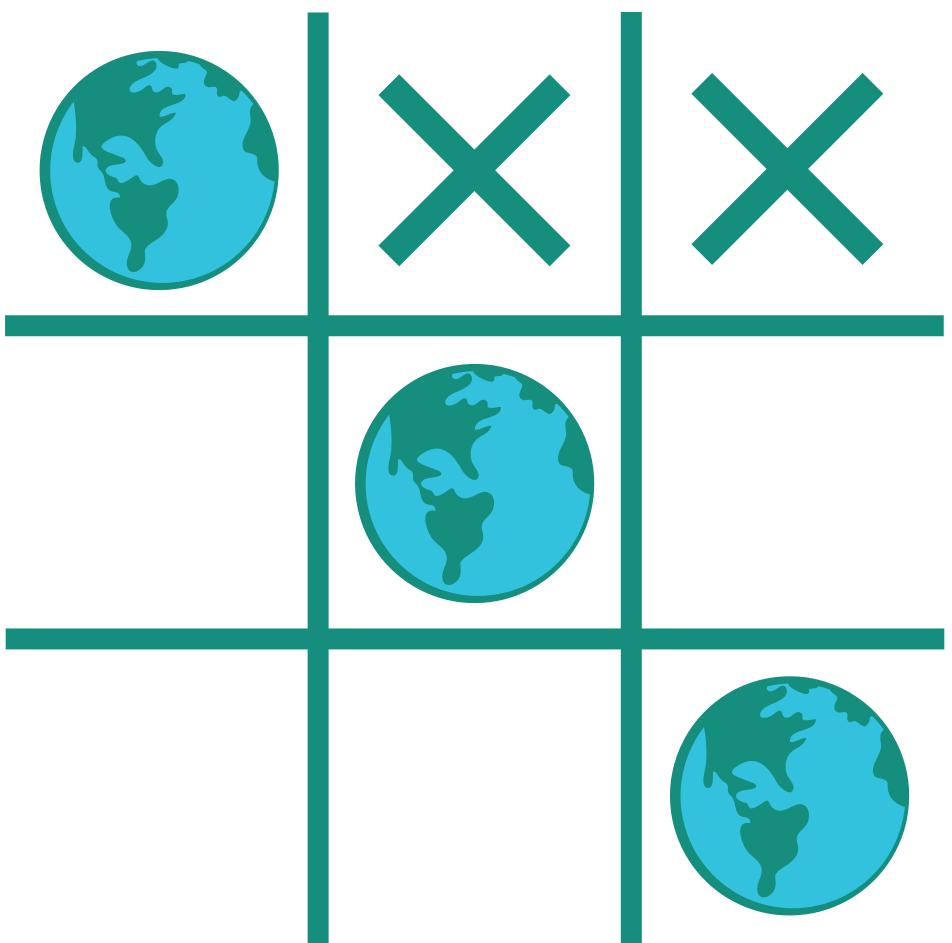




Can we play our way to a more sustainable future?

Research findings from the eco action games events



A report into the analysis of eco action games educational community events

Undertaken as part of the GLA/LSDC London Leaders award scheme

Researched and written by
Paula Owen
London Leader
Autumn 2013

01

Executive summary Can fun & games help save the planet?

In 2012/13, Paula Owen, the author of this report, was awarded a London Leaders position to carry out a unique, ground-breaking study into the potential for using environmentally themed social games as education and engagement tools to deepen the understanding and appeal of sustainable living as a desirable lifestyle choice.

A number of familiar, old-school, social games were re-designed to contain positive environmental messages and describe actions that people could easily adopt at home, at work, at the shops and while travelling. The games included versions of top trumps, bingo, snakes & ladders and 'play your cards right'. Simple, familiar, multi-generational games were purposefully chosen to avoid any barriers to engagement through issues with unfamiliarity and the need to learn new rules.

Events were held in a variety of locations and for a broad cross-section of society. Large scale public events were held at the Science and Natural History Museums. Smaller scale events were undertaken in schools, the WI, Age UK residential day-care centres, businesses and at festivals. The venues were transformed into pop-up eco-playgrounds where attendees were encouraged to play the games and discuss the issues highlighted.

Data was captured through pre- and post-event questionnaire feedback forms and follow-up studies. This report summarises the findings from the analysis of that data.

The initial results suggest there is potential for using games and other non-conventional methods to explore environmental issues and encourage take-up of environmentally positive actions. The shift from using communication interventions where the focus is on doom & gloom and guilt-inducing messages to a positive, interactive, optimistic approach to education and engagement appeals to all age groups and sectors sampled in this study.

A follow-up survey was undertaken two to three months after the events, where the participants were recontacted to ascertain whether they could recall any of the information they had learnt and, crucially, had put any of it into action.

In addition to the data, qualitative feedback obtained in the study underlined our original hypothesis that there was much support and enthusiasm for a fresh, positive, aspirational approach to environmental behaviour change interventions. Examples of this feedback are featured throughout the report.

Findings from the event feedback

97%

of all participants questioned enjoyed the events they attended.

86%

enjoyed the experience of learning new information about environmental actions while playing the games.

59%

stated they had learned new and useful information that they would be taking back to their home and/or work environment.

92%

agreed they enjoyed the games played.

51%

stated they would be taking action as a result of what they learnt through the games experience.

3

the average number of actions that participants of the events committed to adopting.

Findings from the follow-up survey

20%

the response rate of the follow-up survey.

4

the average number of actions that respondents had already adopted.

500 kg/yr of CO₂

the average carbon saving already made by each respondent, with a further 600 kg/yr saving possible if they implemented the extra planned actions. **In total, an average saving of over one tonne of carbon emissions per respondent is achievable.**

02

Context

A move from 'doom & gloom' to 'fun & games'

Imagine the scene: you are at home on a cold, frosty night; the doorbell rings. There is a fireman at the door. He informs you that there's a 95% certainty that your house will catch fire and it is as a result of the way you live in it, but the good news is there are lots of easy ways for you to reduce this risk.



What would you do?

You could either:

- a) find out all you could about how to minimise the risk and change your behaviour accordingly, fit or fix a smoke alarm and ensure you have adequate insurance, or
- b) decide the fireman is talking nonsense, "you know what these firemen are like, scaremongering to ensure their own jobs", you put the whole thing out of your head and only bring it to mind again when the smoke alarm goes off unexpectedly in the middle of the night.

I pose this hypothetical question because, if you consider it, this is exactly the situation we are facing, albeit on a larger scale, with the threat of man-made climate change¹ – for firemen read scientists, and for 95% probability of a house fire read a 2-6°C increase in global temperatures – and our singular failure to engage the mainstream public in action to help mitigate this risk.

For environmental professionals it is mystifying that we have made so little real progress in winning the general public's hearts and minds. We have spent decades scratching our heads and bemoaning the simple inconvenient truth that the general populace still just don't 'get it'.

