively raise. The report contains a range of useful material for 'people specialists' in organisations, including a number of vignettes and case studies particularly aimed at practitioners, alongside the sorts of theoretical material and research results you would expect from the specialist area of occupational psychology which applies the science of psychology to the workplace.

## The green organisational imperative

The issue of climate change and environmental sustainability is one which has become central for organisations during the past decade. Numerous arguments have been advanced as to why organisations should become more environmentally friendly; however, despite widespread acceptance of this green imperative, progress remains slow. Whilst considerable debate continues to rage over the relative influence of innovative new green technology and the respective roles of governments, international bodies and private and public sector organisations, the simple fact is that, in the final analysis, going green comes down to individual behaviour. We all have a part to play and the role of organisations will necessarily be enacted through the people that work in and for them.

The second paper in this collection therefore starts by considering how organisations can recruit staff to do their jobs in an environmentally friendly way. Drawing on theoretical approaches to motivation and work engagement, it argues that a strategic approach is needed which integrates system-wide influences upon not only the recruitment of staff, but also their subsequent development and the way in which jobs must be redesigned to achieve greener performance and better rewards for both the employee and the organisation.

One of the key contributions that psychology can make to the greening agenda lies in what it has to say about the behaviour of individuals and how organisations can facilitate behaviour change towards greener alternatives. The third paper in the report paints a particularly fascinating picture of how an organisation consisting largely of environmental specialists – the Environment Agency – has improved its own environmental performance. It provides a revealing account of how to influence the behaviour of the workforce and contains a number of impressive examples of good environmental practice, along with some practical lessons about how to achieve them which are sure to be of interest for other

organisations in their attempts to green their operations. These papers highlight the importance of really engaging staff in order to harness their contribution – a key principle underlying effective practice in this area which is emphasised in numerous other contributions to this report and which must, therefore, be one of the overall key take-home messages that readers can take back to their own organisations and apply, perhaps by following some of the examples outlined herein.

## Adjusting to new ways of working

Of course, changing individuals' behaviour within existing organisational systems and processes is only one element of the puzzle which we must solve if we are to overcome the problem of sustainability. A further piece of that puzzle comes from green technology. The argument has been based by many commentators on a premise that the 'old' way of doing things in contemporary organisations, which are part of our existing, carbon-intensive economy, is not sustainable and therefore creative green innovations are needed in order to work out new ways of living in a post-carbon economy of the future. What can the psychology of workplace behaviour contribute to our understanding of how individuals adjust to these types of 'eco-innovations'? The fourth paper in the report addresses this very topic by examining the role of user behaviour in 'low-carbon' green buildings. Based upon research from the BRE Building Design Consultancy, it provides a number of fascinating insights into how end-users of this technology adapt to such innovations in the workplace and how we can model the influence of their behaviour upon the effectiveness of such products. It shows that individuals will adapt and even sabotage technology aimed at greening the operations of an organisation to suit their needs. Such technology needs, therefore, to take full account of the role of end-user behaviour in its design if it is to achieve its desired objective of improved efficiency and lowered energy use. As the pace of eco-innovation shifts from an incremental, responsive mode where it can be thought of a reaction to inefficiencies which take place within existing technological, social, organisational and cultural milieu, the role of such insights from psychology will become essential in developing a more strategic approach to the larger scale transformation of organisations.

## Green work performance

In one sense, then, going green in the workplace is about developing particular interventions which are aimed at improving green organisational performance and the fifth and sixth papers in this volume look at how this can be achieved through psychological means based on two very well-established psychological literatures. The fifth paper provides us with a special focus on the theory of planned behaviour, while the sixth concentrates on the role of attributions and also considers some of the barriers and facilitators of green behaviour at work – more of which are enumerated in some of the other papers in the report. These contributions highlight the huge potential that psychological insights into behavioural change interventions can provide – a body of knowledge which remains a relatively under-exploited resource when it comes to going green in the workplace, as the vast majority of research in this field focuses upon green behaviour in the home as opposed to work settings. The field of occupational psychology

has a large number of such well-established theories of behaviour change and maintenance upon which to draw in the design and implementation of green interventions, as well as new insights which are emerging from cutting-edge research and theory in areas such as 'self-regulation theory' (i.e. theories concerning the role of the self-concept and related constructs in behavioural regulation), for example.

The theme of the influence of the work context upon green behaviour continues in the seventh paper which raises the issue that, even when individuals are keen to recycle, they do not always translate this green behaviour into the workplace. The survey reports that more people recycle at home than they do at work across a wide range of recyclable materials, but even those who do recycle at work do so less than they do at home. One reason behind this difference could be that recycling facilities are not provided at all workplaces, but the findings also suggest that there are other factors which are potentially important and which organisations need to consider in the design and implementation of recycling schemes. Such issues include raising awareness of what, if any, recycling arrangements have been put in place and also providing clear guidance about to staff about their responsibilities and those of the organisation in relation to recycling as well as precise instructions about what staff have to do in order for arrangements to be effective, for example whether or not staff need to sort rubbish or just put it all in the same bin. Following on from the results reported in this paper, it would seem that encouraging people to recycle at work is about more than simply engaging them. Even employees who have high levels of motivation and performance in relation to recycling behaviour at home appear to recycle less in the workplace setting and so while previous papers in this volume have highlighted the importance of an approach which draws upon the psychological literature around employee engagement, there are other issues which need also to be considered from the organisations perspective.

## The psychology of going green

As the eighth paper in this collection argues, an examination of the ways in which psychology can be harnessed to design successful interventions and bring about positive change in the service of the environment reveals that, while there remain a variety of psychological techniques which remain to be applied to this important topic, there is also much that can be done to improve the relatively few interventions that have been attempted. Psychology has much to say about how green behaviour is initiated, the processes that are important for understanding green attitudes and values, the execution and control of particular types of behaviour and the factors which are key to maintaining behaviour over time, particularly over periods which extend beyond that in which an intervention actually takes place. There are a wide number of theoretical ideas, research findings and conceptual rubrics which are potentially useful and in order to help make sense of this rich selection of evidence and approaches, the paper offers a simple mnemonic which organises some of this work into three categories or topics, consisting of habits, opportunities and thoughts ('HOT topics'). Many parallels may be drawn between individual behaviour change in the domain of pro-environmental behaviour and in other domains of life and there are some striking similarities between this simple but powerful framework and that which has been applied to changing the behaviour of dieters towards food consumption, for example. Clearly, then we are only at the beginning of

understanding how both new and more well-established psychological approaches can be employed by organisations in their journey towards going green and the 'HOT topics' outlined in this paper, along with related tools such as the psychometric instrument which it mentions, provide an encouraging move in the right direction.

The ninth paper presents a case study of Eco Concierge – an organisation which specialises in individual behaviour change and employee engagement in relation to sustainability. It outlines the central importance of employee engagement and how, through challenging ideas and removing barriers to green behaviour, individuals and organisations are able to improve their sustainability. They highlight the fact that, in Britain a majority of people say they would like to do more to live sustainably but do not do so because of a range of practical and perceived barriers and they outline an approach which they have developed to help overcome such issues and to enable both individuals and organisations to become greener.

## Current organisational praxes and future directions in the psychology of sustainability in the workplace

The tenth and final paper in this report provides a fascinating insight into what UK organisations are currently doing around the promotion of green behaviour at work. The paper provides a snapshot of findings from a survey of UK organisations and explores the different approaches that organisations are taking to encourage pro-environmental behaviour among employees, the methods they are using and their effectiveness as well as the key facilitators of employee engagement and barriers that organisations face. It provides some very interesting, yet sobering, reading which put the other papers in this report into context. Overall, the papers in this collection offer a range of psychological theories, interventions and insights that have been applied in the area of sustainability in organisations which are thrown into sharp relief when we consider what organisations more generally are currently doing and how. From insights into the design of interventions which are required to deliver incremental changes in efficiency practices, through to sustaining long-term changes in behaviour in pursuit of a greener future, the psychology of sustainability in the workplace is an emergent part of the developing vision for change which constitutes the sustainability agenda for organisations. In the development and formulation of interventions which are designed to bring about the changes required to achieve that vision, we have seen that even the best-conceived and most well-meant ideas, based upon the greenest of technological innovations, will still fail to achieve their desired effect unless we take seriously the people issues which lie at the heart of the sustainability solution. However there is also another side to the sustainability coin. Just as psychology has much to offer by way of solutions to the problem of sustainability, it also provides an insight into the causes of those problems which we would be wise to consider. Thus, the flip-side of the argument is that it is precisely the way in which we behave as individuals that got us into this mess in the first place - particularly in the developed world and, therefore, as consumers. Until we begin to understand more fully how people's motivations, desires and senses of self and of belonging are played out under Western models of consumer-driven global capitalism, the psychology of sustainability will be an incomplete one. As I have argued elsewhere, some critics see nothing less than a 'transformational revolution' in the way in which we produce and consume across the globe is required if we are to make

any significant progress towards sustainability. Getting a handle on the psychology underlying the deeper causes of the problem and more radical changes that are required to solve it - in particular, the role that corporations can play in bringing about such changes – is an area which the papers in this collection touch upon only tangentially. It is an area we have yet to cover and so it is where, in my opinion, the future of the psychology of sustainability lies.

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# Green recruitment, development and engagement

**Anna Kane**, *Ampleo*

This chapter considers how organisations can achieve environmental objectives through their staff by recruiting, developing and motivating them to do their jobs in an environmentally friendly way. In considering the drivers behind why organisations 'go green' and the means by which they do so, it draws upon theory and research on motivation and work engagement which help organisations to understand what motivates and engages staff and how to handle the processes of organisational change involved in building 'green' performance indicators into employees' job roles and the impact of these changes across an organisation in the context of redesigning such jobs.

Green business is big business these days. Going green, or at least being seen to be green brings benefits to the organisation such as enhanced reputation, competitive advantage, reduced operating costs and increased margins and longer term benefits such as non-reliance on virgin materials. Unsurprisingly, therefore, many organisations are keen to espouse their environmental credentials. Sometimes this might be nothing more substantial than a clever marketing campaign, otherwise known as 'greenwashing'. For many organisations however, it is driven by a genuine organisational objective to be environmentally responsible. Of course, a starting point is to ensure that the organisation has low energy light bulbs installed, recycling bins in the corner of each office and increased use of renewable energy such as solar power. However, a strategic approach will go further than this to involve much deeper and systemic root and branch reform, redesigning jobs and ultimately driving the recruitment and development of staff.

I would like to illustrate some of the issues involved through an imaginary vignette. Take an organisation recruiting to fill the vacancy of a Design Manager. The organisation designs and manufactures electrical items for use in household kitchens and has whittled down the applicants to two. The first of these applicants, let's call her Nita, has an excellent track record of managing teams who design user-friendly products. She can manage her budgets effectively, handles personnel management issues successfully and keeps an eye on her competitors.

The second applicant, let's call her Valerie, also has an excellent track record of managing a team who designs user-friendly products. Valerie encourages the team to design products that are energy efficient (saving the customer money and thus making products more competitive) and to use recycled materials (again, more marketable products with resource security for the organisation). She also manages her budgets effectively, and has a carbon budget (giving senior management data to report to shareholders, whilst enhancing her own career). She handles personnel management issues successfully and arranges remote working (giving staff a better work-life balance and saving carbon). Valerie also keeps an eye on her competitors, but they probably keep a sharper eye on her!

From the outside, taking an environmentally friendly approach to business can appear to be a very specific, restrictive or niche marketing strategy. However, when considering the case of Valerie and Nita it is possible to see how an organisation benefits widely from recruiting 'green' staff (or are they just 'smart' staff?). If the above organisation recruited Valerie, they would have a much better 'all rounder' as an employee. Valerie's skills, approach and thinking are more progressive than Nita's. Valerie understands the business world and natural world are inextricably linked. Nita is not demonstrating an ability to gain competitive edge. Her team's products are made using virgin materials that may become expensive as the resources dwindle, she isn't offering her staff the best work-life balance which would result in increased productivity and loyality to the organisation. She isn't developing their skills to make them the most progressive designers in the industry. Nita is not demonstrating a carbon and cost saving approach to her work, which would improve sales and increase profit margins. Therefore she is failing to enhance her own career prospects and the reputation of the business. The comparison of Valerie and Nita demonstrates some of the benefits of taking an environmentally sound approach to running an organisation. But moving beyond this example, what are the drivers for organisations? Roth & Bansal (2000) revealed three motivators that induce corporate ecological responsiveness: competitiveness, complying with the legislation and ecological responsibility.

Research conducted by Ampleo, a firm of Occupational Psychologists, revealed more reasons why organisations feel the need to 'go green'. These include cost reduction, energy security, attraction and retention of staff, staff wellbeing, enhanced staff skills and productivity, positive business reputation and superior services and products. A number of writers (e.g. Savitz, 2006) make reference to the triple bottom line (economy, environment and social) or what has been referred to as 'the 3 P's'; people, profit, planet. Sustainability is a fundamental principle of smart management, and the triple bottom line is a measure of success which provides a broader rubric within which organisations can consider their efforts in relation their corporate responsibilities. Esty and Winston (2006) see smart companies as the ones who get ahead of the green curve and lower both financial and operational risk. Their environmental strategies provide added degrees of freedom to operate, profit and grow. Any organisation that enjoys the benefits listed here could be better described as a 'smart' organisation than a 'green' organisation.

## How does an organisation seek to green itself?

One of the wonderful things about seeking to reduce an organisation's impact on the environment is that so much of it is measurable. An organisation might start with a basic baseline energy measurement; one year's worth of electricity, on-site fuel use (gas, for most of us), vehicle fuel use, and air travel. They then seek to reduce it by 10 per cent the following year. 10:10 is a hugely successful campaign encouraging business, education, organisations and individuals to do just this. www.1010global.org; a campaign that started small and rapidly went global due to its simplicity and positive approach.




Setting objectives is important in any organisation, and 10:10 helps

organisations to think about what they might want to achieve in simple terms. Organisations might also think about an Environmental Management System (EMS). EMS refers to the management of an organisation's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organisational structure, planning and resources for developing, implementing and maintaining policy for environmental protection.

## Why low-energy light bulbs and fuel efficient cars aren't enough

Technical solutions to energy challenges can help an organisation achieve its reduction goals significantly, but what can often be overlooked is the need to plan the behaviour change. An organisation's 10:10 efforts to reduce vehicle emissions by 10 per cent over one year are likely to require a combination of approaches:

- fuel efficient vehicles;
- reduction in miles driven; and
- enhanced driving skills.

So simply purchasing fuel efficient vehicles isn't enough, and organisations purchasing fuel efficient vehicles will benefit by getting the vehicle drivers 'on board' with the change. Changing behaviour to reduce the amount of miles driven and enhancing drivers' skills will require skills development and a change in systems and procedures.

## How and why should an organisation recruit and develop staff so it can 'go green'?

An organisation expects individuals to be motivated to do their job in a direction that is aligned with the organisation's objectives, with sufficient vigour and to sustain this over a period of time and in the face of obstacles.

Will a sales executive who drives around the country behave in line with the organisation's 10:10 objectives to reduce petrol use, and save money? Will she drive in a fuel efficient manner? (Direction of behaviour).

Will she do so when driving on motorways and in built-up areas? (Vigour of behaviour).

Will she do this every day or just for the first week after someone has pointed out the benefits? (Persistence of behaviour).

In total, how motivated is this individual to drive in a fuel efficient manner?

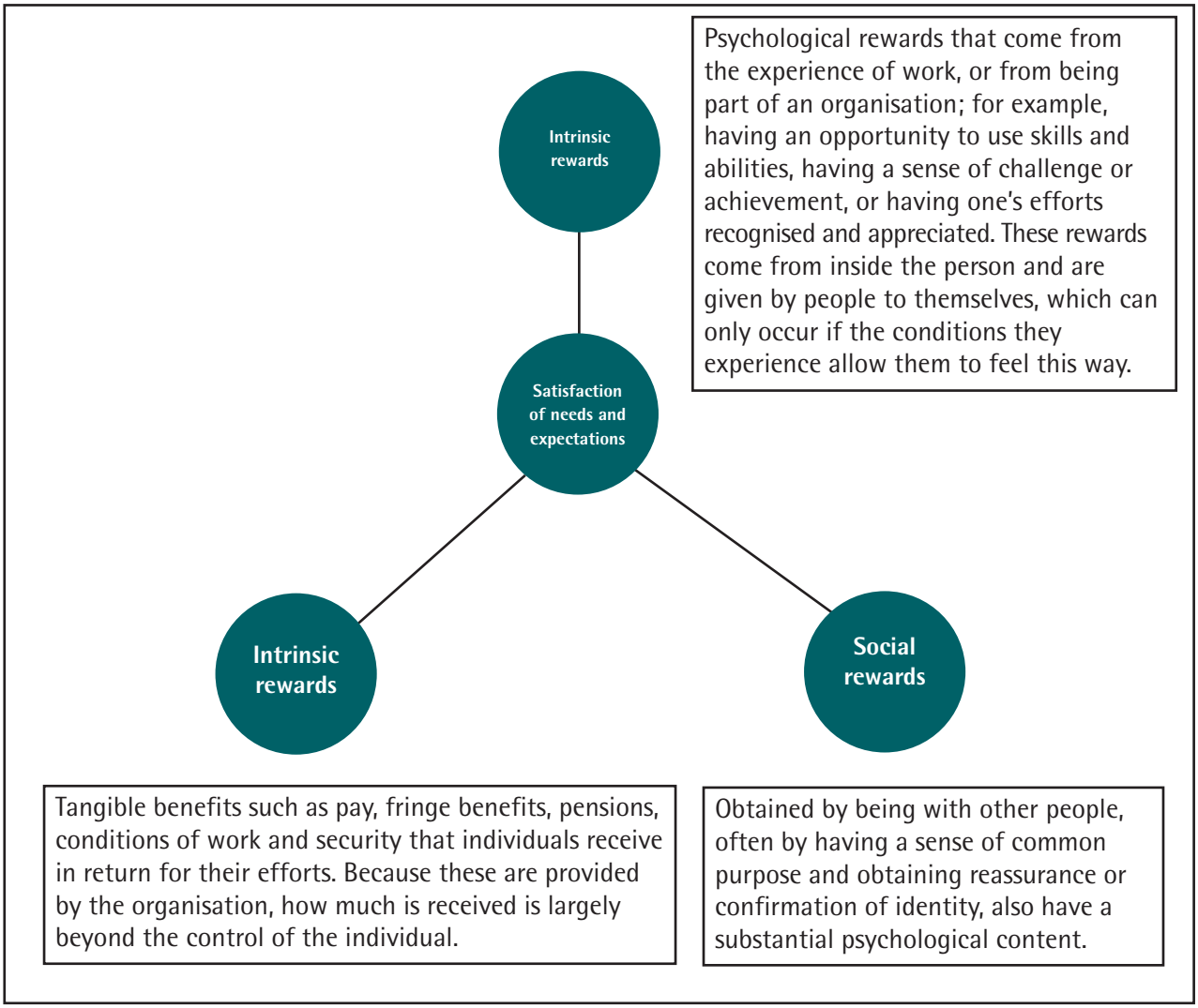
The difficulty with motivation is that managers cannot directly motivate individuals. Motivation comes from within the employee; it is unobservable and cannot be altered at will by a manager. What is important is that managers do have direct control over the selection process, which has some influence on the skills and knowledge of those doing the work. In addition, these things can be improved with training and development which is also under the manager's control.

Motivation stems from an individual's needs and the perceived difference between ideal or actual self. So for example, someone may feel a difference between the skills they have, and the skills their manager has given them credit for; they are motivated to be promoted to address this gap. This person will then strive to meet goals, in the expectation that this

behaviour will lead to specific outcomes. The motive or driver for wanting a promotion may be different, some may want the status, and others may want the pay rise. Either way, these motives will energise someone into action. So the individual sets about behaving in a certain way to achieve the goal of being promoted. They are likely to self monitor whether such behaviour impresses the manager. If the outcome of a promotion is not achieved, then the person may employ a different set of behaviours to achieve it, or re-evaluate whether the goal is realistic.

A manager cannot directly influence whether someone desires something like a promotion. Managers are however, able to provide an environment that offers a range of the following rewards for the desired behaviour. Rewards can be intrinsic, extrinsic and social.

**Figure 1:** Motivational feeds




Getting the balance right between the three will be nearly impossible as what may be extrinsic for one person, will be intrinsic for another. But, however much people vary, most individuals expect rewards of all three types and so the important point is to ensure all three are offered.

There is often a general reliance on extrinsic motivators, possibly due to the difficulty of understanding an individual's pattern of needs, or the ease of providing extrinsic

motivators. Evidence does suggest though, that too high a level of extrinsic rewards tends to damp down intrinsic motivation. (Deci 1972, Shalley and Oldham 1985)

A manager would also do well to consider what blocks there are to a motivated individual completing their intended behaviour. The sales executive may become frustrated because they are expected to rush from one appointment to the next (not only encouraging fuel thirsty driving but stressful working conditions).

In the case of the individual looking for promotion, they may show adaptive behaviour to circumvent barriers such as directly asking for feedback to gain the recognition needed. Or they may show non-adaptive behaviour such as repression, suppression, projection, fixation and so on.

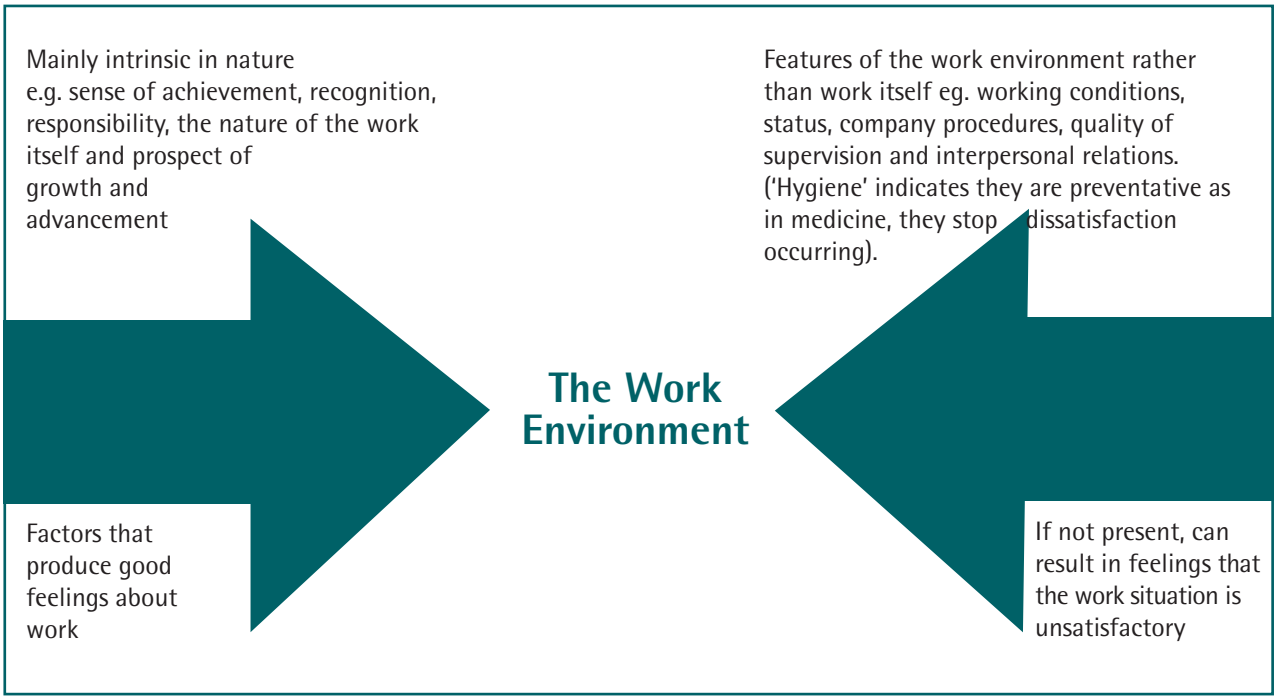
But is it enough to simply create an environment where individuals have few blocks to the desired behaviour and feel rewarded when they demonstrate it? If an organisation wants certain types of behaviour and decision making to be embedded across the organisation then a more in-depth and strategic approach is necessary.

Motivational theory points to job redesign, in particular job enrichment. Job enrichment raises motivation by more than just expanding a job by horizontal enlargement (giving staff more to do), it requires the job to be 'enriched'. It involves a measure of vertical expansion so the person has some authority over the planning, execution and control of the work. Herzberg (1959) argues this will bring into play the more powerful intrinsic motivators. This is also supported by Maslow's needs hierarchy (1943), where self-actualisation needs are virtually inexhaustible and are concerned with a person's need to realise his full potential.

**Figure 2:** Maslow's Hierarchy of Needs

| | |
|---|---|
| **Self-actualisation** | Often split into two sub-types. Needs for self-esteem concern an individual's view of him or herself; for instance having a sense of self-respect, self-confidence or of doing something that is meaningful and worthwhile in a competent way. Esteem by others is needed because a considerable part of our self-concept is obtained from signals about ourselves that we get from others (Argyle 1968, Cooley 1964), and if other people indicate that their view of us is favourable as is the one that we hold of ourselves, it is a highly rewarding experience. |
| **Esteem** | Virtually inexhaustible and are concerned with a person's need to realise his full potential, and it is these that are said to drive humans to do things that have never been done before. |
| **Affiliation** | Feelings of belonging, friendship or being loved, which can only be satisfied through social interaction. Needs of this type provide the motivation to meaningful relationships and to gain (and give) support from (and to) others. |
| **Security** | Consist of security, freedom from pain or harm, emotional security and well-being, fairness, predictability and order. |
| **Physiological** | The most basic of all and arise from the internal physical imbalances such as hunger, thirst, warmth and shelter; they need to be satisfied at fairly infrequent intervals. |

## Figure 3: Herberg's Two-factor Theory (1959)




There are of course criticisms to both Maslow and Herzberg's theories, for example there is an assumption an individual has fulfilled all other needs in the hierarchy, and Herzberg's theory is regarded by some as an oversimplification (Burke, 1966 and Wood & LeBold, 1970).

Going back to Valerie and Nita, they both do the same job, however Valerie's job is enriched through the approach she takes. Valerie doesn't necessarily have much more to do than Nita, but she is achieving more by being smarter about how she goes about her work.

As Clegg and Spencer (2007) point out, job design still remains a significant practical issue for organisations. Hackman and Oldmans's Job Characteristics Model (1976), which supersedes the two-factor theory, is still the dominant theory in job design.

It is concerned with the following job characteristics that influence the motivation of the job holder, in turn affecting her performance and well being.

**Skill variety:** the extent to which the job requires a mix of skills, the exercise of which is valued by the job occupant.

**Task identity:** the extent to which the job is a 'whole' one, that is, it has a beginning and an end and results in the completion of a tangible, identifiable outcome.

**Task significance:** the extent to which the job occupant perceives that the job 'matters', in terms of affecting the work or lives of other people inside or outside the organisation.

**Autonomy:** the extent to which the job gives its occupant the freedom and discretion to plan the work and decide how it is carried out.

**Feedback:** the extent to which doing the job gives its occupant clear information about the effectiveness of his or her efforts.

These features influence the critical psychological states:

**Meaningfulness:** the degree to which the person experiences the job as one that makes a valuable and worthwhile contribution.

**Responsibility:** the extent to which the person perceives that he or she is personally responsible for the successful completion of the work.

**Knowledge of results:** the extent to which the person has a clear understanding and evidence of how effectively he or she performs the job.

The outcomes of the critical psychological states are high internal work motivation, high 'growth' satisfaction, high general job satisfaction and high work effectiveness.

The argument is therefore that enriching jobs by redesigning them to ensure job holders undertake their work in an environmentally friendly way will not only help embed pro-environmental behaviour across the organisation, it will also result in more productive staff.

But will giving staff the extra demands on their workload just lead to burn-out? Parker and Wall (1998) see a number of 'costs' to job enlargement and enrichment. Difficulties of recruiting appropriate staff, employees requiring more training and employees being more likely to experience mental overload and strain. Maslach (1993) attributed burnout to high job demands that drain the employee's energy. Exhaustion leads the employee to withdraw mentally which prevents proper performance.

These challenges presented as 'costs' can be overcome. The increased difficulties of recruiting appropriate staff may be true, but the continual improvement to recruitment methods including online and technical solutions enables organisations to use smarter and more useful recruitment techniques to overcome these challenges. Furthermore, in terms of attracting quality candidates, prospective job applicants are more likely to pursue jobs from socially responsible firms, than from firms with poor social performance reputations (Greening & Turban, 2000).

Employees requiring more training will also be a most likely outcome, but whether this is best viewed as a cost, is up for debate. Investing in employees by providing 'job resources', such as further training, is seen to have multiple organisational benefits including reduced staff turnover and enhanced productivity. The notion of 'spend to save' comes into play and so what may be an immediate cost to the organisation should result in a future saving and/or increased profitability. Training an organisation's vehicle drivers to drive in a more fuel efficient way is certainly preferable to recruiting new drivers with existing fuel efficient driving skills. The cost of training will quickly be recovered through the reduced cost of petrol. All future drivers recruited into the organisation will either have the petrol efficient driving skills or go on immediate training.

Finally, will employees experiencing mental overload and strain – 'burnout'? The example of enhancing driving skills through training should actually reduce strain rather than increase it. The notion of redesigning jobs is more about enrichment rather than enlargement. Enlargement is more likely to lead to mental overload and strain. Enrichment should not, as long as any skills gaps are filled through training provision and staff development. Coaching may be a more suitable approach than training as it can help

the individual work through the change process and find ways to adapt and learn how to do their job differently.

What is clear from the research is that involving employees in the redesign of their jobs is crucial to its success (Parker & Wall, 1998; Clegg & Spencer, 2007; Pasmore & Friedlander, 1982).

Despite handling the challenges to job redesign, can organisations be assured that job redesign is sufficient, or is there more to be done? Job or work engagement is a relatively recent theory that has emerged since the turn of the century. It is a motivational concept. Work engagement is a positive, fulfilling, affective-motivational state of work-related wellbeing that can be seen as the opposite of burnout. Engaged employees have high levels of energy, and are enthusiastically involved in their work (Bakker, Schaufeli, Leiter & Taris, 2008).

Job resources, such as social support from colleagues and supervisors, performance feedback, skill variety and autonomy, and learning opportunities are positively associated with work engagement. (Bakker & Leiter, 2010). Work engagement and job resource theory can be seen as overlapping with motivational theory, and complementing it. Job resources play either an intrinsic motivational role because they foster an employee's growth, learning and development, or they play an extrinsic role; instrumental in achieving work goals. Job resources are seen to become more salient and gain their motivational potential when employees are confronted with high job demands (Bakker & Demerouti, 2007).

Work engagement thrives in settings that demonstrate strong connections between corporate and individual values. This is a two-way process, not only should the organisation promote its values to employees, it should also understand and promote what the employees value (Bakker & Leiter, 2010).

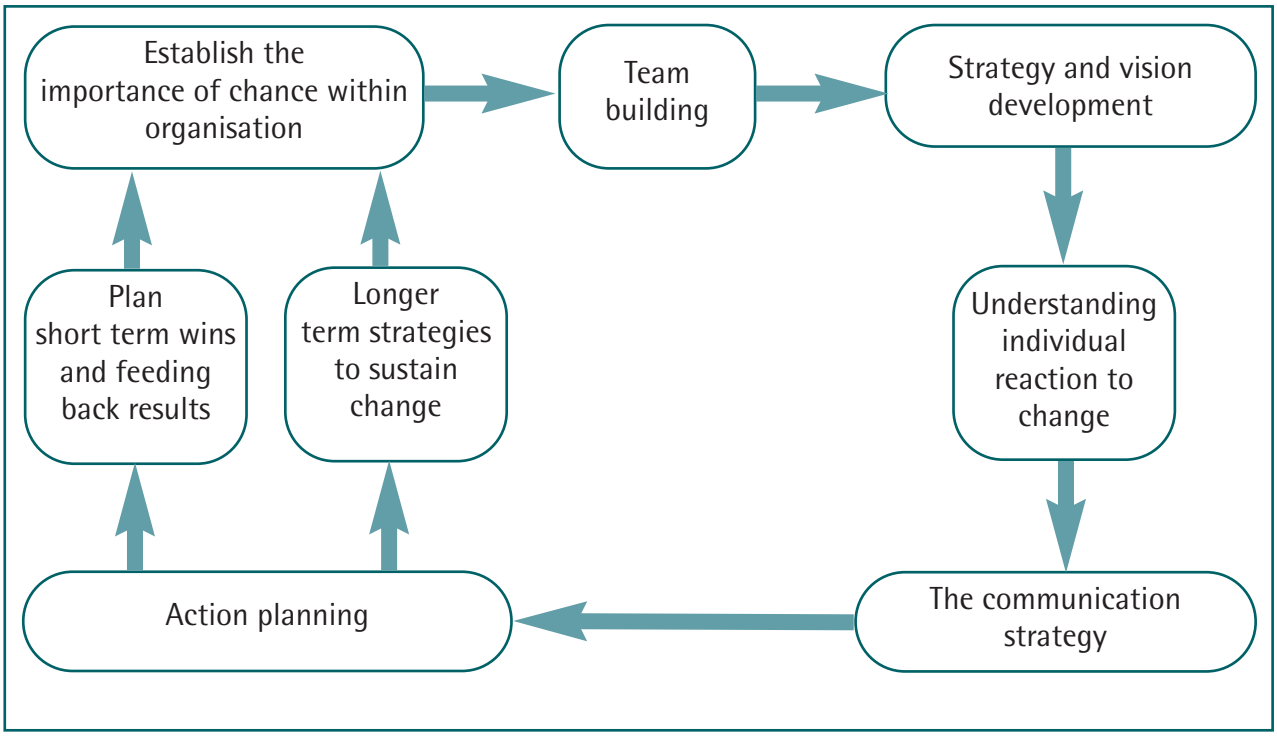
## How are things going to change?

How do organisations get to the stage where things like staff designing energy and resource efficient products happens as a matter of routine? Changing organisational culture is critical. Cameron and Quinn (2006) talk about culture, 'an important factor in accounting for organisational performance is that it encompasses the taken-for-granted values, underlying assumptions, expectations, collective memories and definitions present in an organisation. It represents "how things are around here". It reflects the prevailing ideology people carry round in their head. It conveys a sense of identity to employees, provides unwritten and often unspoken guidelines for how to get along in an organisation.'

An organisation redesigning jobs and seeking to enhance work engagement will go through cultural change and should be thinking along the lines of The Cycle of Organisational Change and Progression diagram on the next page as a process.

The diagram echoes parts of Kotter's 'Eight-Stage Process of Creating Major Change'. Kotter recognises that organisations are pushed more and more to reduce costs, improve the quality of services, locate new opportunities for growth and increase productivity. This description easily fits an organisation trying to become more environmentally responsible.

**Figure 4:** The Cycle of Organisational Change and Progression




**Establish the importance of change within an organisation:** If the organisation does not sense the importance of the need to change, individuals are unlikely to change. Why should they? It is therefore essential to highlight the drivers behind the change. The Higher Education Funding Council for England (HEFCE) have now linked Capital Funding to Carbon Management, and if universities do not produce a credible carbon management plan which has been signed off, HEFCE will withhold 40 per cent of a university's capital funding. This, amongst other key drivers, is what led the University of Brighton to set themselves a commendable and challenging target of achieving 50 per cent carbon reduction in 5 years.

**Team building:** Any project, programme or initiative requires a team to lead it, so this applies to culture change too. Because change programmes are notoriously hard to lead, it is essential to have a team of credible, powerful and committed individuals who have the expertise to represent and lead a cross section of the organisation through the change.

**Strategy and vision development:** A vision is essential. It builds a picture of what the organisation is striving to achieve. Without vision, the best individuals can do is operate within the remit of their job. With a vision, they can consider whether their actions are contributing towards reaching the vision. For example an organisation such as the University of Brighton (UoB) could have the vision of being a centre of excellence; a low carbon university that attracts quality staff and students. Employers who value low carbon skills and ethos in their workers will want to employ UoB students due to the exceptional courses that promote low carbon working. The strategy is a plan that describes how the vision will be achieved, for example lecturers enhancing their courses, by paying necessary attention to the emergence of a low carbon industry.

**Understanding individual reaction to change:** Personality theory such as Myers Briggs Type Indicator (MBTI) can be useful in helping us understand how individuals react to change. Some individuals embrace change whilst others do everything they can to resist it. Taking the time to consider how individuals are likely to react helps an organisation prepare to handle it. Directors and managers at all levels can learn how to respond to the individuals on the teams they are leading through change.

There is also an argument for conducting an audit to measure and understand staff's perspectives on the pending change. The Ampleo Employee Engagement Survey© measures the following:

- Individuals' existing attitudes towards climate change and the environment, and their motivation to undertake pro-environmental behaviour in the workplace.
- The values employees hold about environmental matters in the workplace. These values can be thought of in the context of organisational culture.
- How individuals react on an emotional level to language that is frequently used when communicating environmental issues.

The output, an organisational profile, can then be used as a benchmark and starting point of understanding about the employees for those leading the change.

**The communication strategy:** Kotter provides some useful advice for effective communication of change.

- Keep it simple, focused and jargon free so it can be disseminated to large groups of people.
- Use metaphors, analogies and examples to communicate complicated ideas quickly and effectively.
- Use many different forums so that when the same message comes at people from six different directions, it stands a better chance of being heard and remembered.
- Repeat, repeat, repeat to transfer information in an otherwise cluttered world.
- Walk the talk, or lead by example so that employees can see the top management acting out the vision.
- Listen and be listened to, to ensure it doesn't turn into a one-way broadcast where useful feedback is ignored and employees are inadvertently made to feel unimportant.

**Action Planning: Short term wins and feeding back results:** Ideally short-term wins will build momentum by being easy to implement, with high impact or high visibility. Few people will be able to argue with them and short term wins will clearly support and relate to the change effort. For example, removing one car-parking space and building a bike shed sends out a clear message, only the very hardened car drivers can argue with the loss of one car parking space and it clearly promotes low-carbon transport and healthy lifestyles. The next step is to report back the results to the organisation, in this example the feedback might be the number of car journeys saved, the total amount of weight lost by staff members who cycled and the amount of money saved on petrol.

**Action Planning: Longer term strategies to sustain change:** Start by establishing the barriers, identifying resistance to change. Based on the strategy, establish the different areas that need to be considered and require planning. Decide what actions need to be taken to implement change. Encourage action and activities.

The following can be barriers:

- Supervisors – some may not be on board
- Systems – not realigned with the change
- Skills – employees not skilled enough
- Structures – need to reflect vision

A few examples of areas for longer term planning:

- Office layout
- IT systems
- Recruitment
- Skills development
- Procurement
- Travel plans

The cycle is then repeated. Change requires persistence. The reasons for change are likely to be different after one or two years of the organisation's development and the consequential steps will therefore need reviewing in light of this.

## Smart green?

The evidence points organisations to embracing environmentally friendly strategies to ensure behaviour is embedded across the organisation for long lasting culture change by recruiting and developing staff to fit redesigned jobs. The provision of job resources will lead to work engagement and the many benefits this brings. The overall outcome is not only a green organisation but a smart organisation that attracts quality staff, retains staff who are happy and productive. It is a cost efficient organisation, with competitive advantages and a more secure and sustainable future.

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# Greening your organisation: The case of the Environment Agency

**Julian Feasby and Karen Wells**, *The Environment Agency*

The Environment Agency is a large employer with an annual budget of more than £1 billion and over 12,000 staff dispersed around England and Wales. It is our job to look after your environment and make it a better place for people and wildlife. Given the nature of our organisation, you might think that getting the right behaviours for 'greening the workplace' should be easy. Not necessarily so, when you consider that people have different ways of learning and responding to change and that well-informed people are often the hardest to change.

## Who we are

The Environment Agency is the leading public body for protecting and improving the environment in England and Wales. It was set up under the Environment Act 1995 and given certain duties and powers. We work with business, government and society to ensure that air, land and water are looked after so that tomorrow's generations inherit a cleaner, healthier world.

There are some big challenges to face over the coming years. Climate change, population growth and unsustainable resource use will all put significant pressures on the environment. That's why the Environment Agency's current work is its most important yet. We are part of the solution but only through working with others can we make a difference.

We are a public body – around 60 per cent of our funding comes from Government and the majority of the rest comes from various charges schemes. We are independent but work closely with Government. We have a presence across all of England and Wales with regional and area offices so that we can work closely with local bodies and communities.

Our work includes:

- **Regulating industry to protect the environment and human health** – air pollution is estimated to lead to a reduced life expectancy of about eight months per person in the UK. Since the mid 1990s we have reduced the amount of sulphur dioxide released into the air by 75 per cent and we regulate the EU emissions trading scheme and carbon reduction commitment (CRC).
- Taking action against those who don't take their environmental responsibilities seriously – every year we bring many offenders to justice, leading to substantial fines.
- **Protecting people from floods** – we protect properties, communities and key infrastructure (like roads, railways, power sub-stations and water treatment plants) through flood protection schemes. Every £1 spent on protecting communities from flooding saves £8 spent repairing flood damage over the lifetime of the scheme.

- **Helping business use resources more efficiently** – fossil fuels (a finite resource) are used up 300,000 times faster than the processes that created them. Waste is a valuable resource and we encourage it to be put to productive use such as reuse, recycling and producing energy.
- **Working with farmers to build their role as guardians of the environment** – farming and forestry cover over 80 per cent of the total land area of England and Wales. Some 2.2 million tonnes of soil are lost to erosion each year, much of which is washed into rivers and streams.
- **Looking after wildlife and their habitats** – each year more than 100 hectares of saltmarsh are lost to rising sea-levels. Between 2004–10 we helped to create more than 2,700 hectares of new wetland and saltmarsh habitats and otters are returning to rivers. They are now found in every county in England and Wales.
- **Working to create sustainable places** – over the next 20 years the number of households in England and Wales is projected to rise by 25–30 per cent. We work with policy makers, planning authorities and local communities to make sure the natural and built environment work well together and help to improve the quality of inner city areas and parks by restoring rivers and lakes.
- **Tackling climate change** – the ten warmest years on record have all occurred since 1997. Some climate change is now inevitable so we work to help society both adapt to these changes and also take action to reduce its impacts. This includes regulating important low carbon technologies such as nuclear power and some renewables.
- **Making sure there is enough good quality water for people and the environment** – water is precious and its demand will increase in the coming years. Fifteen per cent of river catchments already have too much water drawn from them.
- **Managing fish stocks to conserve and maintain the diversity** – Juvenile eel numbers in Europe have reduced by 95 per cent compared to pre-1980 levels. Freshwater fish, salmon and sea trout are also our priority.

## Improving our own environmental performance

Whilst our work delivers substantial benefits to the environment, in carrying out that work we inevitably have a negative impact on the environment. We operate from over 200 buildings ranging from city centre offices to small, remote depots. We use a wide variety of assets in the course of our varied work, including pumping stations, boats and heavy plant. We have to do a certain amount of operational travel to do our jobs and we buy all sorts of services and products.

In the Environment Agency we try to be the best we can in everything we do. This includes practising what we preach and encouraging others to do the same. We want to be an exemplar and demonstrate leadership, not least on climate change action, as well as help achieve the UK-wide strategy to reduce carbon emissions by 80 per cent by 2050.

We have been certified to ISO14001 since 2002 and EMAS (Eco-Management and Audit Scheme) since 2004. These internationally recognised environmental management systems are audited robustly every year to ensure that we work within the law, identify what is important both corporately (such as sustainable purchasing) and operationally (such as impact or risk to protected habitats and species), manage what is important and improve.

Over the past few years we have made good progress in reducing our impact. Against our baseline years, by March 2010, we have:

- reduced office energy consumption by 20 per cent per year, representing 14 million miles;
- reduced mileage by 24 per cent per year;
- reduced water use by 61 per cent per year;
- recycled 76 per cent of our office waste per year; and
- 66 per cent of aggregates used on our construction projects has come from secondary or recycled sources.

We achieve external recognition for our work, ranging from Institute of Civil Engineering Awards for the sustainability of our flood defence schemes through to awards from the Energy Saving Trust for our fleet management. In 2009 we were named 'Best big company for employee engagement' at the Sunday Times Best Green Companies awards. The audit process for the award took place over several painstaking days, making us particularly proud of winning and giving us much confidence in the way we work with our staff and move forward.

We still have a lot of work to do. In 2009 we achieved a 14 per cent reduction in carbon dioxide emissions (a key greenhouse gas) from a 2006 baseline of 66,000 tonnes in our operations, and by 2015 we want a 33 per cent reduction.

Improving our own environmental performance is a corporate priority, one that can only be successful through the hard work and engagement of our staff.

## How do we engage our staff and change behaviour?

The scope of our work is broad and we recognise it will gradually become more challenging for us to continue to make further environmental improvements. As we seek further change we need to engage our staff in more creative and innovative ways.

Before engaging with staff you need to make sure that you have the right information and clear messages to send:

### Information is power

Naturally, you need information on what and where your environmental impact is. If you don't know you can't work with the right people to change it or the way they view it and use the information.

### Get the context right

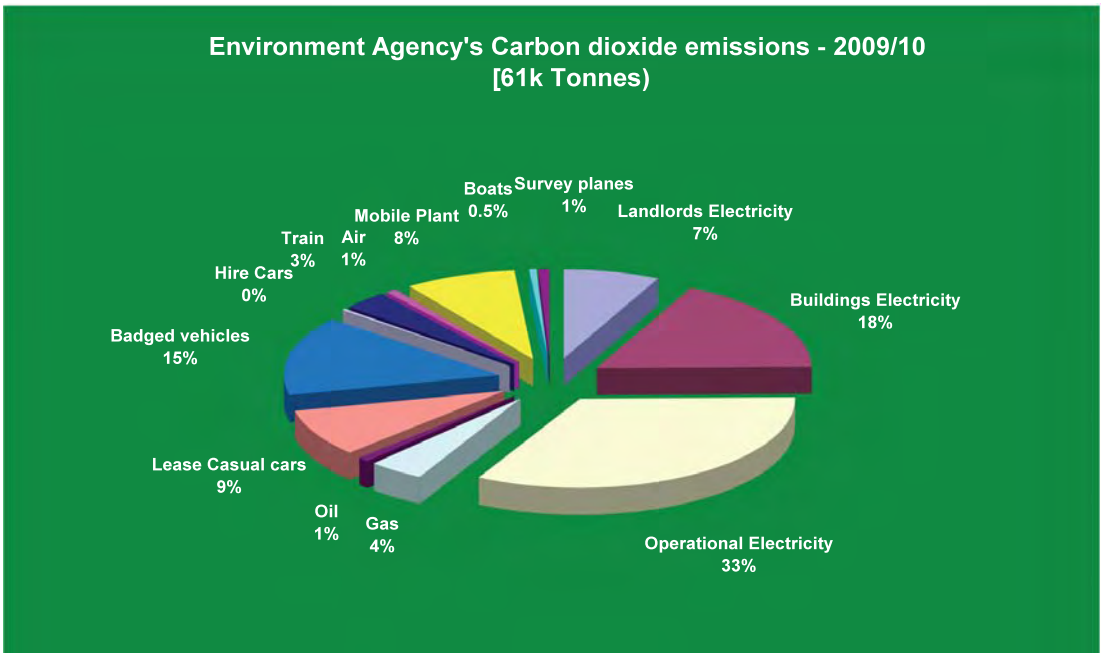
The information you have needs to be made relevant to who you are trying to influence. For example, we use 'per FTE (full-time equivalent)' figures for some of our performance data. It can work well for figures relating to office water and energy use as well as mileage where staff can change their behaviour and directly influence the figure but it wouldn't work for operational water or energy use.

### Organised communication

Plan the environmental messages that you want to promote. Our communications follow a theme (such as transport or water) that runs for three months and allows us to reinforce our message over that time. Where relevant, we link to global or national events or 'days of

**Example – Identifying and understanding**

The pie chart below shows the various sources of our carbon dioxide emissions and gives a flavour of the breadth of what we have to manage and where the biggest impact is coming from.




The breakdown allows us to tackle each source and prioritise where we focus our efforts. Pumping electricity (operational) is responsible for 33 per cent of our carbon dioxide emissions but improvement is not easy. Our pumping activity demonstrates this. We pump water to:

- help water companies to provide water as a resource for homes and business on an ongoing basis (such as in the east of England), or as required to;
- ease drought conditions or prevent flooding.

This means that we are responsible for a lot of carbon dioxide emissions whatever the weather. Dry conditions require more pumping to prevent water levels in our waterways reaching dangerously low levels for our fish and aquatic species and allow for water to be drawn for use by businesses and society. Wet conditions require pumping to prevent floods.

Most of our historic efforts to reduce carbon dioxide emissions have been associated with travel and buildings but this pie chart showed that we needed to address our pumping activities. We are challenging standards that have been in place for many years to pump at given time scales or to ensure an upper or lower level for a watercourse.

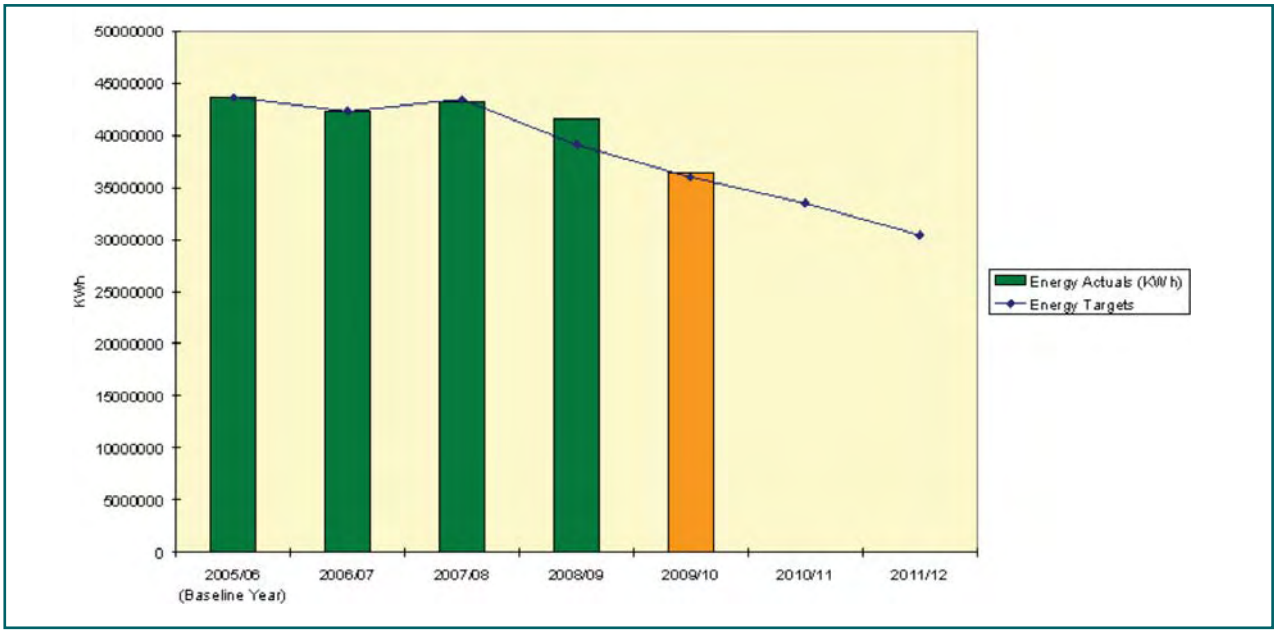
We had to change perception so we started to inject this pie chart into our work wherever we could. We provided it to senior managers, who could then use it with their own functions and teams. We included it in as many of our communications as possible and generally pestered people with it so it could not be avoided. This has led to each region developing carbon reduction plans which identify changes that can be made that will improve the efficiency of the pumping equipment itself but also the parameters of the pumping involved.

action' so we can take advantage of the interest that staff may have developed in their own time. For example, in June–August we have the transport theme. It links with Bike to Work day in June.

- **Patience is a virtue**

Manage expectations and recognise that larger organisations take time to change. Senior managers as well as staff need to know why it takes time. The 10:10 challenge is the UK's 2010 campaign for businesses to reduce their carbon dioxide emissions by 10 per cent, a challenge that larger organisations will find hard to achieve whether they are novices to reducing their environment impact or well along the path. You have to identify the

**Environment Agency Building Energy Usage**




sources, have a robust baseline, investigate options and work within the lead in times for policy changes and kit installations as well as change behaviour.

The graph below demonstrates the level of reduction we have been able to make in our buildings energy use (KWh) over the last five years – steady but also able to be maintained.

## Getting staff to work for you

The science behind behaviour change states that staff need to be both willing to act but also to have the ability to act. Any attempts to change behaviour needs both of these if the change is to work.

We have chosen not to over-complicate our challenge by working with psychological categorisations but it is useful to understand some basics about what motivates people.

People tend to fall into three categories that describe our willingness to act and motivate our behaviour:

- **pioneers** – they tend to be good at seeing the bigger picture and are likely to take action because they believe it is the 'right thing to do'.
- **prospectors** – esteem driven, they care about what others think of them. Taking action on climate change needs to be seen as 'cool' to appeal to this group.

## Dealing with staff that are well educated and scientifically minded

### ■ Be bold and stick to your guns

On one of our sites there was uproar when we replaced paper towels with energy efficient hand driers in the toilets. We checked the science but either option could be argued as the best environmental choice. We made a decision and moved forward. What followed was a period of discontent. Thirty-eight staff (approximately a fifth of the staff based at that site) contacted our team to complain, including various scientific data to back up their arguments. Certain staff used toilet paper instead and caused a hygiene issue when the toilet paper ran out part way through the day. However, it was short lived; in little over two weeks, staff accepted the change and no problems have occurred since. Sometimes there is no right answer so the correct move is to pick one and stick to it.

### ■ Accept that they may try to sabotage with science




This poster is one of four designs that were developed to display at sites across the organisation and to 'pop up' on computer screens. We received 20 e-mails informing us that if we put carbon dioxide into hot air balloons they would not fly. True, but clearly not the point.

### ■ Converting negative but vocal individuals

Negative staff can be very damaging to efforts to change behaviour. We have taken to phoning them up to deal with their comments rather than getting trapped in e-mail debates. They usually either back down when challenged or become an avid supporter.

### ■ Refer challenges

We now ask some of those formally negative but vocal individuals to champion change locally when we next communicate. It makes them feel involved and useful as well as helping us to prepare for the type of questioning we may face.

- **settlers** – they care about security (financial and psychological ) and their family. They are more likely to be risk adverse and to be wedded to routine. They are likely to be process-driven in their job. This means they may react better if they have targets to meet.

Staff in the Environment Agency are likely to broadly represent society as a whole as we have a large geographical range, a diverse workforce and varying age ranges.

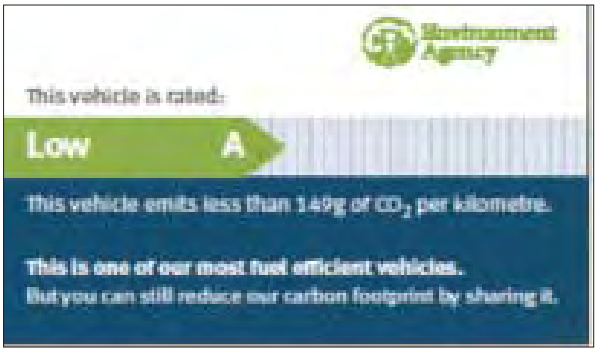
Our ability to act is affected by the job we do but also the attitude of the organisation. Some staff have more of a role to play because they work in a job that can directly affect our performance, such as procurement staff who can influence contracts, facilities staff who manage our buildings and assets, or operations delivery staff who work out in environmentally sensitive locations.

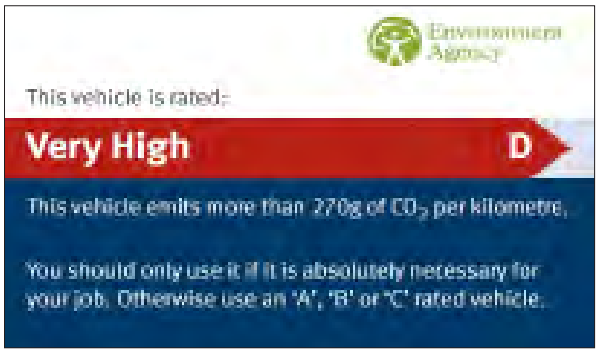
Generally, though, our staff cannot act if they do not have clear messages right from the top of the organisation through to their line managers to tell them that environmental management has to be part of everyone's decision making. This isn't easy and we have not fully achieved this yet. The fact that our internal environment strategy is one of only ten sub strategies of the Environment Agency's corporate plan shows our commitment so we use it as a lever to get more attention. Our performance and any action needed is discussed at the highest level with directors and the Board. To varying degrees its success is fed down through management teams to try to reinforce the message that all of our staff are ambassadors for the environment. We expect our managers to support our staff where they pose questions or make challenges that involve our environmental impact and we want our staff to feel that they have the 'authority' to make such a challenge.

The Environment Agency is in an unusual situation when you consider that many of our staff are experts in the environmental field. This hugely complicates our attempts to change behaviour because they often present us with well rounded opposing views. We have had to be creative to move certain things forward.

What follows is the ten ways in which we have sought to change our staff's behaviour.

## Example – offering a choice of operational vehicle




The above are two of four stickers which have been produced to stick to the windscreen of our operational vehicles. We have a range of vehicles, including light transit vans and 4x4's. The stickers allow our operational staff to make an informed choice of vehicle when they leave the depot each morning, only choosing a 4x4 (which is normally the most polluting) if they *need* to go off road.

### 1) Positive messaging and 'nudging'

Sometimes it feels easier to train a dog to do something rather than a human because we are so complex. Positive messaging is essential as it is not threatening and does not rear up our defiant heads. When talking to a child about not running onto the road, you will have more success if you say 'stay on the pavement as it is safer' rather than 'don't run into the road because you may get hurt'. The same principle applies for all communications. With lighting, you would use 'please turn the lights off because it saves energy' rather than 'don't leave lights on'.

A 'nudge' is where you offer no neutral choice in order to influence people's behaviour. You are still giving people a choice but it is an informed one.

### 2) Getting senior directors involved

There is no doubt that it is helpful for senior management and directors to lead from the top with a commitment to improve environmental performance. However, it is more effective if staff see these directors and managers visibly getting involved and demonstrating how it is done. This could range from directors simply using the train rather than making a journey as a single occupant in a car or by turning off the lights and monitors in their office when away from the desk and walking around to ask others to do the same.

**Example – Sorting rubbish**



This picture shows some of our directors after a 'bin dig' at our Head Office. At lunchtime, the directors donned rubber gloves and sorted through the waste in front of staff, showing what should and shouldn't have been in the various bags. It was interesting for the directors, if a little smelly, and staff got to see the directors in a new, slightly pungent, way.

### 3) Make it part of normal business reporting and build it into your training and human resource (HR) processes

For staff to begin embedding environment management into the way they work it is important to show it incorporated across the business. Our internal environment management targets are part of the corporate business reporting process rather than an 'add-on'.

We have also included internal environment management into the staff induction process. The electronic induction learning package details what our staff need to do to manage our environment footprint. The induction day includes a success story where one of our staff talks to the new starters about their job and how they work sustainably. Feedback from this has been particular good as new starters see real people in everyday jobs not someone from Head Office telling them to take the environment seriously.

## Example – Individual performance objectives



All project managers within our construction function have an objective within their individual performance plans to ensure that they use our carbon calculator during the design and construction of all new flood risk management schemes.

The calculator allows choices to be made on the embodied carbon dioxide emissions of materials, their transportation, site energy use and waste management.

Internal environment management is first on the agenda at our managers' four-day training course, demonstrating clearly to managers how important it is to our organisation and their role as a manager.

Our HR policies and processes have also been amended to reflect what we expect from our staff. We have developed some generic environment management behaviours for use in our staff's performance plans so that managers can set targets specifically relating to sustainability.

## 4) Buying kit

It is obvious that any organisation is limited in how much it can reduce its environment impact if it relies on staff behaviour change only. What may surprise you is that by buying kit you can indirectly change behaviour so it is worth the visit to the finance director with a convincing case.

We have chosen not to offset our carbon dioxide emissions through an external offsetting scheme. Instead every year we invest the money in ourselves through our Carbon Reduction Fund which provides money to projects which have good carbon dioxide savings per pound spent, encourage new technology and engage our staff. The ideas come from our staff on the ground who know the systems they work to and the opportunities available. One project involved using the tide changes from a feeder river and pumping at different times of day so that less overall pumping was required on a particular river. Another involved the construction of a visitor centre at a lock site which reused tyres as foundations, and used straw bales to construct the walls and photovoltaic cells to convert sunlight into electricity.

## Some 'kit' ideas

- **Voltage optimisation** – we have introduced this technology at suitable sites and are achieving an average 10 per cent saving in electricity use per site with financial payback between five to six years. Average voltage supplied from the national grid is around 260v. Most electrical equipment manufactured for Europe and the UK can run effectively at lower supply voltages (220v). Voltage optimisation reduces and smooths our supply voltage to improve the performance and lifespan of our equipment, which enables us to save energy.
- **Bring in a sparky** – a local electrician will have the technical knowledge to tell you what you can improve on a site. Environment consultants can be expensive and will usually give general ideas that will still require an electrician's visit to see if it is feasible for the site. A local electrician will show on-site staff that you are committed to trying to improve the sites energy performance and support local business.
- **Fewer, and automatic lights** – many of our offices have intelligent lighting systems which are controlled by movement or light sensors. This helps to ensure that lights turn on only when needed.
- **Rainwater harvesting** – several of our sites have rainwater harvesting systems and reduce their mains water consumption by 30–40 per cent.

## Example – Wind turbines

At a depot we installed a small wind turbine to help power the site operations and also to export electricity to the grid when the depot wasn't using it. It is a bold piece of kit that can't be missed by our staff. Before and after the turbine was installed, there was a check made on the number of computer monitors left on. After the turbine was installed the number of monitors left on decreased substantially.



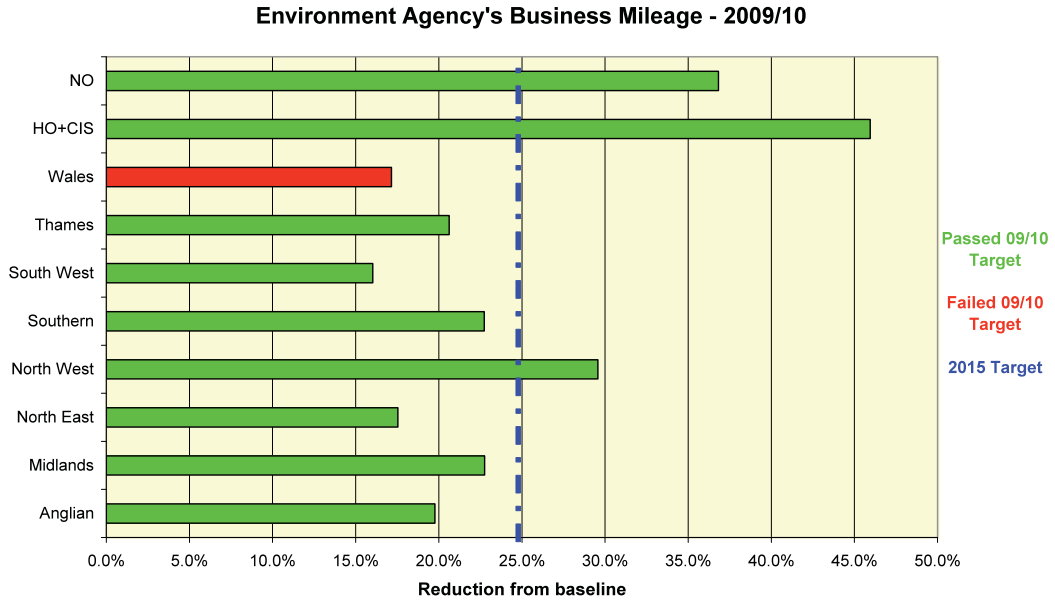
There were no other obvious factors to affect the change so the visual presence of the turbine would appear to have caused the change in the behaviour.

## 5) 'Star charts'

Improving performance through recognising good behaviour is an age-old trick with children, who tend to thrive on seeing stars added to a chart. In the workplace we also respond to good feedback. Showing performance as a comparison allows progress to be

seen at a glance, instills a degree of competitiveness and prompts the sharing of good practice. We praise the better performers rather than drawing attention to the poor performers. There is little doubt that the poor performers will be silently taking note to take action to try and improve on their performance.

The chart below shows how we did this for our business mileage target last year.




We provide information on individual performance so that line managers can do their jobs effectively. For example, we publicise the top 100 highest mileage lease and casual (staff's own vehicle used on business) car drivers on a quarterly basis. We have a policy that restricts the number of miles that can be driven in a casual vehicle as on average these vehicles are older and more polluting.

## 6) Find the more vocal staff members

Staff who are vocal and listened to by colleagues make very good champions at a local level. Involving them can really make a difference – they can publicise performance for their team to see, and they can challenge established work practices because they understand the way it works.

## 7) Inclusive green groups and an Idea scheme

Encouraging staff to develop their own ideas and take action is important to change their behaviour but also to prompt changes in other peoples behaviour.

We have a 'Your Idea' scheme where our staff are encouraged to submit ideas for how we can become more efficient as an organisation. On average, a third of all these ideas relate to sustainability. We respond to every single one and provide feedback to the author. Some successful ideas that have been implemented are:

- taking the bulbs out of wall lights at our London Head office as they were consuming electricity for a decorative purpose only;
- enabling employees to use the London Cycle Hire scheme when travelling on business in the capital.




Local green groups are encouraged and supported. The following screen shot shows the start of one newsletter produced by a particular area in the east of England. Recognition is important to staff who give up their time to work on these groups. The more recognition, the more the group appears to grow and the more successful it seems to be at changing local behaviour.

## 8) Limit or remove their choices

In certain instances the best way to improve environment performance is to limit or remove the choice as some of our staff will not do what we want for various reasons. Our lease car policy is an example of this. Eligible staff now have a very limited list from which to choose a car. The list is changed quarterly and when it is compiled, health and safety, environmental and finance criteria are used. When staff choose a car they are thinking about many factors, including personal ones.

Another example is the removal of bins from under desks. If a bin is there, people tend to use it because of its convenience rather than taking the waste to the dedicated recycling or landfill bins.

## 9) Constant badgering – relentless but consistent

Regular, ongoing communications show our commitment and the drip, drip way of changing behaviour can work because it reinforces the messages. Think about who you

### Example – footers on e-mails

Here at the Environment Agency we have reduced our average water use to 18 litres per person per day. This compares to a UK office average of 30 litres per day. Please support our water reduction initiatives.

Every month we send out a footer that can put at the end of e-mails. It is communicated by the Head of Internal Environment Management to a large network of staff, who in turn forward it on. We end up with a lot of staff using the footer and suggesting ideas for the next one.

want to influence because pop ups and screen savers for our laptops and computers may work for office based staff but remote staff who drive out of the depot to work each day may need a message on their steering wheel every few months.

During our themed quarters we engage staff with quizzes and local events. We give environmentally friendly prizes and bring in senior managers locally to promote the local events. We also include messages on payslips.

## 10) Publicity

There can be a big impact on how staff behave through external recognition or publicity. We have found more general enthusiasm about environmental change from our staff. People want to be proud of the company they work for.

Our award from the *Sunday Times* has shown our staff that we are as good as many large companies out there that spend a great deal of time on marketing their environmental plans. A *Guardian* article on our national wind turbine project also prompted much internal interest along with sustained publicity on our new head office in Bristol. The new office has achieved one of the highest scores ever awarded under BREEAM (BRE Environmental Assessment Method).

## …and finally, make it fun!

Changing staff behaviour to achieve what you want is not easy and does take time and effort. It is important to start somewhere, help others understand your priorities but keep it manageable and acknowledge that you can't do everything in one go. Prioritising five things to do well is sensible, and when you have done them, come up with the next five.

We have made good progress at improving our environmental performance and protecting the environment from our own activities but it could not have been done without the commitment of our staff. Our staff are our greatest asset and responsible for both what we have achieved to date and what we can achieve in the future.



# Green buildings: Understanding the role of end user behaviour

**Mindy Hadi and Chloe Halfhide,** *BRE*

With the advent of new technologies, driven by the move to low carbon design, buildings are becoming increasingly complex to operate both for the facilities professional and the end user. Designers of buildings, systems and controls are not always aware of the impact of their decisions on the occupant and do not always take account of the principles of user-centred design. The findings of this research show that if users are uncomfortable they will adapt the building to meet their needs, even if this increases energy wastage and compromises safety.

Buildings are responsible for about 40 per cent of the UK's energy consumption (Perez-Lombard et al., 2008) although until recently energy saving was not high on the list of priorities for an occupying organisation, as energy costs represented a very small percentage of a company's total costs compared to labour and other operating costs. However, this position has changed substantially in recent years: concerns about the impact of climate change and continuity of energy supplies are no longer the preserve of a few lone voices but becoming mainstream. New Government regulations and a drive to reduce energy bills and carbon emissions have meant that new buildings are being designed to be as energy efficient as possible; many use advanced, innovative systems to heat, cool and light the building. These include features such as movement-activated sensor lighting, water efficient appliances, automatic opening windows, etc. However, it has frequently been found, by BRE researchers and others, that these new buildings are not meeting their design targets for energy and water use.

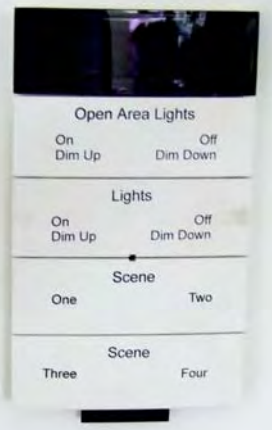
## Recognising the role of occupant behaviour

It is thought that one of the main reasons for this discrepancy is that the role of the end user is often underestimated in building and systems design. Bordass and Leaman (1997) found that designers and their clients often appeared to underestimate or ignore how systems (physical and human) can conflict with each other and that occupant behaviour is often stereotyped or ignored.

The World Business Council for Sustainable Development report (2007) recognised the role of occupant behaviour as having 'as much impact on energy consumption as the efficiency of equipment', yet little research has been carried out specifically on these behaviours or on potential interventions that address their negative impact on energy conservation.

Researchers trying to model or simulate how occupants use energy dependent systems in buildings have recognised the difficulty of this task, due to the variations in actual user behaviour outside the laboratory context (Robinson, 1997). Nicol (2001) points out that this simulation requires assumptions to be made about the behaviour of occupants and, in

particular, their use of building controls (such as windows, blinds, heaters or fans) but that these assumptions are often not based on actual, observed behaviour but on the basis of best practice or in an experimental way to test the effect of different behaviour patterns.




Multi-function, counter-intuitive, complex switches incorporating features such as dimming or scene lighting with the on/off function that even experienced users did not understand how to operate.

## Post occupancy studies

One way of addressing this lack of evidence is through the use of post occupancy evaluation (POE), the process of obtaining feedback on new or recently completed buildings. Although its value has been recognised since the 1960s, there is still little evidence of this being carried out in a consistent way, and certainly not routinely on all major construction or refurbishment projects (Cooper, 2001). POE provides a check on building performance in use from a technical, social, functional and economic perspective and also monitors the understanding and behaviour of occupants, enabling lessons to be learned that can be taken into account to improve design and implementation on future projects.

BRE has been carrying out POEs for a number of years and has found that, despite the advent of new technologies and building control systems, complaints by occupants about thermal comfort, ventilation, noise, and lighting are still endemic, even in buildings designed with sustainability in mind. Many researchers have suggested that by removing all occupant control and relying solely on computer technology to govern the building conditions, it would be possible to provide an environment that would be optimised for user comfort and energy consumption (Sharples et al., 1999). However, the evidence indicates that occupants have a preference for buildings where they have some element of control over the environment, even if this does not provide optimal conditions (Leaman & Bordass, 2001).

In spite of this evidence, many modern working buildings are not designed to provide much occupant control – there is also little opportunity in a typical open plan office to allow for individual differences or choice of setting. Occupants will therefore look for ways of making themselves comfortable by adapting their workplace to their needs, even if this means 'sabotaging' automated systems – researchers have noted automatic windows propped open by books, makeshift movement devices to override automatic lighting systems and cold water placed under thermostats to increase the room temperature.




Large banks of switches with no labels or 'mapping' to indicate which light each switch controlled, with the result that all the lights in a large, open-plan office were switched on, even if there was only one occupant. One enterprising facilities manager had taken the trouble to address this issue by attaching his own labels

## BRE research

Recognising a need to examine actual occupant behaviours that impact on the energy efficiency of buildings and to provide guidance for designers to take these into account, the BRE Trust funded a research project involving a systematic investigation of eight buildings from a variety of sectors and regions over a 12-month period in 2008-9. The buildings were selected based on their energy-efficient and sustainable design. The case studies investigated the ways in which occupants actually used their buildings, whether they were used as they were designed to be, and the reasons for any discrepancies. Each case study visit comprised interviews with the architect, building services engineer and facilities manager of each building as well as focus groups with occupants and an observational walk-through.

## Summary of findings

The research team found that, as hypothesised, building occupants were adapting their workplaces to meet their own needs, and exhibiting behaviours that increased energy usage, compromising the original design intent for a low energy building. However, these behaviours were often inadvertent, resulting from a lack of understanding of the systems installed, poor communication to occupants about how to use the systems and, most of all, a lack of consideration of the principles of user-centred design in the design of environmental systems and controls. These principles, such as feedback, mapping, affordances, intuitive controls, etc., as advocated by researchers such as Norman (1988) are not new and, although they have been discussed by psychologists and ergonomists for many years, they appear to have fallen out of use.

This was particularly apparent with reference to the design of lighting controls – all the buildings visited had been designed with energy efficient lighting; however, in the majority of cases occupants had experienced difficulties in controlling the lighting with the result that lights would be left on unnecessarily. Issues noted included multi-function controls which were often counter-intuitive or contained a number of complex switches incorporating various functions such as dimming with others such as the on/off function or scene lightings (see first picture). It was noted that even experienced users did not understand how to operate some such switches. Also large banks of switches without labels can be a problem. These sometimes have no labels indicating which light each switch controlled. Occupants may have to use trial-and-error and this can even result in all lights in an open-plan office being switched on, even if there was only a single occupant! The second picture illustrates how one enterprising facilities manager got around the problem by attaching his own labels, while the third picture, below, shows how even simple switches can be improved by providing feedback about whether they are in the on or off position.

As mentioned above, a recurring theme throughout the project was the lack of simple information for occupants explaining how to control their environment when new technologies and systems are installed, again increasing energy usage. Designers as technical experts tend to forget that the end users of their technologies are not – examples included occupants using an energy -intensive mechanical ventilation system rather than using the high level opening windows which formed the natural ventilation strategy; or

bringing in energy wasteful back-up heating and cooling devices (fans, heaters, etc.) that worked against the building's systems.



Rocker switches that did not provide feedback as to whether they were in the 'on' or 'off' state.

## Conclusions

With the advent of new technologies workplace buildings are becoming increasingly complex to operate but designers of buildings, systems and controls are often unaware of the impact of their decisions on the ordinary occupant. If buildings users are uncomfortable they will take control of their environment and adapt it to suit them, even if this may be wasteful or even dangerous. Part of the problem is that design tends to be viewed as a discrete activity with pressures on time and budgets constraining consideration of user- centred design but without this, we will still be building energy efficient buildings that do not deliver. Some key recommendations for designers from the research include:

- Keep the design simple. Automation is not always the answer.
- Give occupants some element of control – otherwise they will take it anyway.
- Ensure adequate and appropriate training and information for all building occupants. It is important that occupants understand not just how to control the building but why they are being asked to control it in a specific way that may be counter-intuitive.
- Carry out regular post occupancy evaluation (POE) assessments with particular emphasis on end user behaviour to check building performance in use.

The detailed findings of the research are reported in Hadi and Halfhide (2009), which provides targeted recommendations for designers, facilities managers and building users, showing how negative behaviours can be avoided and their impact reduced.

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# Green organisational performance: Behavioural change interventions based on the theory of planned behaviour

**Richard Parker**, *Boots Opticians*

Measuring organisational performance has always been a difficult task, and one that occupational psychologists have been inherently interested in as they endeavour to improve this performance through psychological means. But in order to assess the merit of a particular strategy, we need to be able to measure 'high' performance. This also allows us to look at 'high performing' organisations more closely to emulate their success (Hubbard, 2009). A vast array of key performance indicators (KPIs) have, in the past, been indicators of a more general 'bottom line' measurement which have sought to illustrate economic performance. More recently, measures of environmental and social performance have been included to determine organisational performance as a whole, popularly termed a Triple Bottom Line (TBL) (Elkington, 1997). Hubbard (2009) defines each aspect of the TBL as follows: **economic performance** is straight forward and encompasses purely financial aspects of the company, such as sales and profit growth; **social performance** is the impact an organisation has on the communities in which it is based and also those working for the company; and **environmental performance** generally refers to the amount of resources used by organisations (energy, water, land), as well as the by-products of its activities (waste, air emissions, chemical residues).

## Why do businesses need to measure environmental performance?

The call for non-financial measures of performance arises from stakeholders expectations about the social and environmental responsibilities of the companies in which they invest. As reported in *The Economist*, even as long ago as 2004 almost 75 per cent of large international companies were under pressure to report on more than just their economic performance, describing existing measures as mediocre or poor. A number of financial markets reflect this change in opinion; The Dow Jones sustainability Global World Index was developed so that investors could make socially responsible investments and sustainability reporting has been made compulsory in the Paris and Johannesburg stock exchanges and for the top 200 organisations listed in the UK (Kleiner, 2007).

It is hard to argue that environmental issues aren't a major topic within the media and science at the moment. Davis and Challenger (2009, p.112) explain how 'Climate change is generally accepted as the biggest single issue facing humankind in the 21st century'. The IPCC (2007) predicts temperature rises of at least 2°C (probably more) which is likely to cause dramatic weather changes; less rain and intense heatwaves will cause droughts and fires, intense storms will cause floods, which together with rising sea levels will put coastal cities and even entire islands at risk. These weather changes will also cause drastic problems for its inhabitants (both humans and animals), as diseases will spread more quickly, crops will be more difficult to grow, leading to starvation and wars over diminishing resources, extreme temperatures will lead to mass mortality, and animal

species will be hit and even may become extinct (Walker & King, 2008). Some of these effects can already been seen in the poorest parts of the world and it is widely agreed that we have less than 15 years to act on our greenhouse gas emissions to stop dangerous impacts (Spence, Pidgeon & Uzzel, 2009; Walker & King, 2008).

DEFRA (2008) have identified 12 key behaviours that will help to combat climate change within the areas of personal transport (e.g. use more efficient vehicles and avoid unnecessary flights), energy, waste and water in our homes (e.g. insulation, recycling and more responsible water usage), and eco-products (e.g. eat more locally produced, seasonal food). However, just listing behaviours does not lead to behaviour change, and further to this, favourable attitudes toward a behaviour is not enough for that behaviour to be carried out (Ajzen, 2001). In addition, changing behaviours at home may not be the best way to combat climate change, as according to recent government studies by the DTI (2006) and DEFRA (2006), the non-domestic sector (e.g. services, public sector and industry) has a significantly higher impact on climate change than residential sectors. In fact, the UK's service and industry sectors contribute twice the amount of carbon (MtC) to the atmosphere (DTI, 2006) and industry and commerce almost three times the amount of annual waste (DEFRA, 2006).

## Who already records environmental performance?

A report by The Climate Group (2007) shows that some companies are already taking responsibility for their actions. The report details case studies from 84 corporations, 36 cities and 17 regional governments, who were collectively responsible for 3.5 billion tonnes of $CO^2e$ (equivalent) emissions – nearly 8 per cent of the global total. These organisations managed to reduce their emissions by over 497 million tones $CO^2e$, an average cut of 14 per cent, although some managed cuts of over 70 per cent. A report by *Nature* (Kleiner, 2007) also detailed how other business have been taking an interest in their environmental performance as Google announced it would be carbon neutral by the end of 2008 and Rupert Murdoch made a similar pledge with regards to his media empire. Other examples given to support this awareness were investments made by Richard Branson for the Virgin group, which pledged to invest $3 billion to develop low-carbon fuels, BP promised $350 billion to reduce its internal emissions and $8 billion into alternative energies, and a number of business coalitions have been set up calling for governments to regulate greenhouse gas emissions, one surprisingly even headed by General Motors.

## Hard-headed business decisions or social responsibility?

Some have argued that these changes have more to do with 'hard-headed business decisions than social responsibility' (Kleiner, 2007, p.40) as executives try to remain one step ahead, envisaging government-imposed caps and emissions taxes not to be far away. In fact, the European Union has already imposed a cap and trade system for major emitters, which it plans to extend further and place more stringent caps than the ones already in place (Kleiner, 2007). Whether it is actually an increase in social responsibility or not, the business gains speak for themselves as the climate report mentioned previously, which detailed such immense emissions savings, also described immense financial savings as the 53 cities and regions reported $64 billion worth of savings. The report also explained how

it wasn't only direct financial gains seen by the organisations that were 'being green', as indirectly they would gain a better reputation and an increased brand value. Further examples of this have come from Marks and Spencer and BP who have even used green positioning as a strategic marketing device (Jackson, 2005). So, whether it's a social responsibility, a cost cutting exercise, a marketing ploy or trying to remain one step ahead of legislation, the pressure is mounting on business to be aware of its environmental performance and the field of occupational psychology is very well-placed to shed new light on how organisations can deal with such change.

## Where are we now?

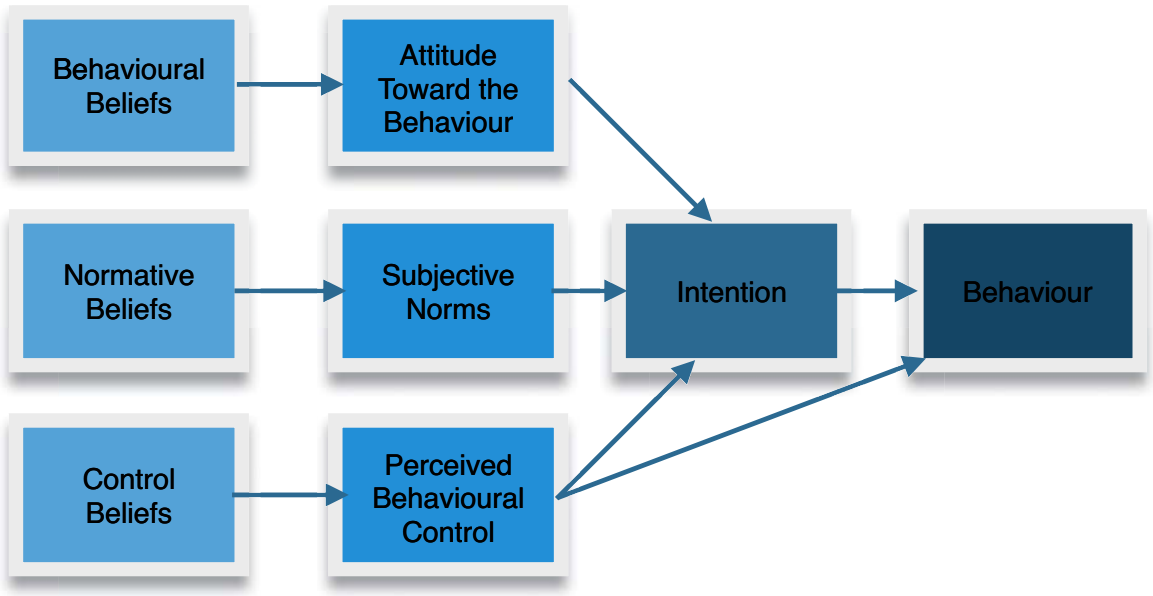
While occupational psychologists as a rule concern themselves with the social performance of an organisation, they do so only indirectly with respect to the economic performance of an organisation. Until recently, however, there has been relatively limited attention given to environmental performance. As organisations are now coming under pressure to focus on their environmental performance, it would seem that the insights that psychology has to offer into workplace behaviour can be usefully harnessed in the pursuit of greening an organisation. As Davis and Challenger (2009) explain, psychologists are already successfully changing behaviour in many areas and by 'reframing the green issue as a more traditional organisational problem, just as any other in the workplace' (p.113) there is no reason not to triumph with green issues also. Despite this, they warn of a lack of research undertaken in the areas of environmental impact at work and urge for more to be done in this area – from the 8,595 articles returned from their multiple database search the vast majority looked at green behaviours in the home while the workplace was almost entirely overlooked. A well-established theory of individual behaviour upon which many successful interventions to bring about waste reduction in a residential setting have been based is the theory of planned behaviour and in the remainder of this paper I outline how it can be applied to green initiatives in a workplace setting.

## The theory of planned behaviour

The theory of planned behaviour (Ajzen, 1991) takes a cognitive approach to predicting behaviour, assuming that decisions about behaviour are rational and are determined by a logical sequence of cognitions. The theory of planned behaviour is an extension of the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) that came in response to calls to abandon the attitude concept as a means to predict behaviour due to its unimpressive predictive power (Wicker, 1969).

The theory of reasoned action and theory of planned behaviour stipulate that behaviour is driven by an individual's intentions to perform that behaviour and in turn, intentions are driven by a person's attitude toward the behaviour. Attitudes by themselves don't always act as significant predictors of behaviour and so the theory of reasoned action also includes subjective norms, as well as attitudes in predicting intentions. The theory of planned behaviour took this a step further still and added the notion of 'perceived behavioural control', as represented in Figure 1.

**Figure 1:** Pictorial representation of the Theory of Planned Behaviour




Attitudes are defined as beliefs about the predicted outcomes of a behaviour and the evaluations of the pleasantness of each of these outcomes. For example, someone could consider looking good to be a positive outcome of keeping fit and they may rate that benefit moderately. However, they could also see the aches and pains from keeping fit as a negative outcome and rate that cost highly, which overall would lead to an unfavourable behavioural belief and hence an unfavourable attitude to keeping fit.

Subjective norms are defined as beliefs about whether others would want to perform the behaviour in question weighted by the motivation to comply with that person. Adding to the previous example, the person in question could have a neighbour that likes to keep fit but their motivation to comply with their neighbour may be low. On the other hand, their brother may not keep fit and if the person is closer to their brother they may have a stronger desire to comply with him.

The theory of reasoned action didn't include a measure of perceived behavioural control as it assumed that behaviour was under volitional control, i.e. that someone could perform the behaviour if they wished. However, as shown on many occasions in psychological research there are often personal and environmental barriers. Perceived behavioural control is an individual's perception of their ability to perform the behaviour in question and hence the constraints they perceive in doing so. It is caused by beliefs concerning whether resources and opportunities are available to perform the behaviour in question and what the expected impact is of each of these factors. In this case the person in the example may have no gym nearby and perceive this as an important factor in being able to keep fit.

It is thought that the more favourable a person's attitude, subjective norm and perceived behavioural control, the stronger intentions they will have and hence a higher probability that they will carry out the behaviour in question. However, as Ajzen (1991) points out, the 'relative importance of attitudes, subjective norms and perceived behavioural control in the prediction of intentions is expected to vary across behaviour and situation' (p.188). Hypothetically this means that if attitudes and subjective norms are strong, perceived

behavioural control may be less of a predictor of intentions. Additionally, as well as influencing intentions, under certain circumstances perceived behavioural control is also thought to influence behaviour directly. This direct relationship arises because, no matter how strong ones intentions are, personal and environmental barriers will also be able to affect behaviour and 'the addition of perceived behavioural control over behaviour should become increasingly useful as volitional control over behaviour decreases' (Ajzen, 1991, p.185). All this means that under complete volitional control, the framework laid down by the theory of reasoned action, whereby attitudes and subjective norms influence intentions which in turn influence behaviours, will be optimal. However, when behaviour is not under complete volitional control, perceived behavioural control will act as a moderator between intentions and behaviour, as well as guiding behaviour directly.

## Effectiveness of the theory of planned behaviour

Past meta-analyses have examined the constructs of the theory of planned behaviour using multiple regression analysis, a statistical tool that calculates what variance ($R^2$) of a measure, in this case intentions or behaviour, are explained by predictor variables; attitude, subjective norm and perceived behavioural control for intentions, and perceived behavioural control and intentions for behaviours. Ajzen's (1991) initial review found that the theory of planned behaviour variables accounted for between 18 per cent ($r = 0.43$) to 88 per cent ($r = 0.94$) of the variance of intentions, with an average of 50 per cent ($r = 0.71$). Armitage and Conner's (2001) meta-analysis of 154 studies concluded that 39 per cent ($r = 0.62$) of variance in intentions could be explained by the same variables, and Perugini and Bagozzi (2004) found even less variance accounted for, at only 32 per cent (see Table 1).

| Authors | Year | Explained Variance |
|---|---|---|
| Ajzen | 1991 | 50% (average) |
| Armitage & Conner | 2001 | 39% |
| Perugini & Bagozzi | 2004 | 32% |

**Table 1:** Summary of results from studies showing variance in Intentions explained by Theory of Planned Behaviour variables

Similarly, Ajzen found between 4 per cent ($r = 0.20$) and 61 per cent ($r = 0.78$) of variance in behaviours was explained by intentions, with the average at 26 per cent ($r = 0.51$), whereas Armitage and Conner found 22 per cent of the variance was accounted for. Other studies concluded that the figure was around 20 per cent (Randall & Wolff, 1994), with Sheeran and Orbell (1998) reporting a similar figure of 19 per cent; however, this did not include perceived behavioural control, which can act directly on behaviours and which, when included, increases the amount of variance explained to 27 per cent (Armitage & Conner, 2001). These results are summarised in Table 2.

| Authors | Year | Explained Variance |
|---|---|---|
| Ajzen | 1991 | 26% (average) |
| Armitage & Conner | 2001 | 22% |
| Sheeran & Orbell | 1998 | 19% |
| Randall & Wolff | 1994 | 20% |
| Armitage & Conner (intentions & PBC) | 2001 | 27% |

Table 2: Summary of results from studies showing Variance of Behaviours explained by Intentions

## Social norms in the theory of planned behaviour

Despite the strong theoretical basis for a normative construct, studies have also shown it to have a weak relationship with behaviour (Armitage & Conner, 2001). Ajzen has explained this result in terms of cultural differences as Western cultures tend to be more individualistic and so rely more on moral obligations rather than the opinions of others. Arnold et al. (2005) believe this individualism instead means that people in Western cultures are more inclined to think they are not influenced by others opinions, even though they are. An alternative argument put forward by Armitage and Conner, on the other hand, suggests that the reason could lay in the strength of the measures. This opinion is supported by the idea that the way people identify with the groups from which the norms are derived is important, as the norms of a 'behaviourally relevant reference group' (Armitage & Conner, 2001; p.225) are more likely to influence intentions (Terry, Hogg & White, 1999).

## The theory of planned behaviour in recycling research

There have been a number of studies examining the theory of planned behaviour in the context of recycling behaviour. For example, Tonglet, Phillips and Read (2004) found in a study of 191 participants that attitudes were the only significant predictor of recycling behaviour when a local kerbside recycling scheme was introduced, accounting for 26 per cent of the variance in intentions. A similar study by Knussen et al. (2004) found the theory of planned behaviour variables predicted an additional 29 per cent of intentions after demographic factors were found to predict 5 per cent when entered at the first step of the regression analysis. In this study, attitudes and perceived behavioural control made significant contributions and again subjective norm did not.

## The theory of planned behaviour in the workplace

The use of the theory of planned behaviour in the workplace is rather more sparse, especially in relation to the investigation of environmental behaviours. A number of other issues have, however, been studied. Hill, Mann and Wearing (1996), for example, used the

theory of planned behaviour to investigate benchmarking intentions among managers with experience of benchmarking and those with none. They found the determinant variables accounted for 57 per cent and found attitudes and subjective norms to be significant, but not self efficacy (a measure previously used for perceived behavioural control). Relocation decisions and intentions were investigated by Prehar (2001), who employed qualitative methods (i.e. content analysis) and used the theory of reasoned actions as a framework. Evidence was found to support the theory of reasoned action variables influencing relocation decisions and intentions. However, social inputs seemed to have more impact on behaviours than intentions. Because of this Prehar also questioned the effectiveness of the subjective norm measure. Similarly, Peach, Jimmieson and White (2005) investigated local government employees' intentions to carry out behaviour that supported building relocations, because employee support is important for organisational change. Again, results supported the use of the theory of planned behaviour in a workplace setting, however only one of the six measures used for perceived behavioural control was significant, casting doubt on the usefulness of the measure as a whole. Peach et al. (2005) were particularly interested in 'the significant result found for normative beliefs' as they believed it suggested 'social influence may help to create social pressure among employees to act in change-supportive ways' (p.18). Elliott, Jobber and Sharp (1995) found that the theory of planned behaviour variables explained 74 per cent of variance in intentions when investigating intentions to commission marketing research. This result was much larger than the previous meta-analysis and reviews discussed and in fact all the studies of theory of planned behaviour in the workplace showed a greater proportion of variance than the previous studies that have been mentioned. Elliot put this down to more cognitive thought when dealing with problems at work and as the theory of planned behaviour takes a cognitive approach it seems to have a particularly strong predictive power when applied in the workplace. Furthermore, it could also be an indication of the greater complexity when examining the behaviour of individuals in an organisational setting as it could be argued that they are more constrained by social and organisational factors than behaviour outside of the workplace, all of which suggests that there could be considerable benefit in applying it to the study of pro-environmental behaviour at work. Hence the research reported below does just that.

## The theory of planned behaviour in predicting recycling behaviour in the workplace

The research reported below aimed to look at the theory of planned behaviour in a workplace setting and in particular the effectiveness of the theory of planned behaviour variables in significantly predicting recycling behaviour in the workplace. As discussed above the subjective norm measure has proved to be unreliable and so the present research framed the normative questions within a workplace setting, for example 'people at work think that I should recycle'. The customary questions, such as 'most of my friends think that recycling is a good thing to do', were also included so that it could be investigated what additional value the reframing would add. A brief overview of the results of the current research is given here, but more in-depth analyses are available from the author (see Parker, forthcoming).

Consistent with the increased proportion of explained variance of behaviours and intentions within a work place setting the research carried out showed that 48 per cent of the behavioural intentions were explained by the theory of planned behaviour variables (perceived behavioural control and subjective norms were significant; however, attitudes were not). This result showed greater explained variance than previous meta-analysed (Armitage & Conner, 2001; Perugini & Bagozzi, 2004), although not than Ajzen's (1991) initial review. However, the variance of behaviours explained by intentions and perceived behavioural control was 58 per cent, which was significantly greater than all the previous meta-analysis and reviews (Ajzen, 1991; Armitage & Conner, 2001; Sheeran & Orbell, 1998; Randall & Wolff, 1994). Furthermore, this study found that by reframing the social norm questions to look at work norms, this significantly added 20 per cent extra to the explanation of the variance in intentions supporting the importance of social influence within organisations.

These results strengthen the idea that the theory of planned behaviour has greater relevancy within a workplace setting. This could be because colleagues are acting more mindfully at work and are not 'on automatic' as they may be at home. Or there could be a greater need to comply with rules and regulations at work than outside of work and therefore people are more likely to act on their normative beliefs, i.e. doing as their peers do or doing as superiors say, rather than what they want to do. Hence this may explain why attitudes failed to correlate with intentions but subjective norms did. Furthermore, it seems that if you intend to do something at work and believe you have the necessary skills and tools to carry it out, you are more likely to carry this intention through to action. This again could be down to the social and organisational pressures, but also the greater importance of control an individual perceives that they have. This is consistent with the literature on organisational change (see Senior & Swailes, 2010) – if an employee feels they have little control over a situation they are less likely to carry out that behaviour.

With these results in mind there are certain steps an organisation may want to take if introducing (or reintroducing) recycling or other pro-environmental behaviours into the workplace. First of all changing attitudes is only the first step and does not always correlate with action, as this research illustrates. However, the majority of other studies and reviews have found this to be a robust antecedent of intentions (and so behaviour) and it is, therefore, an important first step. The literature around cognitive behavioural therapy (e.g. Branch & Willson, 2010) and social marketing (e.g. McKenzie-Mohr & Smith, 2006) provide just two examples from the wider literature around how to influence attitudes. However, because changing attitudes alone does as not guarantee subsequent behaviour change and, given that many attitudes are implicit and therefore difficult things to influence, it is also important to look at other variables suggested by the theory of planned behaviour.

Consistent with the finding reported by Peach et al. (2005), that 'social influence may help to create social pressure among employees to act in change-supportive ways' (p.18), the results from this study indicate that social norms should also be considered when encouraging pro-environmental behaviours. It can't be concluded from the present study what groups different employees will be motivated to comply with and further research is needed here, but it is likely that this will differ from employee to employee so messages should be given by a range of different employees (i.e. senior management, middle

management and other colleagues), as well as environmental champions from throughout the organisation. The same message from a range of employees will ensure that recipients with different inclinations will be responsive to this idea and this, in turn, can cause a snowball effect whereby the recipients become the purveyors and motivate other recipients and so on. In a similar vein, feedback and praise of positive behaviours must also be given by a range of employees, not just by the immediate line manager, as reinforcement will differ in strength from employee to employee depending on the person it comes from. Although it may seem like a difficult task to cascade messages and feedback from several different sources throughout the organisational hierarchy, the prevalence of modern technology makes this much easier as the communication doesn't have to be face to face. Consider scope exists to engage in novel and creative communications interventions such as mass video messages and individual feedback via e-mail and newsletters, for example.

Finally, perceived behavioural control can be changed by giving employees control, which, as this research indicates, would lead to an increase in positive action. This control can be moderated by external forces, for example by ensuring that recycling or other pro-environmental schemes are designed with convenience in mind and based on the needs of the organisation and its members. For example, not having to take recycling to a specific bin on another floor when they already have numerous other work commitments and deadlines, or not using a recycling bin that has to be large as it is only going to be collected once a month as this would discourage people from keeping one in their already crowded office. Making pro-environmental behaviour as easy as possible for the user and hence giving them a perception of control is important. Control can also be increased by more of a sense of internal volition, by involving employees in the implementation of schemes and giving them the choice of how they want to recycle, for example, or how they want the message cascaded and how they want feedback and/or rewards. So whether organisations want to improve their environmental performance because of social responsibility, a cost cutting exercise, a marketing ploy, or trying to remain one step ahead of legislation, the utilization of the theory of planned behaviour in the workplace can provide a great deal of insight into how this can be done by changing attitudes, capitalising on social networks, and giving people control. This, in turn, is ultimately only going to improve a company's triple bottom line.

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# Green behaviour: Barriers, facilitators and the role of attributions

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In response to the UK government's recent emphasis on sustainable development and the reduction of greenhouse gas emissions (e.g. the UK Low Carbon Industrial Strategy; BERR, 2009), a number of large organisations have been undertaking initiatives to ensure effective carbon management and the prudent long-term use of resources. Initiatives such as these reflect the increasing recognition of the significance of the non-domestic sector with regards to climate change and sustainability. This paper reports the findings of a study of green behaviours by staff from one particular large organisation – a London university. It employs both qualitative and quantitative approaches to investigate sustainable behaviour within this large organisation. Twenty members of staff were interviewed about their practices at work in relation to sustainable behaviour. Participants were questioned about a variety of subjects, from paper recycling to energy use. Attributions (the causes people attribute to events) were extracted from interview transcripts and coded using the Leeds Attributional Coding System (LACS; Stratton et al., 1988). Results indicated that positive behavioural outcomes are associated with Internal, Personal and Controllable attributions. It is proposed that personal 'meaningfulness' within the workforce is resource that can be tapped into in the pursuit of improved sustainability.

The university featured in this paper has been involved in a number of environmental initiatives. For example, it joined 14 other UK universities in registering for the Carbon Trust's Higher Education Carbon Management (HECM) Programme. It is expected that this will help the university to react positively to environmental, sustainability and climate change pressures by establishing carbon management as a core management process. The university has also created a sustainability group made up of staff from across the organisation in order to plan, co-ordinate, monitor and report on the implementation of the university's sustainability policy.

McMillin and Dyball (2009) report that many universities are taking proactive steps towards reducing the environmental impact of their operations. However, a recent report by the Chartered Management Institute (CMI) suggests that, while the importance of the green agenda is increasingly well-recognised, too few organisations are taking the urgent action needed to transform the UK economy for a low-carbon future (Wehrmeyer, Leitner & Woodman, 2009). There is also a distinct gap in research examining the environmental impact of people at work. Of the 165 relevant articles examined in a recent review of green behaviours (Davis & Challenger, 2009), the vast majority focused on sustainable behaviours in the home – the workplace was almost entirely overlooked. This is despite the consensus that an understanding of human attitudes and behaviour in the workplace is necessary in order to help change behaviour away from environmentally harmful activities and towards environmental sustainability (Lorenzoni & Pidgeon, 2006).

Psychologists are able to contribute to climate change research through the identification of the barriers that prevent people from changing their behaviour. This in turn should help to determine what actions need to be taken to encourage sustainable development behaviours (Spence, Pidgeon & Uzzell, 2009). The CMI suggest that developing an understanding of employees' personal attitudes about climate change is an important step in implementing a successful environmental management programme (Wehrmeyer et al., 2009).

## Attributions as a key psychological mechanism

The study had two key aims: to explore the barriers identified by staff to acting in a sustainable way at work, and to investigate the causes attributed to acting (or not) in environmentally-responsible ways. In addition, this study aimed to explore differences in attributions between Environmental Champions and non-Champions. Environmental Champions are members of staff at City University who volunteer to raise environmental awareness and foster a culture of responsibility within their department. According to attribution theorists, individuals take part in a process of sense-making in order to identify the causes of important events (Wong & Weiner, 1981). An attribution can be defined as 'any statement in which an outcome is indicated as having happened, or being present, because of some identified event or condition' (Stratton et al., 1988, p.36). Attributions are a fundamental part of social perception, and the way in which an individual explains an event is likely to have an impact on subsequent judgements, affective reactions and behaviour (Fiske & Taylor, 1991; Silvester, 2004; Weiner, 1986). Therefore, in terms of helping people to develop the attitudes, skills and knowledge to make informed decisions regarding sustainable living, attribution theory has an important role to play.

There could be a number of causes attributed for particular events, but Weiner (1979; 1986) suggests that these causes can be classified along three dimensions. These dimensions are: *locus*, which refers to whether an event has occurred because of dispositional (internal) or situational (external) factors; *stability*, which indicates the extent to which a cause is seen to be either stable or unstable in the future, and *controllability*, which refers to the extent of control individuals perceive that they have over the outcome. A more recent addition is the *personal-universal* dimension, which refers to whether any element of the attribution relates to something distinctive about the speaker (Stratton et al., 1988). In total, six dimensions were employed in the current study (see Table 1 for an account of each dimension).

Research suggests that the causal dimensions are more strongly related to subsequent reactions, intentions and behaviours than the specific causes themselves (Russell, 1982; Weiner, 1986). For example in the context of sustainability, an individual might attribute different causes for the reason they did not recycle a piece of paper: either *situational* causes such as the lack of recycling facilities (external attribution); or *dispositional* causes such as lack of knowledge of the importance of recycling or simply not caring (internal attribution).

It follows therefore that the way in which the attribution is made can result in different affective, cognitive or behavioural outcomes (Weiner, 1985; 1986). Thus in a university context, if negative outcomes (such as not recycling) are associated with external attributions (such as lack of recycling facilities), this can be dealt with using organisational

| Dimension | Description |
|---|---|
| Positive-Negative | This dimension depends on whether any of the three elements of the attribution (cause, link outcome) relate to behaviour that may have an impact on the Earth's environment. Positive attributions reflect pro-environmental behaviour (e.g. recycling waste paper) whereas as negative attributions indicate harmful or unhelpful environmental behaviour (e.g. leaving computers on overnight). |
| Internal-External | Internal attributions indicate causes which are directly related to the individual, whereas attributions coded as external reflect causes which are attributed to impersonal or situational factors (Stratton et al, 1988). |
| Controllable-Uncontrollable | This dimension indicates how much influence an individual believes they have over events. A cause is controllable when the speaker could reasonably be expected to influence the outcome without undue effort (Silvester, 1997). |
| Stable-Unstable | A stable dimension indicates causes that are believed to be relatively permanent or unchanging, and thus likely to influence future outcomes. An unstable cause is typically a transitory factor that will not influence outcomes very far into the future (Munton et al., 1999). |
| Global-Specific | This relates to the importance of the cause. A cause coded as global would be one which could potentially influence several different outcomes. A cause rated as specific would be one which has only a minimal impact on a narrow range of outcomes (Silvester, 1997). |
| Personal-Universal | This dimension depends on whether any of the three elements of the attribution (cause, link outcome) relates to anything distinctive about the speaker. Personal attributions mean something unique to the speaker is implied. A universal attribution applies when there is no indication that the individual sees anything idiosyncratic in their statement (Stratton et al, 1988). |

**Table 1:** Description for Causal Dimensions of Attributions

interventions (e.g. adding more accessible recycling bins). On the other hand, if negative outcomes are associated with internal attributions (such as not caring about recycling paper) then it may be harder to deal with using interventions.

Theoretical rubrics such as the Theory of Planned Behaviour (TOPB; Ajzen, 1985) have proven useful in predicting certain specific pro-environmental behaviours (Stern, Dietz & Guagnano, 1995) and, based upon such findings, the current research suspected that control was likely to be a significant factor in relation to sustainable behaviour in the workplace. Other relevant factors that were thought to be of significance included whether an attribution is coded as internal or external, and whether it is personal or universal. Previous research has implied an association between personal values and constructs such as personal norms, environmental awareness and attitudes towards recycling (Do Valle et

al., 2005). The internal-external dimension has been shown to be important to individuals' subsequent reactions, attitudes and behavioural intentions (Weiner, 1985). Based on these ideas, the study had a number of particular hypotheses which were developed as follows.

*Environmental Champions will score higher on the Positive, Personal, Internal and Controllable dimensions than Non-Champions.*

Environmental Champions are expected to adopt green practices with their department and encourage colleagues to follow suit. It was therefore predicted that they would make more Positive attributions than Non-Champions. In addition, Champions may feel they have more control regarding green behaviour as their levels of knowledge and awareness regarding the university's energy, waste and recycling systems are likely to be greater. Environmental knowledge is an important factor regarding environmental concern (Davidson & Freudenberg, 1996), and concern is associated with perceived behavioural control (Do Valle et al., 2005). Concern and control are also associated with personal norms and values, and so it was also predicted that Champions would score higher on the Personal and Internal dimensions than Non-Champions.

*Positive attributions will be higher on the Personal, Internal and Controllable dimensions than Negative attributions.*

Regardless of who is making the attribution, it was predicted that there would be a greater number of Positive (pro-environmental) attributions that are coded as Personal, Internal and Controllable than are coded as Universal, External and Uncontrollable.

The concept of control has been shown to be associated with certain specific pro-environmental behaviours (Stern, Dietz & Guagnano, 1995). Previous research has also indicated that impersonal or situational factors (i.e. External) are less likely to drive positive behaviours than factors which directly relate to the individual (i.e. Personal, Internal) (Do Valle et al., 2005; Weiner, 1985).

## The research process

The study used a combination of qualitative and quantitative research methods. Twenty participants were recruited from a range of roles and departments within City University London. Eight were male and twelve were female. Fifty per cent of participants were Environmental Champions. Participants were recruited via email and all were invited to take part in the research on a voluntary basis.

The interviews were semi-structured and had duration of 25 to 30 minutes. Questions were designed to elicit responses relating to the participants' attitudes and behaviours associated with sustainable behaviour in the workplace. Since behaviours relating to recycling, energy conservation and the use of resources were deemed the most important in the context of this university, these were focused on in the interview questions.

All interviews were transcribed verbatim. A content analysis (Bryman, 2001) of the interview transcripts was then undertaken to identify key themes relating to environmentally-responsible behaviour. Content analysis is a technique for analysing qualitative data that sorts the data into different categories according to its content (Arnold et al., 2005).

In order to identify the causes attributed to acting (or not) in a sustainable way at work, attributions were extracted from the transcripts and coded in accordance with the Leeds Attributional Coding System (LACS) (Stratton et al., 1988). Following LACS guidelines, the attributions were coded from the point of view of the speaker so that the meaning that the individual wants to convey is coded, whether or not the researcher agrees with or believes the statement (Silvester, 2004).

Over 1,000 attributions were extracted from the interviews and each was rated along a three-point scale where 1 = unstable, external, uncontrollable, universal and 3 = stable, internal, controllable, personal. To aid further analyses, each attribution was also coded in relation to whether the outcome of the attribution is negative or positive (Silvester, 2004). Those attributions relating to either a negative or undesired occurrence were coded as 1 = 'negative' and those attributions that referred to either a positive or desired occurrence were coded as 3 = 'positive'. Examining the positive-negative dimension of attributions was useful in this context for understanding attributional patterns. Below is an example of a coded attribution:

**'I can actually read e-mails and so on >so I don't need to print any of it off"**

This attribution was coded as Positive (3) – Internal (3) – Controllable (3) – Stable (3) – Global (3) – Personal (3)

- *Positive* – by not printing emails, paper resources are conserved: a positive environmental behaviour
- *Internal* – the cause reflects something that the speaker does: 'I can actually read e-mails…'
- *Controllable* – the speaker has control over whether or not they read e-mails
- *Stable* – the fact that the speaker can read e-mails is likely to be relatively permanent and unchanging
- *Global* – the capability to read e-mails is quite important and is likely to impact on a range of outcomes
- Personal – the speaker indicates that both the cause and outcome relates to something about him or her: 'I can…'; 'I don't need…'

A sample of the data was coded by an independent second coder, who was also trained in the use of LACS, to establish reliability. Cohen's Kappa coefficient was calculated for each coding dimension. Kappa values in the range of 0.4 to 0.6 are considered fair, between 0.6 and 0.75 is good, and above 0.75 is excellent (Carter, 2004). Reliability of coding was found to range from fair to excellent.

Finally, statistical analyses were performed on the coded data using SPSS. Since the data was drawn from populations that were not normally distributed, non-parametric tests were employed: Mann-Whitney U to investigate differences, and Spearman's Rho to explore relationships.

## Main themes and barriers relating to sustainable behaviour at work

A content analysis of the interview transcripts was undertaken to establish common themes in the text and identify potential barriers to sustainability in the workplace. Table 2 contains a summary of main themes and sub-themes. Quotations from the transcripts have been included to provide an illustration for each theme.

| Main Theme | Sub-Theme | Example |
|---|---|---|
| Climate Change & Sustainability | Acceptance of issue & the need to address it | 'I think there is an important need to engage organisations and people more with what it means to them and what contribution they can make' |
| | Scepticism over its importance | 'I don't see it as something that's in the full front of my mind on a daily basis. I don't see it as being that important or something for me to do when I've got a million other things going on' |
| Sustainable Behaviour at Work | Energy Use | 'A lot of people just don't turn their monitors off and it's just a simple thing to do' |
| | Paper & Printing | 'You want to do it double-sided, but my printer doesn't do double-sided printing' |
| | Water | 'After the meeting, there were about 100 water bottles sitting there. We easily could have done that with tap water' |
| | Waste & Recycling | 'You try and put something in the right bin; it doesn't matter because it's already full of the wrong stuff' |
| | Travel | 'Should you travel 5000 miles to a meeting? I personally think people shouldn't make the case of travelling by air' |
| | Purchasing | 'We just purchased recycled photocopy paper. I think it's nearly twice the price, which is a bit scandalous' |
| | Personal Factors | 'I generally don't encourage people to do things differently than they would be doing, no matter what it is' |
| Comments & Suggestions | Ideas to improve sustainability at work | 'I think the next thing to do is to extend the Environmental Champions initiative to student environmental champions and environmental ambassadors on the student body' |
| | Positive Comments | "A lot of the stuff that I do, I learn from the person I share the office with' |
| | Issues / Problems | 'It's quite difficult to find some balance between having a choice and actually choosing the right thing to do' 'There isn't just one way to get people to change their behaviour' |

**Table 2:** Interview themes

The content analysis of the interview transcripts resulted in the identification of the following types of barrier to sustainable behaviour at work (see Table 3):

| Barrier | Description | Example extract |
|---|---|---|
| Lack of Control | The perception that the individual is unable to change the situation | 'The heating and air cooling in this building are outside my control' |
| Lack of Knowledge | Lack of knowledge regarding energy or resource conservation | 'I don't know whether you can do double-sided printing on this printer' |
| Lack of Engagement from Others | Others demonstrating little or no interest in behaving sustainably | 'You want people to turn off monitors and speakers and even though you do ask, it doesn't happen' |
| Lack of Resources | Not having appropriate or sufficient resources to save energy and minimise waste in the workplace | 'There are some rooms I've taught in, particularly in the main building, where there is a bin for recycling and no other bin. And if that's the only bin, people are going to put everything in it' |
| Lack of Feedback | Not knowing if one's behaviour is having the desired effect | 'People don't know what they're supposed to do and they don't understand enough about how they can manage things better. Sometimes there's not much feedback on what success they've had' |
| Costs | 'Green' options often viewed as more expensive | 'You have to purchase from an approved supplier. They have a green book so you can get some things from there. But there's always the cost as well: people have budgets' |
| Nature of Work | Perception that job requirements may reduce ability to behave in accordance with green values | 'My work is very paper-based, so I find it quite difficult to reduce the amount I use' |
| Personal Values | Feeling that behaving in a sustainable way at work is unimportant or unnecessary | 'I don't really so strongly about recycling at work because I don't see it quite so much as being my responsibility' |
| Group Values | Feeling that, at work, sustainability is generally very low on the agenda | 'We have our staff department meetings every month or every 6 weeks. We never had a talk about this sort of thing' |

**Table 3:** Barriers to sustainable behaviour at work

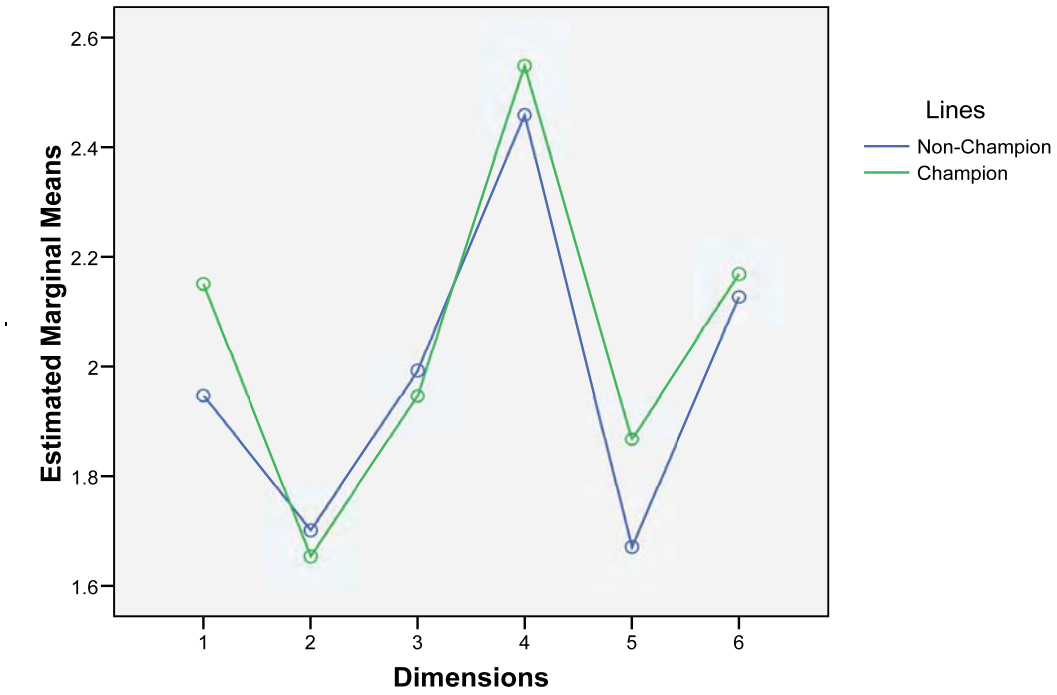
## Attributional Analyses

The first hypothesis proposed that Champions would score higher on the Positive, Personal, Internal and Controllable dimensions than Non-Champions. This hypothesis was found to be partially supported. Champions scored significantly higher than Non-

Champions on the Positive dimension ($p<0.01$), but not on the Personal, Internal or Controllable dimensions.

Figure 1 reveals that the pattern of results for Champions closely resembles that for non-Champions. Both score highly on the Stable dimension, and relatively low on the Internal and Global dimensions.

**Figure 1**: Differences between Champions and Non-Champions

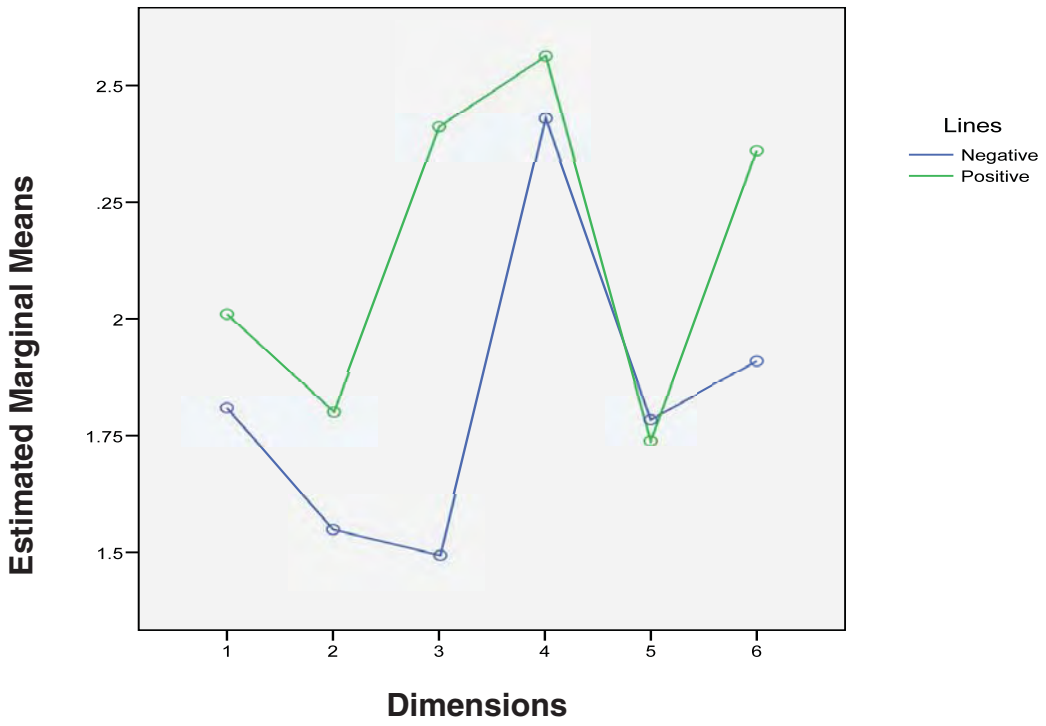



| Dimensions | | | |
|---|---|---|---|
| 1 | Positive | 4 | Stable |
| 2 | Internal | 5 | Global |
| 3 | Controllable | 6 | Personal |

The second hypothesis proposed that Positive attributions would be higher on the Personal, Internal and Controllable dimensions than Negative attributions. This hypothesis was fully supported: Positive attributions were significantly higher than Negative attributions on the Personal ($p<0.01$), Internal ($p<0.01$) and Controllable ($p<0.01$) dimensions.

Figure 2 reveals that the pattern of results for Positive attributions is that similar to that of Negative attributions, with the notable exception of the Personal dimension, where mean score for Positive attributions is significantly higher than the mean score for Negative attributions.

Figure 2: Differences between Positive and Negative Attributions




| Dimensions | | | |
|---|---|---|---|
| 1 | Positive | 4 | Stable |
| 2 | Internal | 5 | Global |
| 3 | Controllable | 6 | Personal |

## What do these findings mean and how do they compare to other research in the area?

This study aimed to explore the barriers identified by university staff to acting in a sustainable way at work, as well as the causes attributed to acting in environmentally-responsible ways. A content analysis of twenty interview transcripts revealed that lack of control, lack of knowledge and lack of resources were the most salient of barriers identified by the members of staff. Lack of feedback was also shown to be an important factor, along with cost, nature of work, personal values, group values, and engagement by others.

The causes attributed to acting in sustainable ways were examined via attribution coding. The results found that Positive attributions were associated with Internal, Controllable and Personal dimensions. It was thus inferred that, for a positive environmental behaviour to occur:

- the individual will perceive it as something distinctive about themselves;
- the cause for the positive environmental behaviour will be directly related to the individual, rather than being attributed to impersonal or situational factors; and
- it is important that individuals believe that they have some control over events.

This study also found that Champions made significantly more Positive attributions than Non-Champions. This seems to indicate that Champions engage in more pro-

environmental behaviours than Non-Champions, and, if this is the case, it can be said that Environmental Champions 'practice what they preach'. This is a relevant finding for the university since individuals tend to look to others before determining their actions. Information about how other people behave, together with beliefs concerning those referents' opinion about that behaviour, are thought to be important determining factors that affect recycling involvement (Do Valle et al., 2005). By setting an example to other members of staff, Environmental Champions can help to effect positive change with regards to an organisation's drive to 'go green'.

The findings of this study have implications for organisational development and change initiatives. An organisation can reduce its impact on the environment by ensuring that appropriate measures are in place to enable employees to save energy and conserve resources during the course of their business. Gaining a better understanding of people at work, we can ensure that interventions are successful. Since perceived control is vital in this context, any intervention to encourage people to adopt green behaviours at work must be straightforward and relatively undemanding where individuals have control.

Personal and internal factors also play an important role. An element of the behaviour (e.g. the reason or the outcome) should relate directly to the individual, rather than being solely attributed to impersonal or situational factors. For instance, if personal energy consumption formed part of an employee's annual appraisal, it should have a greater impact on his or her behaviour than if everyone in the organisation were simply told to use less energy. Wehrmeyer et al. (2009) suggest that individual performance targets and performance-management systems may be used to bring about change in an organisation.

McMillin and Dyball (2009, p.56) state that 'institutions of higher education play a significant role in the search for a more sustainable future' and that increasing consideration is being given to sustainability with regards to campus operations, curriculum and academic research. They advocate a 'whole-of-university' approach to sustainability in which the research, educational and operational activities of an institution are explicitly linked, and where students are engaged in each of these activities. This approach, they claim, can allow universities to 'optimise their role as agents of change for a sustainable future' (McMillin & Dyball, 2009, p.56). There is also little reason to doubt that universities could save money by adopting sustainable practices. Wehrmeyer et al. (2009) cite a hotel chain that reported cost savings of 15 per cent thanks to a green programme implemented at minimal expense.

## Recommendations for promoting sustainability in large organisations

A number of recommendations for implementing sustainable practices at work can be made on the basis of the results of this study.

1) Encourage flexible working as a means to save energy; for example, enable staff to work from home where possible.
2) Set 'green' targets. Ensure that staff at all levels are aware of the targets and are supported to achieved them
3) Provide feedback to staff regarding the organisation's environmental performance. This helps to improve personal 'meaningfulness' and thus should have a positive impact on sustainable behaviours
4) Provide education and training regarding sustainability at work. This should enable staff to feel that they have greater control over their environment, and again helps to improve 'meaningfulness'
5) Offer rewards and incentives to encourage green behaviour in the workplace
6) Consider implementing schemes such as the Environmental Champion network

The author hopes that these suggestions will help organisations to foster sustainable behaviour in their workforce, enabling them to 'go green' without costing the earth.

## Acknowledgements

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# Green behaviour: Differences in recycling behaviour between the home and the workplace

**Dr Seonaidh McDonald,** *Robert Gordon University*

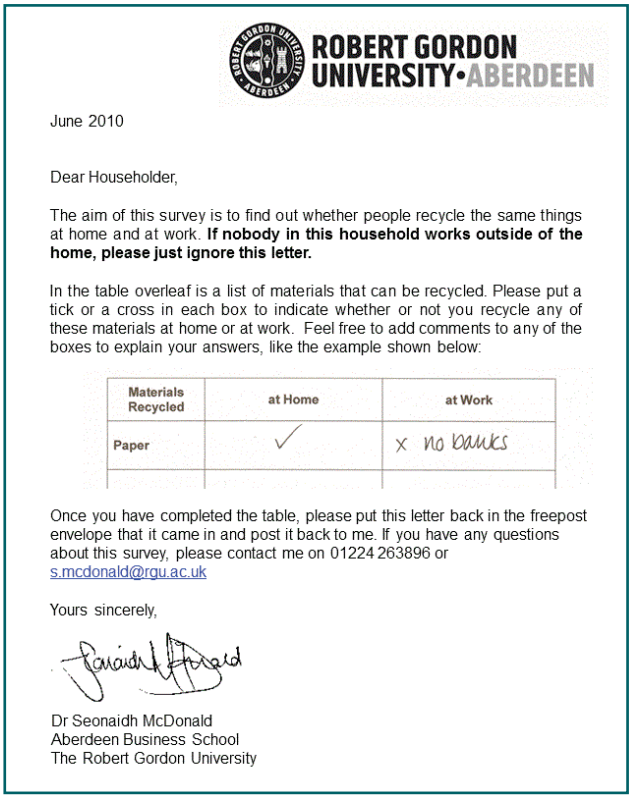
In 2008 the Scottish Environmental Protection Agency reported that commercial waste amounted to 5.75 million tonnes, compared with 2.94 million tonnes of domestic waste. Despite the fact that waste arising in commercial premises is nearly double that produced by households in the UK, the study of recycling in the workplace is less common than the study of recycling at home (Marans & Lee, 1993). Some of the work that has been done on recycling within commercial settings has focused on specific commercial recycling schemes (see for example Bacot, McCoy &Plagman-Galvin, 2002; Clay, 2005). In a parallel to the research which aims to characterise the domestic recycler and understand the antecedents to their (non) recycling behaviour, there is a strand of research in the environmental psychology tradition which tries to establish predictors of the employee characteristics (see for example Marans& Lee, 1993), organisational characteristics (see for example Maclaren& Yu, 1997) or scheme design factors (see for example Brothers, Krantz & McClannahan,1994; Ludwig, Gray & Rowell, 1998) which will lead to successful recycling initiatives.

The focus on the reduction of domestic, rather than commercial, waste may have been fuelled by the UK Government targets for the increase in recycling rates (DEFRA, 2007). This has contributed to the lack of attention to workplaces as contexts for the production of many waste streams also found in domestic waste. There is also perhaps an underlying assumption that recyclers will behave in similar ways in their domestic context and at work. However, recent work has shown that people do not recycle in the same ways in different contexts. Studies have shown that people do not necessarily continue to recycle whilst on holiday (Barr et al., 2010) or while away at university (Scott, 2009). This raises the question of whether people who have established patterns of recycling at home can or do translate these practices into recycling at work.The first study which attempted to make a link between home and work place recycling was by Lee, De Young and Marans (1995) which examined whether private recycling behaviour was a useful predictor of participation in office recycling schemes. The study surveyed nearly 1,800 Taiwanese office workers from 32 different firms, and found that although prior (home) recycling experience of a specific material was a predictor of office recycling, the actual rates of recycling at work were much lower than those reported at home. In the UK context, this result was also obtained by a study of the recycling habits of university staff and students (Clay, 2005).

This chapter describes a small study which aims to ascertain whether there is a difference between recycling behaviour at home and at work. However, rather than focus on a specific work environment (offices, university), it surveys a population with access to comparable opportunities to recycle their household waste, but makes no inferences about their specific employment setting.

## Surveying recycling behaviour

A short questionnaire was designed to survey householders about their recycling habits in the home and in the workplace. The questionnaire consisted of a single A4 sheet with a cover letter on one side (see Figure 1) and the questions on the other (see Figure 2).



ROBERT GORDON UNIVERSITY•ABERDEEN

June 2010

Dear Householder,

The aim of this survey is to find out whether people recycle the same things at home and at work. **If nobody in this household works outside of the home, please just ignore this letter.**

In the table overleaf is a list of materials that can be recycled. Please put a tick or a cross in each box to indicate whether or not you recycle any of these materials at home or at work. Feel free to add comments to any of the boxes to explain your answers, like the example shown below:

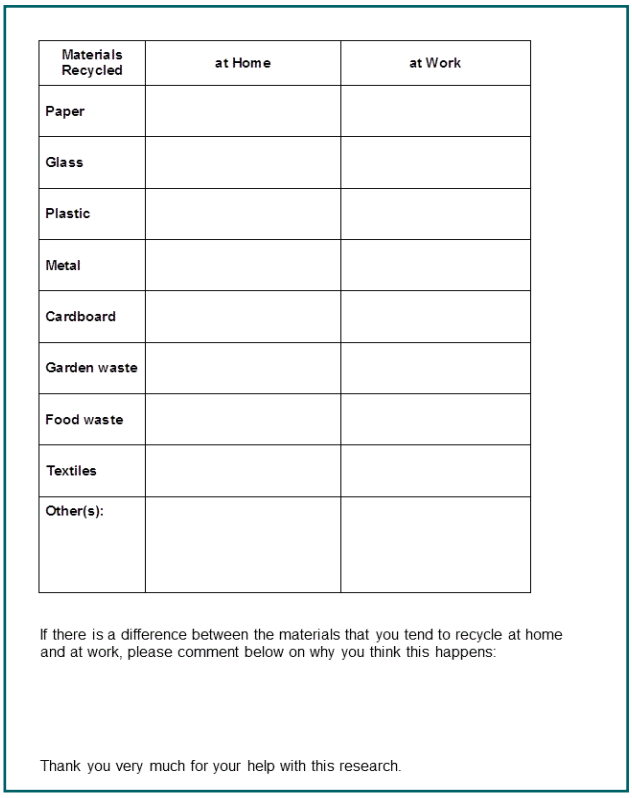
| Materials Recycled | at Home | at Work |
|---|---|---|
| Paper | ✓ | x no banks |

Once you have completed the table, please put this letter back in the freepost envelope that it came in and post it back to me. If you have any questions about this survey, please contact me on 01224 263896 or s.mcdonald@rgu.ac.uk

Yours sincerely,

Dr Seonaidh McDonald
Aberdeen Business School
The Robert Gordon University

**Figure 1:** Cover letter



| Materials Recycled | at Home | at Work |
|---|---|---|
| Paper | | |
| Glass | | |
| Plastic | | |
| Metal | | |
| Cardboard | | |
| Garden waste | | |
| Food waste | | |
| Textiles | | |
| Other(s): | | |

If there is a difference between the materials that you tend to recycle at home and at work, please comment below on why you think this happens:

Thank you very much for your help with this research.

**Figure 2:** Questionnaire

The design of the questionnaire was deliberately kept very simple with the fewest possible questions in order to facilitate as high a response rate as possible. For example, a decision was taken not to ask householders for any demographic information which would lengthen the questionnaire and make people less willing to participate.

The questionnaires were placed inside an open freepost envelope and hand delivered to 1,000 households in Banchory, a small town in the North East of Scotland during June 2010. Householders were asked to complete the questionnaire, place it back into the freepost envelope and put it in the post. The questionnaires were not marked in any way and so the responses to the survey were entirely anonymous.

Banchory was selected for the study as it is a small commuter town in the Aberdeenshire countryside. Many of Banchory's residents are employed in the oil and gas industry in nearby Aberdeen, 16 miles away. However, the area is also home to thriving farming, tourism and timber related industries which also employ a proportion of residents, providing the potential to get information about recycling in rural, as well as urban, workplaces. Households were sampled by taking consensus samples of 40 streets in Banchory which were randomly selected to ensure representation form a wide range of council tax bands. All of the households in the town receive the same municipal recycling facilities provided by Aberdeenshire Council:

- a fortnightly doorstep collection of paper and white/grey cardboard;
- A fortnightly doorstep collection of mixed glass, plastic bottles and food and drink cans;
- a recycling centre which provides for the disposal of paper, glass, plastic bottles, cardboard (any), food and drinks cans, cardboard drinks packs, telephone directories (periodically), textiles, scrap metal, garden waste, soil, rubble, oil, car batteries, domestic batteries, WEEE, domestic appliances and furniture as well as general household waste; and
- several 'bring' sites scattered across the town in car parks near parks, schools and supermarkets which also provide a range of banks for glass, paper, paper, glass, plastic bottles, cardboard (any), food and drinks cans and textiles.

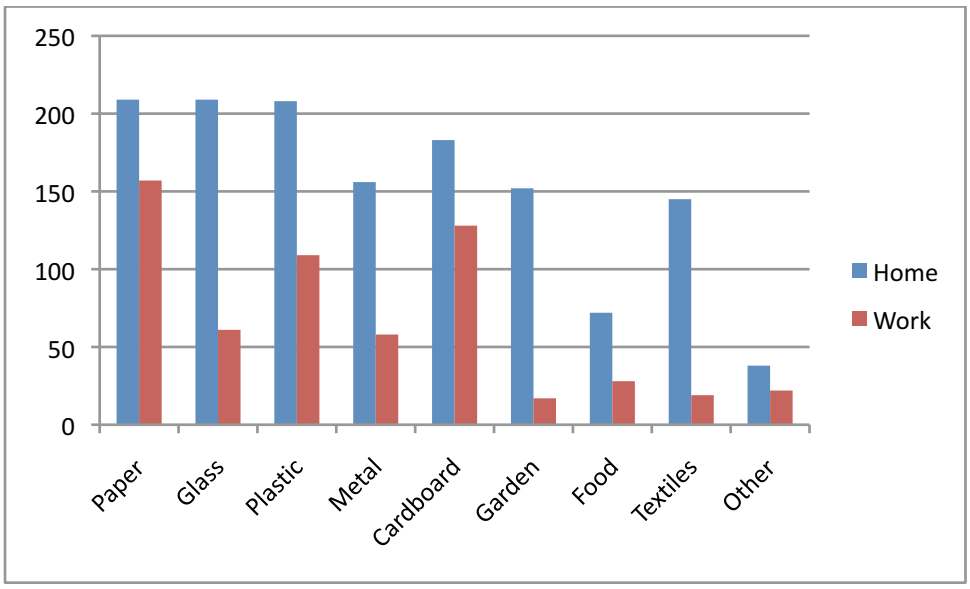
## People recycle less at work than at home

A total of 220 responses was received from the 1,000 households surveyed, giving a response rate of 22 per cent, which is very healthy for a postal questionnaire. The responses were all coded and entered into a spreadsheet for analysis.

In all environmental research there is always a tendency for respondents to exaggerate, and so any results obtained through a postal survey must be treated with caution. This is partly because respondents feel social pressure to be seen to be as 'green' as possible, and partly because in any survey situation respondents seek to be helpful in their reporting. Both of these factors can lead to householders ticking a box to say that they recycle a particular material even if they have only done so once, or have an intention to begin doing it, for example. Added to this is the fact that although the households which received the questionnaires were sampled according to a framework (see above), those that responded are effectively self-selected. Together these issues would lead us to expect that the numbers of materials reported to be recycled here are rather higher than an examination of actual recycling behaviour would suggest. However, this does not significantly affect much of the analysis that follows as this study is concerned with comparing home and workplace recycling, rather than the absolute figures reported, and it is reasonable to assume that any inflation of the figures will affect both the estimations of home and workplace recycling equally. It is also useful to note that 8 (3.64 per cent) of the respondents reported that they did not recycle any materials at home or at work. This suggests that the data presented here do contain an element of balance between recyclers and non-recyclers.

Figure 3 shows the numbers of each of the different materials that the respondents recycled at home, and at work. Some of the larger differences are easily understood. For example, the large variance between the numbers of respondents recycling garden waste and textiles at home and at their place of work may well be as much to do with the occurrence of these groups of materials as to do with the behaviour of the respondents themselves. A number of respondents wrote comments on their questionnaires to this effect. However, other differences are more interesting. Glass is a very common household recyclable, and has the longest history of collection from domestic waste for recycling in the UK. However, although some 95 per cent of respondents recycled glass at home, their workplace recycling is comparatively low at just under 28 per cent (see Table 1). Some of the comments suggested that the provision of recycling facilities for glass was considered a

**Figure 3:** Materials recycled at home and at work




| | Home | Work | Difference |
|---|---|---|---|
| Paper | 95.00% | 71.36% | +23.64% |
| Glass | 95.00% | 27.73% | +67.27% |
| Plastic | 94.55% | 49.55% | +45.00% |
| Metal | 70.91% | 26.36% | +44.55% |
| Cardboard | 83.18% | 58.18% | +25.00% |
| Garden | 69.09% | 7.73% | +61.36% |
| Food | 32.73% | 12.73% | +20.00% |
| Textiles | 65.91% | 8.64% | +57.27% |
| Other | 17.27% | 10.00% | +7.27% |

**Table 1:** Percentages of respondents who recycle each material

safety hazard by their employers. The differences between the numbers of respondents recycling their garden waste and food waste suggests that they are taking their garden waste to the local recycling centre rather than composting at home.

Overall, then, although similar materials are recycled at home and at work, Table 1 shows that many more respondents recycle each of the materials at home than they do at work. A further analysis shows that 89.55 per cent of the survey respondents recycled more materials at home than they did at work.

## What's the reason for the difference between recycling at home and at work?

This pilot study confirms that recycling in the home is more common than recycling in the workplace. Even people who recycle a wide range of materials at home do not seem to translate those habits into their workplace contexts. Now that this difference has been established, further study will be required to ascertain why this situation has arisen. Some of the comments offered in response to the open question at the end of the questionnaire (see Figure 1) offer insights into why this is the case.

One of the most common statements made by respondents was that they could not recycle many of the materials at work because they either did not arise in a work setting or that there were no facilities to recycle them at work. Whilst it is likely that in many workplaces some materials, such as glass, are found in lower quantities than they might be a home, it is extremely unlikely that they are entirely absent from a workplace. For example, although jam jars and ketchup bottles might be relatively rare, soft drink bottles and coffee jars may well be found in many workplaces. Waste Watch estimates that 3 per cent of commercial and office waste is glass (Waste Online, 2004). Reporting occasional occurrence of recyclables as non-occurrence is something that has been found in previous studies of non-recyclers (McDonald & Oates, 2003). Equally, assertions that no facilities exist at work should be treated with caution as several respondents reported that there were no facilities in Banchory to recycle metals (although food and drink cans are included in the fortnightly doorstep collection and banks are available at the recycling centre as well as at a number of points throughout the town) or garden waste (despite a dedicated skip located at the recycling centre).

Another theme underlying many responses was that of responsibility. By noting that no facilities were available to them at their workplace, respondents may be seeking to absolve themselves from the responsibility of their non-recycling behaviour. Studies of domestic recycling have found that low recycling rates are often attributed to the lack of facilities provided, or the design of the schemes which are available. In an interesting parallel, the 'fault' here is transferred from the municipal providers of the domestic services to the collective employers. This is underlined by a few respondents who reported that they assumed that their waste was being recycled (even when no sorting or storing of recyclables was in evidence) or that they didn't know whether it was recycled or not. The responsibility for sorting waste is further blurred when cleaning services are outsourced to another company.

However, there is a small group of individuals who report that they take their recyclables home with them to recycle them along with their own household waste. One respondent noted that although there was workplace recycling, a colleague had set it up informally and simply took the recyclables away periodically and put them in banks on her way home. For those determined to recycle in the workplace, informal systems have been put in place to counter lack of official provision in some work places.

## Conclusions

Further work will be required to understand the differences in the habits uncovered in this pilot study. However, it does show that this is an important area for future study as it is clear that people's domestic recycling habits are not necessarily being carried over into their

workplaces.This finding underlines and extends the work of Clay (2005) and Lee, De Young and Marans (1995) by showing that when the sampling is done in such a way as to include a wide and unspecified range of employment contexts, private behaviours are not being reproduced at work, regardless of workplace.

What is also clear is that respondents feel that the responsibility for the lack of recycling lies with the employers. With commercial waste continuing to grow year on year (SEPA, 2010) the problem of recycling at work will remain an issue. However, if employers are failing to engage even those people who have already made decisions to recycle within their private lives, more research is needed to understand how to grow workplace recycling.

Overall, this study has shown that a much larger, national study will be required in order to understand how best to meet the promised UK government targets for recycling of commercial wastes (DEFRA, 2007).

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# Green behaviour change: HOT topics

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Climate change is a psychological problem. A rather stark statement maybe, but one which is, we think, defensible. To be sure, the mitigation of the effects of climate change poses very great technological challenges. However, the fact is that technologies that are widely available today are capable of making a very large dent in the carbon dioxide emissions that are thought to underlie the problem. To give just one of a plethora of possible examples: according to DEFRA, the average family car in the UK emits around 215g $CO_2$ per kilometre; by contrast, the most fuel-efficient family car currently available emits around 90g $CO_2$ per kilometre and, with the advent of plug-in hybrids over the next two years, this figure is likely to be further reduced to around 65g. For those (like the UK Government) seeking a 70-80 per cent cut in carbon emissions from private cars, the problem therefore is not a technological one but a behavioural one: how can we get people to adopt existing low-carbon technologies in their everyday lives?

The same considerations apply to businesses. We are engaged in a project called EASIER (Environmental Assistance to SMEs In the Eastern Region), which advises small businesses on ways in which they can reduce their carbon emissions. What has become clear from this engagement is that there are many opportunities for such businesses to make changes that substantially reduce both emissions and ongoing costs. Where these changes involve modest capital investment (as they often do), there are funds available, interest free, from organisations such as the Carbon Trust, a facility which contributes to a powerful case for change. Nonetheless, we frequently find senior managers reluctant to proceed. Again, the problem is neither technological nor financial: it is psychological.

In this chapter, we will give a brief outline of a framework that we are developing with regard to pro-environmental behaviour change, for people at home and at work. We will start by noting the relatively limited success that psychological/behavioural interventions have enjoyed in the past. As a consequence, we will suggest that the net be cast rather wider in the search for psychological techniques that might usefully be applied in this domain. For mnemonic reasons, if nothing else, we will focus our discussion around the **HOT** topics of the title: **habits**, **opportunities** and **thoughts**. As will be seen, for expository reasons the discussion doesn't necessarily deal with them strictly in this acronym-friendly order.

## Psychological interventions in the service of the environment

While space considerations preclude a detailed review of the effectiveness of broadly psychological techniques in environmental domains such as energy use, recycling and transport, several such reviews have been conducted in recent years. For example, Abrahamse, Steg, Vlek and Rothengatter (2005) conducted a detailed review into psychological interventions aimed at reducing household energy consumption. They divided the interventions into antecedent interventions, such as supplying households with

information about energy-saving measures, and consequent interventions, such as offering feedback and/or rewards in response to certain behaviours.

Their conclusions were not overwhelmingly positive. There were relatively small beneficial effects of antecedent interventions: the provision of tailored information (i.e. information tailored to the specific circumstances of the target household), commitment and goal setting (i.e. asking households to commit to a relatively difficult energy-saving target), and modelling (i.e. giving worked examples of recommended behaviours), all had modest success. This success was not always maintained after a plausible follow-up period. Mass information campaigns were found to increase knowledge, and sometimes to change attitudes, but to have little effect on the adoption of specific energy-saving behaviours – a rather salutary message for Governments the world over. Of the consequent interventions, frequent feedback (particularly in a competitive context), and the provision of rewards, both showed moderate success. Once again, the effectiveness of these interventions was greatest during the active intervention itself and didn't always survive a post-intervention period.

Of all the interventions reviewed by Abrahamse et al. (2005), perhaps the most promising was the EcoTeam Programme, ETP), as evaluated in the Netherlands by Staats, Harland and Wilke (2004). ETP involves participants joining small groups of colleagues, neighbours and friends, and participating in meetings once a month. At these meetings, information is shared and feedback is given on both individual and group performance, the latter being assessed relative to that of other EcoTeams. It is not difficult to see that the ETP programme therefore takes advantage of all of the more successful interventions given above, most particularly setting up a context in which commitment is key, information is specific, and goals are set and reviewed in a comparative (and somewhat competitive) context. The evaluation by Staats et al. suggested that all targeted aspects of pro-environmental behaviour (including energy use, water use and waste) were substantially reduced both during the programme and at a two-year follow up. This result argues for a degree of eclecticism in the design of energy-reduction programmes: By drawing on a variety of interventions whose individual success is perhaps modest, the ETP appears to gain significant power to change behaviour immediately and over a sustained period. In the next section, we will recommend yet more eclecticism in the design of pro-environmental behaviour change programmes, drawing on techniques that have more often been applied in the therapeutic and other health-related domains.

## Habits, opportunities, thoughts

It is difficult to deny that people are prone to habitual behaviour in the domain of energy-use, as in many other domains. Transport choice is perhaps the best researched of the areas in which habits are cited as a negative environmental factor: specifically, the near automatic favouring of the private car over public-transport alternatives is frequently attributed to the force of habit. One can imagine, too, that the unnecessary turning on (and leaving on) of lights or of heating systems, the disposal (rather than recycling) of waste, or the unnecessary use of water (e.g. when brushing one's teeth), would all be under the influence of habits, rather than being driven by more rational consideration. Of course, habits per se are not necessarily environmentally deleterious: one might equally be in the habit of cycling to work, turning off lights and dutifully recycling. Nonetheless, the

environmental problems with which we are currently faced suggest that these 'good' habits are not yet the norm. For this reason, a programme for pro-environmental behaviour change will need to take seriously the constraints that habits place on human action and on the possibilities of change.

A number of authors have looked at the habits relating to the environment (e.g. Dahlstrand & Biel, 1997; Davidov, 2007; Klöckner & Matthies, 2004; Verplanken, Aarts & van Knippenberg, 1997; Verplanken, Walker, Davis & Jurasek, 2008). Interestingly, habits in relation to travel-mode choice were the focus for all of these authors other than Dahlstrand and Biel. Those authors looked at the purchase of environmentally friendly detergents in relation to a 'stepwise model of behaviour change' in this domain. Their model is interesting. It proposed seven key steps in the development of an environmentally benign habit: activation (i.e. attending to the environment as a value); attending to present behaviour; consideration of alternative behaviours; planning new behaviour; testing new behaviour; evaluation of new behaviour; and establishment of a new habit. Alongside each of these steps, they postulated factors that either impede or promote progress at that point. So for the third step (the consideration of alternative behaviours), they identified negative beliefs about the alternatives as an impeding factor (see below), while the presence of 'evident, existing alternatives' was considered a promoting factor at this level. It is notable that the first two of Dahlstrand and Biel's (1997) seven steps come under the general heading of attention. This accords with a crucial observation from our own practice with client businesses, namely, that many people do not attend to, and are hence not aware of, the energy that they are using in various aspects of their business. They are, in some sense, blind to the energy, and hence to the money, that they are wasting.

The phenomenon of 'inattentional blindness' is well attested: people literally fail to see features of the visual environment to which they are not attending, even when these features are embarrassingly obvious to the same people once attention is drawn to them. Perhaps the most well-known popular demonstration of this phenomenon is the so-called 'invisible gorilla' test of Simons and Chabris (1999). In this test, participants are asked to watch a video showing two teams of three people (one team dressed in white, the other black), each passing a basketball among them. To ensure that participants attend closely, they are asked to count the number of passes completed by the team in white. Under these conditions, a majority of participants are unable to report the appearance of a person dressed as a gorilla as they walk across the field of view, even as they pause in centre-screen in a melodramatic beating of the chest.

While less engaging than a person in a gorilla costume, the ways in which our clients (among others) use unnecessary amounts energy and, hence, spend unnecessary money, are no less invisible to the clients themselves, and no less obvious to the experts performing energy audits. Of course, the analogy is not complete – the 'blindness' of our clients is more conceptual than perceptual, and has a good deal to do with crystallised knowledge rather than fluid processing. Nonetheless, a key first step in any intervention involves encouraging clients to pay active attention to aspects of their energy performance and to the details of those cost-effective alternatives that are available to them. It is this change in attentional set, and this expansion is situation-specific knowledge, that we capture in the Opportunities component of our HOT topics.

Interestingly, the ability to notice and act upon opportunities in the personal and business environment has been related, outside the laboratory, to such apparently capricious properties as luck. In a series of experiments, using participants who rated themselves as either lucky or unlucky, my colleague Richard Wiseman showed that lucky people were much more likely to spot potentially beneficial situations in their environment and, moreover, they were more likely to act on those situations to secure a potential advantage. In one experiment, participants were asked to flick through a newspaper and to count the number of photographs. At various points in the newspaper, the experimenters had placed half-page adverts proclaiming, in large-print, messages such as 'STOP COUNTING: THERE ARE 52 PHOTOGRAPHS IN HERE', or even 'WIN £100 BY TELLING THE EXPERIMENTER YOU HAVE SEEN THIS'. The 'unlucky' people were much less likely to spot the potentially beneficial messages than were their 'lucky' colleagues, strongly suggesting that good luck is not always the random blessing of folklore, but is often attributable to an attentional and dispositional stance. There is, of course, a sense in which this is paradoxical: those participants who focussed most closely on the task in hand (i.e. counting the photographs – ostensibly a good thing), were precisely those who missed the opportunities. In the case of our client businesses, sometimes a too-close attention to their core business can mask opportunities for cost (and emission) savings.

In his work with lucky (and successful) people, Wiseman also noted their propensity to think differently about situations, seeing opportunities where others saw none. For example, an unlucky person who broke their leg might think 'Typical. Bad things always happen to me. I'll be stuck at home for weeks.' By contrast, for a lucky person, the same misfortune might be accompanied by the thought 'Oh well. At least I'll have plenty of time to write that novel I'd always planned.' This is, perhaps, a trite example, but it illustrates a critical point relating to the third of our HOT Topics, namely Thoughts: the Thoughts that one has can have a very significant effect on one's subsequent behaviour. More particularly, different thoughts can act as either impeders or promoters of pro-environment behaviour change, a fact acknowledged explicitly in the stepwise framework of Dahlstrand and Biel (1997). We will discuss thoughts in the next section.

## Negative environmental thoughts

In this section about Thoughts, we would like to expand the discussion to include a technique that is most often applied in clinical or counselling contexts, namely Cognitive Behavioural Therapy (CBT). Specifically, we will acknowledge and deal with the potential for negative environmental thoughts to act as a potential block to pro-environmental behaviour change.

CBT is the name given to a class of talking therapies that is, in the UK, in the front line of choices for clinical and subclinical disorders such as depression and anxiety. It is not possible to give a detailed account of the theory and practice of CBT here, but some key points will be instructive with regard to behaviour change more widely. The fundamental observation underlying the CBT approach is often summarised using a quote from the ancient Greek philosopher Epictetus, usually translated as, 'Men [sic] are not disturbed by things, but by the view that they take of them.' To paraphrase: it is not events in the world that directly and ineluctably cause emotional or other mental disturbance, rather it is the thoughts/beliefs that an individual has about those events that intervene between the

events and the later feelings, and play a causal role in affecting the latter. Although it is often misconstrued as attributing blame to the client for bringing about their own problems by 'thinking wrong', this is a fundamentally an optimistic message. It is optimistic in the following sense: if one genuinely thought that there was a direct (unmediated) causal connection between events in the world and emotional consequences, one could only change those emotional consequences by changing the way the world is. In many circumstances, the ability to change events in the world is simply not a viable option: a counsel of despair. If one accepts, however, that negative emotional consequences are affected by the thoughts and beliefs that one has about events, then one has the ability to modify those emotional consequences by changing the thoughts and beliefs. In many circumstances, this is much more tractable than altering the events themselves.

In CBT, particularly for disorders of depression or anxiety, thoughts and beliefs are categorised as being at three levels: negative automatic thoughts (NATs); negative core beliefs; and nonadaptive rules for living. Very briefly, negative automatic thoughts are those negative thoughts that are held to flood the mind at times of strain or challenge – they are automatic, in the sense that they come to mind rapidly and unbidden, and they are typically described as 'irrational' in one of a variety of ways. For example, a thought can be irrational because it exhibits overly black-and-white reasoning, or because it 'catastrophises' a situation, frequently both. To give an example, someone who is socially anxious may respond to a small mistake in a social situation with the NAT, 'Oh God. That was a total disaster. Those people must think that I'm a complete idiot!'. So a minor slip has been characterised as a 'total disaster', and other people's assessment is assumed to be that one is a 'complete idiot' (this type of mindreading is another characteristic feature of NATs). As they flood the mind, these NATs are thought to awake core negative beliefs (e.g. 'I am an absolute failure') that have been a long time in gestation and are sometimes described as 'light sleepers', ready to be activated at the slightest provocation. Finally, to avoid these NATS and their stirring of the aversive core beliefs, people are supposed to build around them a network of rules for living that minimises the unpleasantness that results. So the socially anxious person who subscribes to these core beliefs and is prone to these NATs, simply chooses to organise their life so as to minimise the negative affect. To be specific, they might develop the rule 'If I don't go out, then I won't experience this unpleasantness'. So they stay indoors. Chances are, they become socially phobic: they develop around them what they consider a 'comfort zone', but which other people can clearly see is a highly constrained and inflexible space, that is, a discomfort zone.

So how does this relate to pro-environmental change? While we do not want to stretch the analogy too far, a couple of examples drawn from direct experience should illustrate the point.

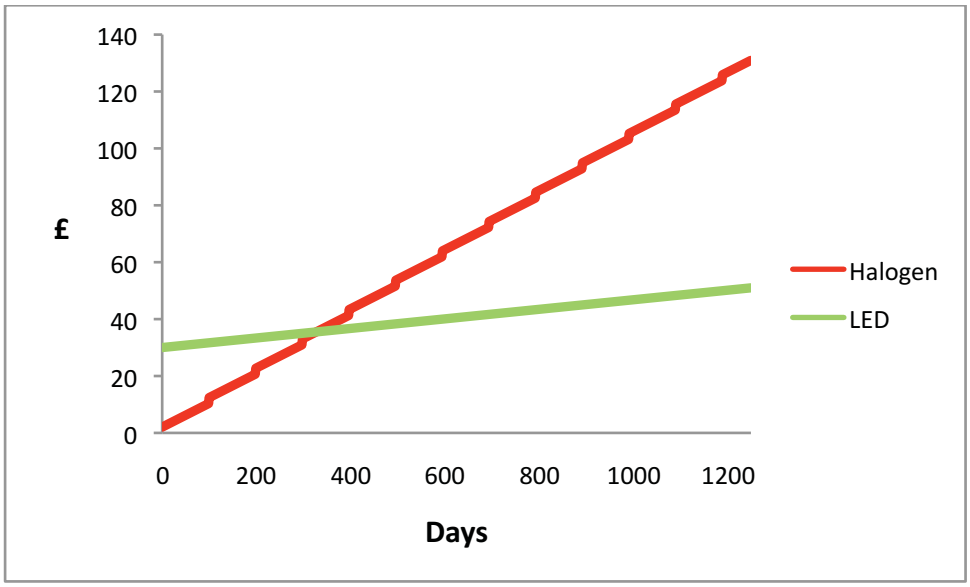
Let us suppose that one of our clients is a hotel business which uses a large number of halogen downlighters (the small spotlights that are often used in corridors and common areas). Such downlighters are typically rated at a power consumption of 50W, though 35W 'energy saving' versions are also available. In many hotels, a significant proportion of such lights will be on for approaching 24 hours a day, and so together they represent significant energy consumption and, hence, significant cost and significant $CO_2$ emissions. Let us further suppose that the hotel manager has recently instituted a policy of switching the 50W versions to 35W as the old bulbs fail. Although they are a little more expensive at £2

each rather than £1.50, and they are a little dimmer, the manager has been vaguely convinced that the hotel will save money in the long run. Finally, let us assume that, notwithstanding this minor change in purchasing policy, the manager has not been disabused of the deeply held suspicion that eco-friendly tends to equate with expensive.

While this deeply held suspicion is not directly identifiable with the sorts of 'light sleeper' core beliefs that a clinical patient might present in a CBT context, one can perhaps imagine that it will indeed be awoken by a proposal, from an energy auditor, to switch all the halogen bulbs to new LED bulbs, at a cost of £30 a piece! The negative automatic thoughts (let us call them Negative Environmental Thoughts – NETs – in deference to another handy acronym) come flooding in: '£30 pounds each! That's ridiculously expensive. Even if we had the money – which we don't – the group manager would never approve it. Anyway, I've already done my bit by moving to the 35W jobs. We'll stick to what we know, thanks!' A caricature, perhaps, but in our experience one that is not too wide of the mark. And, as it happens, a paradigmatic example of someone who is trapped in an environmental (and financial) discomfort zone – someone, so to speak, caught in the NETs.

How can we, the environmental therapists as it were, help the hotel manager do the environmentally friendly, and financially astute, thing. Well, first we have to establish some facts about the LED bulbs. They do indeed cost £30, a price which, from a certain perspective, does seem rather high. (Actually, in this fast moving world, the cost is now down below £20, but let us stick here with the 'harder sell' with which we were presented at the time.) What other perspective might we offer? The key is to note three things: first that the LED bulb consumes around 7W of electrical power as contrasted with the 35W of even the so-called 'energy saving' halogen bulb; second, that the LED bulb has an expected life of 30,000 hours (with a three-year warranty), as opposed to the 2,000 hours for the halogen; third, that the light quality of the two bulbs is approximately equivalent. Armed with these facts we can plot the cumulative cost of the two types of bulb, assuming that each is on for 20 hours a day, 365 days a year, and that electricity costs 10p/kWh. 0

**Figure 1:** The cumulative cost of a 35W Halogen vs 7W LED bulb



The comparative cost of the bulbs are shown in Figure 1. The regular kinks in the halogen line represent the replacement cost, as each bulb lasts around 100 days. (Unrealistically, no additional cost is assumed for the work involved in changing the bulbs, a cost that, if taken into account, would only strengthen the case for change.) The intercept of the LED line represents the £30 initial cost, while the gradients of each line represent the cost implications of the differing power consumptions. What should be clear is that at around day 330, the cumulative cost of the 'energy saving' halogen bulbs exceeds that of the LED bulb. The investment in an LED bulb pays for itself in something less than a year. This 330-day payback period means that the investment in LED bulbs is equivalent to doubling your money in 660 days, in turn equivalent to getting tax-free, compounded interest at the bank at an interest rate of 40 per cent. Over the three-year warranty period of the LED bulb, each bulb saves £67, that is, a saving of £22 per bulb per year, or over £1,000 per year in a (far from atypical) corridor containing 50 such bulbs.

So Epictetus had a point. By adopting a different perspective (in this case, towards what it means to be expensive), our hotel manager might come to a different conclusion from that embodied by their initial (automatic) assessment. When they learn that the capital costs of the bulb replacement programme can be met by an interest-free loan from the Carbon Trust, the case virtually makes itself: essentially, someone will lend them money at zero rate of interest, for them to invest at a 40 per cent equivalent return! At the risk of labouring the point (and an acronym), let us unpick our manager's NETs: First, £30 doesn't look ridiculously expensive any more – in fact, it looks like an unmissable investment opportunity; second, there is no need to have the money upfront, since it is available as an interest-free loan from the Carbon Trust; third, that bit of mind-reading ('The group manager would never approve it') seems unlikely to be clairvoyant unless, of course, the group manager is also NET-prone; fourth, the black-and-white thinking embodied by the bald assertion that 'I've done my bit' (by moving to what is a very mildly energy-saving alternative) is now rather less convincing than it might be; and, finally, the assumed comfort zone ('We'll stick to what we know, thanks!) has now been exposed as the discomfort zone that it truly is. As a last resort, the manager might retreat to an appeal not to change those bulbs that have only recently been upgraded from 50W to 35W ('I only put them in last week!') – a classic example of what decision theorists call a 'sunk-cost fallacy', another form of cognitive distortion. An LED-bulb payback period of 330 days is entirely independent of when the previous halogens were installed. Delaying the switch would only be 'throwing good money after bad'. Better get on with it.

A second, and briefer, example will, we hope, show that NETs can be implicated in a refusal to take environmental problems seriously in the first place. How often has one heard something like, 'It doesn't matter what I do – the Chinese are building two power stations a week!', used as a reason for failure to take pro-environmental action? We have no idea whether this purported fact is even true, but let us suppose that it is. This is a classic example of a NET, triggering the deeply held belief that we are all doomed: there's nothing we can do and, what is more, it's someone else's fault. What alternative perspective might we encourage? Pointing out that China has recently become the world's largest emitter of carbon dioxide might not seem to be an obvious first gambit. Nonetheless, this statement conceals a crucial factor: the population of China is approximately 1.3 billion people, over four times that of the USA, the previous largest emitter. In other words, the per capita carbon emissions of the Chinese people are around a quarter of those of the

average American (and a third of that of the average Briton). The failure to acknowledge this fact is another common feature of corrupted decision-making, in this case known as 'base-rate neglect'. So a legitimate reconstrual of this particularly damaging NET might encourage the originator to agree to set (as a target) the reduction of their own personal carbon emissions to those of the average Chinese person. Were they to achieve this, they would have met the UK Government's carbon-reduction target for around the year 2040. A different perspective indeed.

This last NET is illustrative of a particular feature of negative thoughts, namely that it doesn't take many, indeed sometimes only one, to block entirely a change in behaviour. There is a fearful asymmetry here: a large number of reasons for change can be negated by a single negative thought, even if that negative thought represents a cognitively distorted perspective on the world. For this reason, close attention to Thoughts, the third of our HOT topics, is likely to be a necessary component of a pro-environmental psychology.

## Real behaviour change

We are not alone in seeking to apply the techniques of CBT beyond the therapeutic domain and into business contexts. Indeed, in recent years there has been a development of frameworks for so-called Cognitive Behavioural Coaching (CBC). For example, Palmer (2007) developed such a framework that he called PRACTICE, each of the letters in the acronym representing a stage in CBC-style problem-focussed approach: Problem identification; developing Realistic goals; generating Alternative solutions; Considering the consequences of each; Targeting feasible solutions; Implementing Chosen solutions; and Evaluation. What is striking about this list is how similar it is to the specifically environmentally oriented stepwise model of Dahlstrand and Biel (1997) described above. This confluence is encouraging, because it situates pro-environmental behaviour change in a more generic framework, albeit one on which it has not, until now, substantially drawn. To recap, Dahlstrand and Biel's model was a model of 'behavioural change towards a pro-environmental habit'. Up until now, we have emphasised the initial steps in modifying a client's attentional stance (Opportunities) and in encouraging a different perspective on negative or unhelpful Thoughts. While these steps are necessary, in this last section we acknowledge that they are unlikely to be sufficient to ensure that behaviour change accrues.

Among many practitioners of what was once called Cognitive Therapy, there is now an acceptance that cognitive changes are not enough by themselves to secure a behavioural change, particularly when the prior (problematic) behaviour has acquired the status of a habit (or a 'rule for living'). For this reason, practitioners began drawing upon the techniques of Behaviour Therapy, techniques which themselves had been heavily influenced by animal learning theory. Cognitive Behavioural Therapy (in various flavours, including Beck's classical CBT, Ellis's Rational Emotive Behaviour Therapy and Lazarus's Multimodal Therapy) emerged. A key observation was that deep (sometimes called 'gut level') acceptance of the benefits of change could only be properly achieved by encouraging the client to engage in a series of small-scale behavioural experiments. The results of these experiments were then fed back in such a way as to assist in the further breaking down of negative patterns of behaviour, including negative patterns of thought. To develop the example given above, a person with social phobia, confined to their home,

might be encouraged to accompany the therapist to the front gate of the garden, notwithstanding their possibly dire predictions of what might happen as a result. On learning that the expected disaster failed to occur (note: if the client's thinking is genuinely disordered then the therapist relies on the fact that the predicted disaster is indeed highly unlikely), the client is able to modify their cognitions at a rather deeper level than they could simply by sitting in the home and thinking, however rationally, about the matter. The client is, therefore, facilitated in acting like a scientist, with themselves and their beliefs and dispositions as the object of study. Once the garden gate has been conquered, the next experiment might involve a trip to the end of the street, then to the local shop, and so on.

Therefore the notion that clients progress in large measure by doing rather than thinking, and by observing that their predictions (thoughts) about the consequences of such action are faulty, is properly acknowledged in the cognitive behavioural therapies. It is also explicitly acknowledged in both the problem-focussed model of Palmer (2007) and the stepwise model of Dahlstrand and Biel (1997): both subsume the planning, testing and evaluation of new behaviours. Another framework in which this insight (i.e. that progress relies on, and indeed comprises, 'doing something different') is the Framework for Internal Transformation (FIT; Fletcher & Stead, 2000).

FIT comprises a collection of psychometrically validated tools (principally, the FIT Profiler) and a variety of behavioural interventions (principally, a Do Something Different, DSD, programme), all targeted at identifying and moderating a participant's degree of behavioural flexibility. Recent practical applications have been in the domain of weight loss (Fletcher, Hanson, Pine & Page, in press; Fletcher, Page, & Pine, 2007; Page & Fletcher, 2008), though the approach is, by its nature, generic. The FIT Profiler measures behaviour on 15 behavioural dimensions, specifically measuring the degree of flexibility in each. It also measures five 'Inner Constancies' (Awareness, Balance, Conscience, Fearlessness and Self-Responsibility), in an acknowledgement that thinking-style too can be prone to inflexibility and habit. Unlike other personality measures, the FIT Profiler emphasises the idea that for maximum effectiveness one would not want to be located at any given point along a particular dimension. For example, taking an Introversion-Extraversion dimension, it is clear that there will be some times at which one might best behave in an introverted fashion (e.g. a funeral), and some times when extraverted behaviour would be appropriate (e.g. a party). The FIT Profiler measures such behavioural flexibility and directs its development.

As noted above, the primary FIT intervention is a Do Something Different (DSD) programme. Taking weight-loss as an example, this programme invites participants to engage in a programme of doing something different every day for a month (with two additional tasks each week). Across the four weeks of the intervention, the focus changes from new behaviours (weeks 1–2), to new ways of interacting with people (week 3) and behaviours relating to the Constancies (week 4). Importantly, these DSD tasks are not themselves food or exercise related, but might be as simple as writing to an old friend, going to the theatre, or shopping at a different shop. The driving credo is that habits are not independent one from another, but exist in a mutually supporting network of habit-webs (cf. Neal, Wood & Quinn, 2006). If one comes home at the same time every day, having shopped in the same shops, to watch the same TV programmes, etc., then it is very

difficult simply to change, in isolation, the amount, or nature, of what one eats. By breaking down the distal habits that form the habit-web in which the proximal eating and exercise habits reside, the DSD programme seeks to enhance generic flexibility. It seeks to put people into a (psychological) place in which they can change anything about themselves, before attempting to change a particular habit. As such, it comprises behavioural experiment at a generic level, designed to reinforce the belief that flexibility and change are a defining feature of a true comfort zone.

Although we have only been able to give a very brief description of the FIT tools and FIT interventions, their generic nature encourages us that they might usefully be applied in other domains, notably in regard to pro-environmental behaviour change. Theoretical work concerning habits and the 'habit-goal interface' (Wood & Neal, 2007), identifies overlearned context-to-behaviour associations as crucial to the maintenance of habitual behaviour. By establishing new contexts, a DSD programme can prevent this automatic activation, and can sow the seed of effective change. For this reason, we are actively engaged in adapting FIT to the pro-environmental cause.

## Conclusions

In this paper, we have argued for a degree of eclecticism in psychological approaches to pro-environmental behaviour change. Taking inspiration from areas beyond the more frequently applied (and not obviously successful) single-track interventions, we have argued for a broader framework organised around the mnemonically useful HOT topics: Habits, Opportunities and Thoughts. We propose that the field will benefit from additional insights from cognitive psychology (in relation to attentional stance and rational decision making), cognitive behavioural therapies (in relation to NETs and the power of behavioural experiments), and from FIT science (in relation to its emphasis on enabling generic behavioural flexibility as an engine of change). Our current work involves bringing these insights together in a practical programme for businesses and individuals alike.

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# Green behaviour change: A case study of Eco Concierge

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*'Tell me and I will forget, show me and I might remember, involve me and I will understand.'*
Chinese proverb

Two of the significant issues that have been reported as having a negative influence on the extent to which people engage in green behaviour such as recycling, related to their pre-conceived ideas and attitudes about such behaviour (e.g. Nigbur, Lyons & Uzzell, 2010) and the inconvenience which they perceive it engenders (e.g. Tucker & Speirs, 2003). Eco Concierge was established in 2009 with the sole mandate of challenging such ideas and removing those barriers – essentially to take the hassle out of being green. In one sense, a concierge service that works with individuals and businesses to help them green their lifestyles and operations. It therefore represents one way in which organisations can become greener and also can help their employees do so. However, it is also much more than this; by emphasising the need to go green without compromising the perspectives, values and character of its clients and also by specialising in green behaviour change that uses proven behavioural change research as a basis for the development of an effective service operation, it aims to enable deep, significant and lasting change towards a greener future.

The work of Eco Concierge is underpinned by the UK government's Department for Environment, Food and Rural Affairs' (DEFRA) Pro-Environmental Behaviours Framework. Individuals' uniquely-held values, as well as their lifestyle and stage, result in dramatically different perspectives on environmental issues. By tailoring messages to reflect a deeper understanding of each personal outlook, it's possible to deliver solutions that appeal to individuals; not only achieving initial behaviour change at the point of interaction, but also long-term habit and lifestyle change.

The absolute starting point for Eco Concierge and its *modus operandi* is the fact that three out of five people in the UK want to be greener but don't know where to start (or what to do next), or don't have the time to make the changes. These numbers are based on an array of segmentation evidence in this field including DEFRA's pro-environment behaviours work, recycling, energy conservation and uptake of organic food studies and Marks and Spencer's internal market research. Crudely put, around 36 million of the people in the UK could contribute to a less environmentally impactful society, but they either haven't been engaged, or aren't being served the right information. Tapping into this potential would close a substantial gap in the market and move us a long way towards a more sustainable future. We'll come back to this. But firstly, it is important to examine the significance of individual behaviour change and why – as we've seen in our work – engaging with businesses to motivate their employees to be greener is effective.

## The context

The work conducted to date on behaviour change theory is vast; that on environmental behaviours specifically is evolving and deepening at a rapid rate.

A recent WWF report said, 'It is now beyond dispute that any proportional response to today's environmental challenges will require profound changes to the way that most people in developed countries, and many of the richer people in developing countries, choose to live. This will entail widespread but far-reaching changes in individual behaviour, fundamental changes in business practice, and the implementation of ambitious new policies and regulations to drive these changes by government.' (WWF, 2009)

Taking this and the numerous other calls to action into consideration, Eco Concierge aims to facilitate the change through enhancing the effectiveness and rate of individual behaviour change. To date our work has been most successful through taking our approach and applying it to employee engagement initiatives within public and private sector organisations. The missing link in effective Corporate Social Responsibility (CSR) engagement strategies often stems from failing to take the environmental management systems through which many companies operate much of their policy in this area, and make it directly relevant to, and involve employees. In this case study, we briefly summarise how we have reached this conclusion and outline how we have used this information to enact a practical and successful business proposition.

## Corporate social responsibility and the primacy of employee engagement

First we need to understand why CSR has become a central pillar in many businesses. According to Rochlin and Boguslaw (2001), there are multiple drivers that influence/motivate corporate behaviour:

- **Values:** based on personal morals, and a desire to 'give back' to society.
- **Compliance:** government regulations and grass-roots activists create compliance pressures.
- **Intangibles:** intangible factors include reputation, brand and relationships.
- **Market:** market drivers lead to 'typical' projects and investments, such as product launches, production, purchasing or employee training.

As an attempt to deliver against one or all of these objectives, CSR has emerged over the past decade as an influencing factor of corporate behaviour and response to environmental issues is now considered one of the fundamental offerings that 'should' be delivered in this realm. Yet several shortcomings have been identified in current CSR approaches; by using information on the identified gaps which exist in this area, Eco Concierge's approach is designed to remove barriers or improve existing strategies.

Googins (2002) has argued that conventional approaches to CSR are limited due to the boundaries in which the area has developed. The following areas were identified as barriers to successful CSR.

- Over-reliance on philanthropy.
- Weak brand for corporate citizenship.

- Citizenship fragmented across the organisation.
- The shareholder stranglehold.
- Programmes versus practices.

Added to these factors is the lack of understanding about issues across the spectrum of a company and a lack of ownership of the work internally. Typically CSR doesn't fall into central business activities, so is frequently the first area to be disbanded, or is often offered only rhetoric in day-to-day business. Pedersen and Neergaard (2008) state that in order to move beyond the rhetoric of CSR one of the first steps is to embed social and environmental concerns into the strategic management and performance measurement systems that increasingly guide corporate decision-making and behaviour.

A recent study (Runhar, Tighelaar & Vermeulen, 2008) confirms that a lack of knowledge by employees and employees not being eco-minded were both significant barriers to a company's environmental leadership; these barriers need to be overcome if corporate strategies are to truly reflect the rhetoric of proactive environmental leadership. Education and training of employees needs to be tailored to better engage them on issues. CSR is unlikely to permeate the organisation unless social and environmental concerns are integrated in the management frameworks and measurement tools of the business mainstream.

Engaging with employees and empowering them to act through the company in a non-superficial way is a most effective means through which to increase output towards and ultimately achieve or enhance environmental strategies and goals. It has been identified that employees are also compelled by a company's CSR activities. Indeed, companies pushing the boundaries on CSR activities and prioritising this area of activity offer a legitimate way to attract and retain good employees, indeed, many companies big and small, including Cisco Systems, General Electric and IBM, view employee engagement in CSR as a 'strategic imperative' (Bhattacharya, Sen & Korschun, 2008).

Evidence on the appeal of strong environmental strategies for prospective employees should not be underestimated. According to a survey of recent US graduates from recruitment firm MonsterTRAK, 80 per cent of respondents said they are interested in a job that has a positive impact on the environment, with 92 per cent stating they would choose an environmentally friendly employer(MonsterTRAK, 2007).

But few organisations have figured out how to use CSR properly as part of their employee engagement efforts. They fall short of communicating their CSR intentions and initiatives to their employees and tend to keep CSR decisions in the hands of senior managers. At the same time, they fail to understand which CSR initiatives work best to excite which groups of employees. All in all, they fail to capture CSR's considerable potential to help them fight the war for talent (Bhattacharya et al., 2008).

Employees will always vary in terms of knowledge about the issue and also willingness to act. A central element in Eco Concierge's approach comes from identifying individuals that are keen to take action and use them as internal champions; inviting employees to develop, influence and manage the process will also empower them to get involved. Ensuring that all employees are aware of environmental-related activities that are planned or in progress will encourage those that are not so engaged to better understand what is

taking place. We know that communicating the initiatives and actions to employees is paramount for achieving success (McDonald, 2007). Similarly, in keeping the initiatives in employees' minds and to maintain interest, periodic communications and events can be effective.We have also found that a common frustration and even cause of stress amongst professionals is not having the time to organise their personally green lives, hence the value of linking workplace programmes to Eco Concierge's individual offer for employees at home.

When used properly, CSR can strengthen employees' engagement by creating the feeling that they are part of a larger corporate mission and that the company shares their values, as well as by helping them enhance their own social connections (McDonald, 2007). By offering a tailored approach to employee engagement or empowerment, Eco Concierge is able to facilitate the achievement of company objectives by effectively working with employees to integrate positive changes made at home and at work into their professional lives and thus the business. Furthermore, by initiating a whole-of-company ethos, Eco Concierge attempts to create linkages between social, environment, marketing, human resources and other organisational entities;therefore ensuring that environmental objectives are anchored within a strategic framework strongly linked to a clear competitive advantage (Googins, 2002).

## The case of Eco Concierge

At the moment sustainability initiatives generally fall into one of two categories: infrastructure change or mass communication campaigns. Eco Concierge, along with a few other niche companies, have differentiated by specialising in behaviour change, viewing this niche as a low-cost, high-impact and long-term solution that allows sustainable living to mean something to everyone. Eco Concierge is a social enterprise that helps individuals and businesses to take their own 'journeys' towards greener living. For individuals, we do this by understanding their lifestyle, values and current environmental impacts. Once we have this information, we are then able to create personalised action plans which we then deliver. For businesses, we engage employees in company environmental objectives, and offer our individual services as a means of creating an important link between business principles and employees' values to build a more engaged workforce and efficient operating model.

Services range from a full lifestyle overhaul to ethical personal styling or home renovation. Whether it's switching to renewable energy, having a sustainable wedding/baby/holiday, insulating a home, stopping junk mail, buying a new boiler or reducing water use, the aim is to find the best solution for a given person at a given time, through understanding their values and perspectives. This derives from our three core objectives, which are:

1. to be sustainable – in purpose and operation;
2. to increase the accessibility, number and quality of opportunities for individual sustainable behaviour changes and decision making; and
3. to offer excellent client experiences that maximise the lasting impact of green behaviour change.

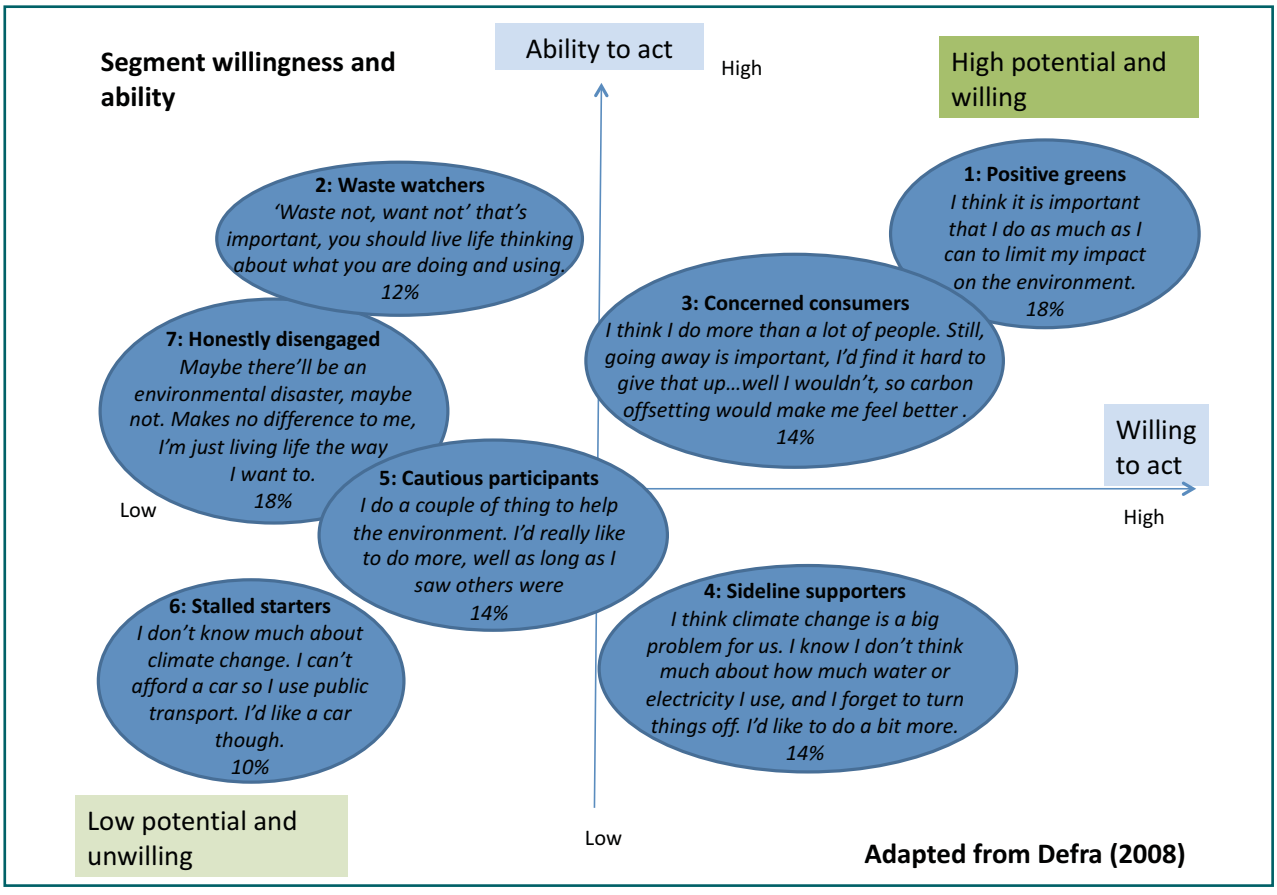
Eco Concierge is not a typical company. It is one of a growing breed of hybrid organisations, a for-profit enterprise whose mandate is to promote a social and public good and to conduct business ethically. The overarching aim is to help people make a positive environmental difference to their lives. With a company like this, it's not about retrofit 'embedding responsible values' as other companies have to do; it was the values of the people who work there that created the company and which continues to drive it. Our mission is to have a net positive effect on the world.

## The Eco Concierge approach

We retain our competitive edge by working from a strong research base.We are taking steps to ensure that we keep ahead of the curve as behaviour change is proven on a wider scale. While green behaviour change is a major growth area for employee and customer engagement within large companies, the breadth of knowledge and action, personalisation and proven sustainability impact combine with our research-based approach to make us unique and successful. We have no direct competitors in operation at the moment.

Most importantly, our approach targets and works with those people who *do not* pick up on mass media communications, because they don't identify with the agenda. The premise behind this stems from the idea that there are different types of 'green' – some people who identify with the agenda, and some who don't but aren't adverse to adopting sustainable behaviours if engaged at a level on which they identify. DEFRA (2008) developed this segmentation model (see Figure 1) and Eco Concierge attempts to engage the segments of society identified as having the potential to be greener.

Figure 1: The seven population segments



Drawing on our own experience of working with clients, as well as other research on segmentation and DEFRA's segmentation model, Eco Concierge have devised an approach which identifies four behavioural types (see Figure 2). Our clustering of behaviours is based on developing the segmentation developed by DEFRA to make it more commercially applicable. It is also key to adopt an approach which is more meaningful to actual consumer experiences. Two sectors mentioned in Figure 1 ('honestly disengaged' and 'stalled starters') are specifically not targeted through our work.

**Figure 2:** Eco Concierge behaviour segment model

| | |
|---|---|
| 1.<br><br>"I'm careful about saving money where I can. I can see the value of 'waste not, want not' in other areas of my life too" | 2.<br><br>"I like to show my support for green issues – I'd be up for buying a Prius and things like those cool Stella McCartney t-shirts or RED ones that support AIDS charities" |
| Waste not want not – 12% of the population | Conscious consumer – 14% of the population |
| 3.<br><br>"I do some things to help the environment, but it's hard to do everything. I am most likely to do something if I see others making the effort too, because it feels more fair" | 4.<br><br>"The Earth has very limited room and resources so people who fly should bear the cost of the environmental damage that air travel causes" |
| I will if you will (groups together two of DEFRA segments 'side-line supporters and cautious participants') – 28% of the population | Positive green – 18% of the population |

We further couple the segmentation model on environmental considerations with a similar 'values' matrix based on Dynamic Maslow Group Theory to allow us an even better understanding of client perspectives and therefore the subsequent response we can deliver. Of course, there will be differences in declared versus actual behaviour at times, but the 'faces' are designed to hold equal appeal or status so that there should not be a feeling of any 'right' or 'wrong' answer. Ascertaining to which group an individual most identifies with allows us to respond with solutions and actions which will appeal. We don't just provide standard services with minimal impact; by combining these approaches when conducting initial consultation, we are able to tailor our work to reflect individual values.

In addition to the identification exercise, our first interaction with all clients also includes a baseline 'ecological footprint' calculation, following the methodology developed by the Stockholm Environment Institute. This allows us to calculate a person's holistic environmental impact. By determining 'how many planets' a lifestyle is consuming, we can assess the reduction in impact our solutions will offer. We work on the premise that our services will deliver a minimum client reduction of 10 per cent footprint, which taking the UK average (3 planets) is a third of a planet. However, since our client base to date has been the more affluent market, we are finding that clients have a higher than average footprint, which offers more scope for action and therefore bigger absolute reduction in environmental impact as a result.

## Conclusion

In Britain, a majority of people say they would like to do more to live sustainably – a positive life with limited impact – but do not do so because of the range of practical and perceived barriers discussed here. Eco Concierge has delivered numerous innovative and reactive projects and is developing from its beginnings and the proof-of-concept work to the development of robust programmes aimed at influencing behaviour change and habit. This is often a crucial missing component in work aimed at reducing negative environmental impacts, whereas it constitutes the central pillar for Eco Concierge. As thought leaders in the area of behaviour change for sustainable lifestyles, our 'whole perspective' stance, which incorporates an ecological footprint measurement and personal values, and our environmental perspective 'segment' identification gives us an operating model which is effective in engaging people who ordinarily wouldn't feel engaged to deliver change beyond expectations. For Eco Concierge it is and will remain our main objective to help as many people as possible live greener lives.

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# Promoting environmental behaviour in the workplace: A survey of UK organisations

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This chapter aims to provide an insight into the approaches that organisations currently take to encourage pro-environmental behaviour among their staff and to consider the role that Human Resource (HR) departments could play in managing and implementing environmental initiatives and engaging employees to behave in a more pro-environmental way. It is based on the findings from a UK-wide survey of organisations, exploring the approaches that companies take to encourage pro-environmental behaviour among their employees (Zibarras & Ballinger, 2011).

The survey examined green initiatives being used by organisations and looks at where responsibility lies within the organisation for the implementation and management of green initiatives. It also examines which methods organisations have used to encourage staff to behave in a pro-environmental way. The chapter also explores whether organisations have evaluated the effectiveness of their environmental initiatives on employee behaviour, what the perceived facilitators and barriers to effective environmental practices are within the organisation, and the role of organisational culture. Work and organisational psychologists can play a key role in designing and implementing initiatives aimed at changing organisations and the pro-environmental behaviour of their employees; however, it is also necessary for a wider engagement of organisational actors and the paper therefore concludes with a call for HR personnel to play a larger role and become more involved in making green initiatives mainstream throughout an organisation's culture.

## The green agenda for business

The context within which businesses operate is changing: water scarcity, energy problems, a depletion of natural resources, poverty and increased waste are all having a negative impact on the way organisations function. Governments worldwide have increasingly challenged organisations to address their environmental and social performance in addition to economic performance. Businesses have responded to this green agenda in varying ways, including a detailed consideration of the business case for integrating sustainability into their business strategies. The big challenge for businesses consists of how to formulate and implement these green initiatives and it is here that psychology plays a key role because it is only through changing the behaviour of individuals that the problems of sustainability can be addressed.

According to a recent survey, 93 per cent of chief executive officers (CEOs) surveyed believe that sustainability is important to the future success of their company (Accenture, 2010). In addition, 81 per cent believe that sustainability is already 'fully embedded into the strategy and operations of their company'. It is important that organisations are seen to be taking their impact on the environment seriously, not only because of the business benefits this accrues. The role of business in saving the planet is much wider than simply being seen to be green – as previous research has shown, a

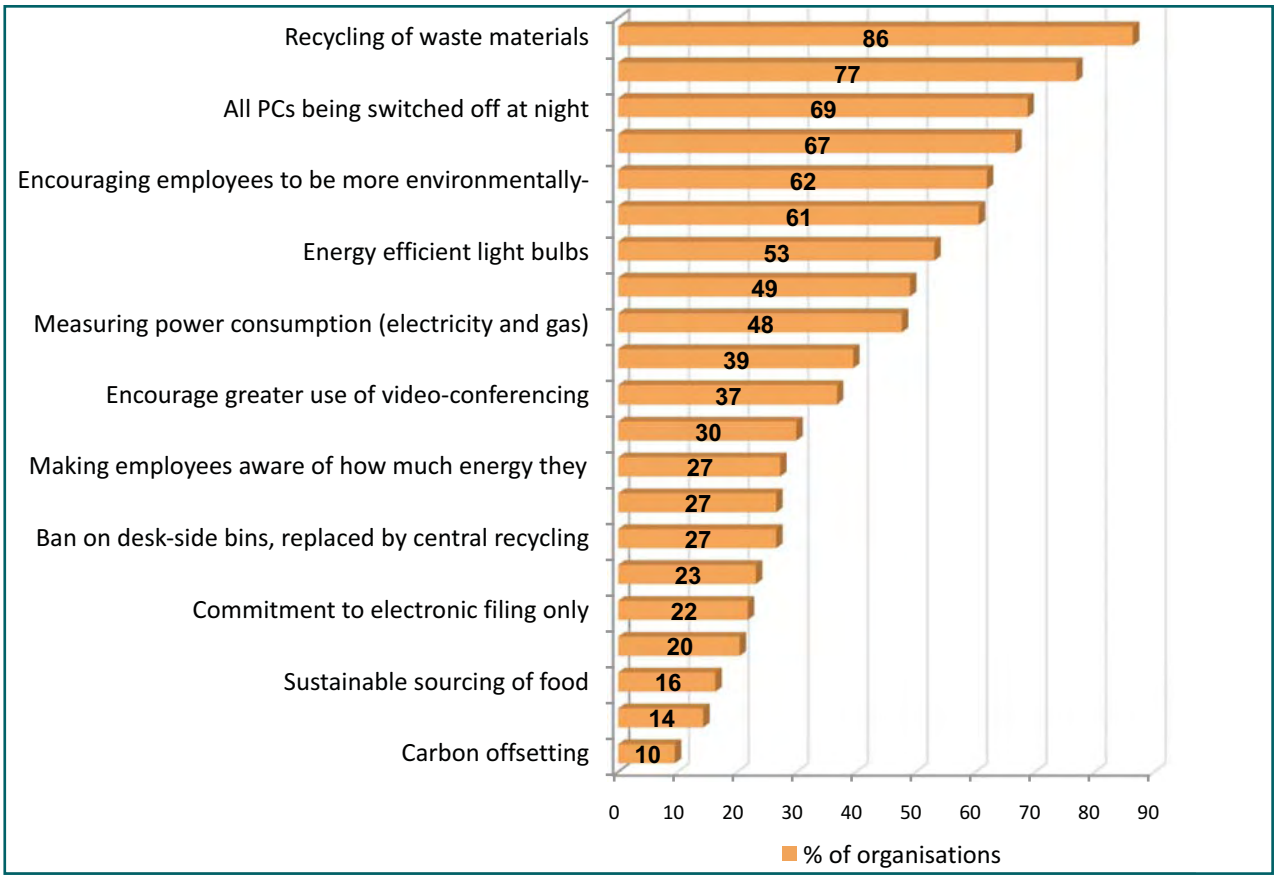
perceived lack of action by business is a significant barrier to engaging with climate change among the UK public (Lorenzoni, Nicholson-Cole & Whitmarsh, 2007). There are many areas of potential benefit that a new sustainable approach business can bring, but the role of employee behaviour in delivering the necessary environmental improvements to organisations has been largely overlooked (Davis & Challenger, 2009). This chapter goes some way to addressing this oversight by examining what UK organisations are currently doing and highlighting the huge potential that work and organisational psychology has to further inform the practice of HR professionals in the engagement of employees and the facilitation of an organisational culture shift to a greener business future. Here we present a snapshot of some of the key findings from the survey, based on a sample of 147 UK organisations of various sizes and from both the public and the private sectors. Further details about the survey and more in-depth findings are available from Zibarras and Ballinger (2011)

## Current environmental initiatives

The survey revealed that a large proportion organisations are currently engaging in a wide range of environmental initiatives (see Figure 1). Some headline figures are that:

- the most popular environmental initiative is the recycling of waste materials, with 86 per cent of organisations reporting that they have a recycling scheme in place;
- the majority of organisations (77 per cent) have an environmental policy in place within their organisation;
- sustainable sourcing of green energy and food were among the least common environmental initiatives, with less than 20 per cent of organisations using such initiatives. Carbon offsetting was the least popular with just 10 per cent of organisations committed to this scheme.

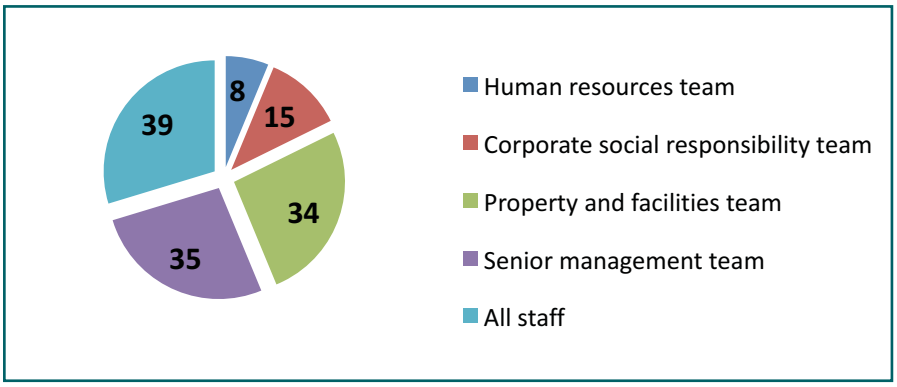
Figure 1: Current environmental initiatives



## Who is responsible for environmental initiatives within organisations?

The research revealed that the responsibility for implementing and managing environmental initiatives lies with different functions and actors across different organisations (see Figure 2). The majority of organisations reported that such responsibility is distributed across all staff in the organisation, whereas other organisations allocated the responsibility to specific teams or functional areas, such as the HR department or the property and facilities team. Fifteen per cent of organisations had a team specifically working on corporate social responsibility.

Figure 2: Responsibility for environmental initiatives

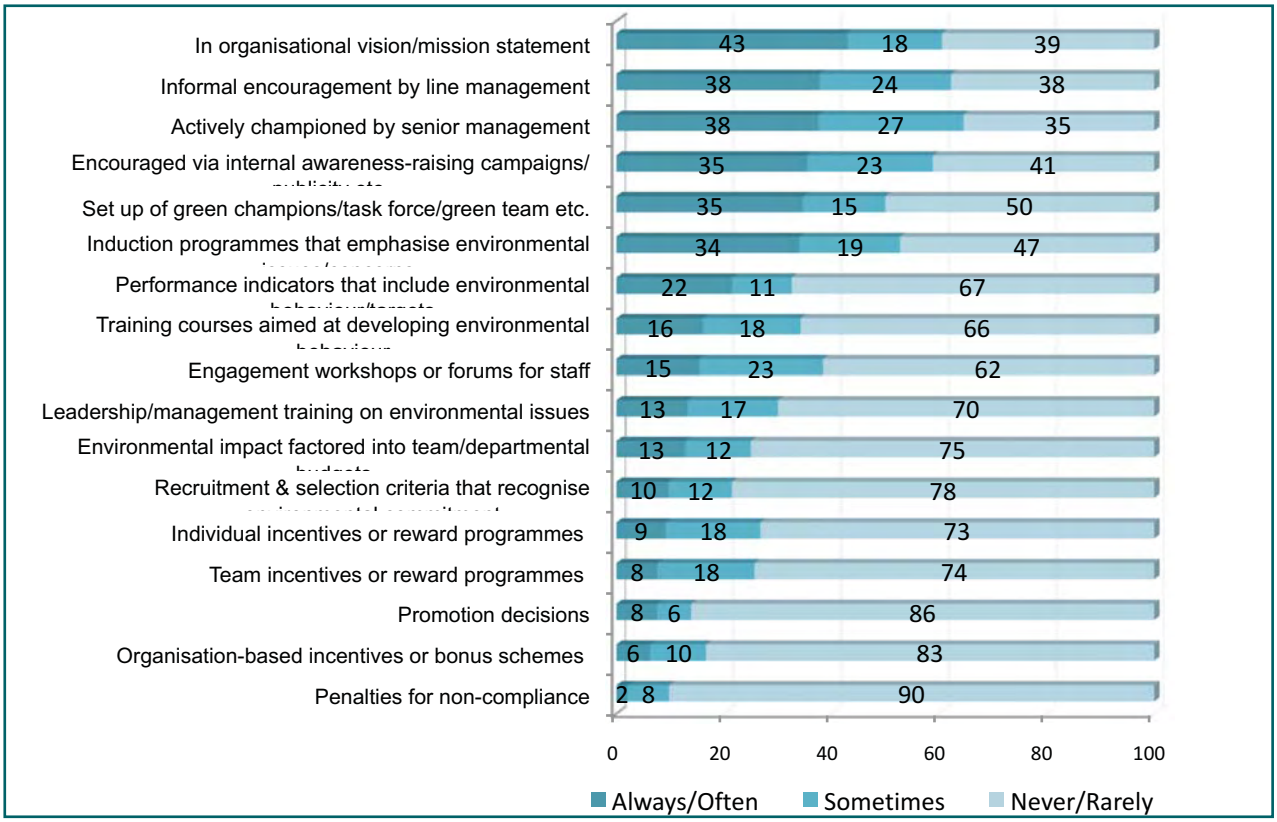



## Encouraging pro-environmental behaviour at work

The research examined how organisations encourage pro-environmental behaviour at work and what methods are successful. Figure 3 reveals that fewer than 45 per cent of organisations had integrated environmental concerns into their organisational vision or mission statement. Yet this method represents the most common means of encouraging staff to behave in a pro-environmental way. Informal encouragement by line management and active championing by senior management were common in 38 per cent of organisations. Reward programmes and promotion decisions were among the least common methods of engagement. Just 2 per cent of organisations use penalties for non-compliance.

Respondents rated internal awareness-raising campaigns and active championing by senior management and green champions or green teams as the most effective ways of encouraging pro-environmental behaviour (see Figure 4). The least successful method was overwhelmingly perceived to be penalties for non-compliance, followed by the inclusion of environmental concerns in the organisation vision or mission statement. However, it is important to note that most organisations did not actually evaluate the methods they used to engage staff, with just 16% of organisations agreed that they have done something, whereas 65% said they had not. Of those who reported that they had done an evaluation, the most common method of evaluation was measuring and monitoring energy consumption and the amount of waste.

## Figure 3: Methods used by organisations to encourage pro-environmental behaviour



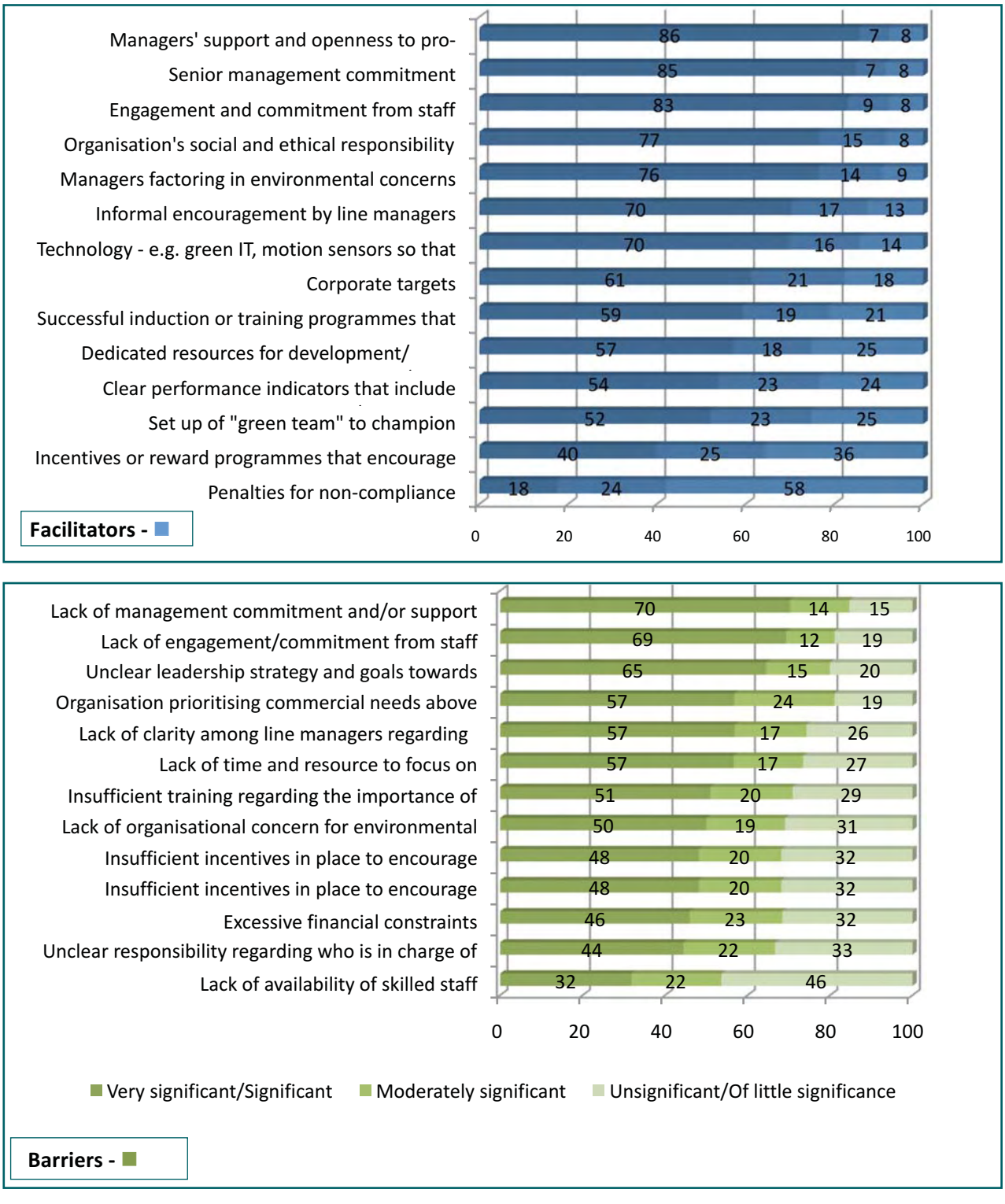

## Figure 4: Most and least effective practice used by organisations to encourage pro-environmental behaviour

| Top 5 practices considered most effective by organisations to encourage employees to be pro-environmental | | |
|---|---|---|
| **Ranking** | | **No. of orgs** |
| 1st | Encouraged via internal awareness-raising campaigns/publicity etc. e.g. series of lectures/seminars/debates for employees, posters etc. | 29 |
| 2nd | Actively championed by senior management | 25 |
| 3rd | Set up of green champions/task force/green team etc. | 2 |
| 4th | Induction programmes that emphasise environmental issues/concerns | 19 |
| 5th | Informal encouragement by line management | 18 |
| **Top 5 practices considered least effective by organisations to encourage employees to be pro-environmental** | | |
| 1st | Penalties for non-compliance | 17 |
| 2nd | In organisational vision/mission statement | 10 |
| 3rd | Recruitment and selection criteria that recognise environmental behaviour/commitment | 8 |
| 4th | Promotion decisions | 7 |
| 5th= | Informal encouragement by line management | 6 |
| 5th= | Set up of green champions/task force/green team etc. | 6 |

## Barriers and facilitators of pro-environmental practices

The survey asked about barriers and facilitators of pro-environmental practices (see Figure 5) and the results indicated that effective environmental practices were facilitated by Managers' support and openness to pro-environmental practices, the commitment of Senior management and the engagement and commitment from staff. Conversely, the top three barriers were a lack of management commitment and/or support, a lack of engagement or commitment from staff and an unclear leadership strategy and set of goals relating to environmental issues.

### Figure 5: Barriers and facilitators of pro-environmental practices



## Promoting a culture of pro-environmental behaviour

The survey revealed that only a small majority of organisations (56 per cent) agreed that environmental concerns are important to their organisation, although there does seem to be a feeling that the organisation is taking some role in environmental issues, with the majority of respondents agreeing that their organisation does its bit to protect the environment and that their organisation is interested in developing pro-environmental behaviour. While the recent economic and financial crisis might be suspected to have reduced the importance of the green agenda, most organisations in the survey disagreed that this was the case. Just 38 per cent of respondents agreed that their management practices actively enhance and encourage environmental behaviour, and one third agreed that their managers provide practical support for environmental behaviour or practices. This is despite managers' support and senior management commitment being seen as the top two facilitators for effective environmental practices within organisations. Rewarding green behaviour and setting personal development objectives in relation to environmental behaviour were among the least popular means of promoting a green organisational culture. Once again, penalising the failure to demonstrate pro-environmental behaviour was the least popular concept among organisations.

## Key take-home message

While this chapter provides only a brief snapshot of our survey results (as previously indicated, further details are available from Zibarras and Ballinger, 2011), it does illustrate at least one clear take-home message in terms of facilitating pro-environmental behaviour and that is the role of management in terms of both senior management teams and the role of line managers. Senior management commitment and line management support are perceived to be amongst the most important and the most successful methods of encouraging pro-environmental practices in the organisation and behaviour of individuals, with a lack of management commitment/support perceived to be the most important barrier. However, only 38 per cent of organisations use informal encouragement by line management and senior management championing as a method of encouraging staff to behave pro-environmentally, and only 38 per cent of respondents agree that management practices within their organisation actively enhance and encourage environmental behaviour. Furthermore, just 35 per cent agree that managers understand that it is part of their job to operate in an environmentally friendly way, with only a third agreeing that managers provide practical support for environmental behaviour/practices. What this selection of statistics tells us is that there is clearly more work to be done. While many organisations claim that sustainability is important to them, the extent to which people specialists within organisations have been engaged by management to design, implement and evaluate initiatives aimed at increasing pro-environmental behaviour is limited.

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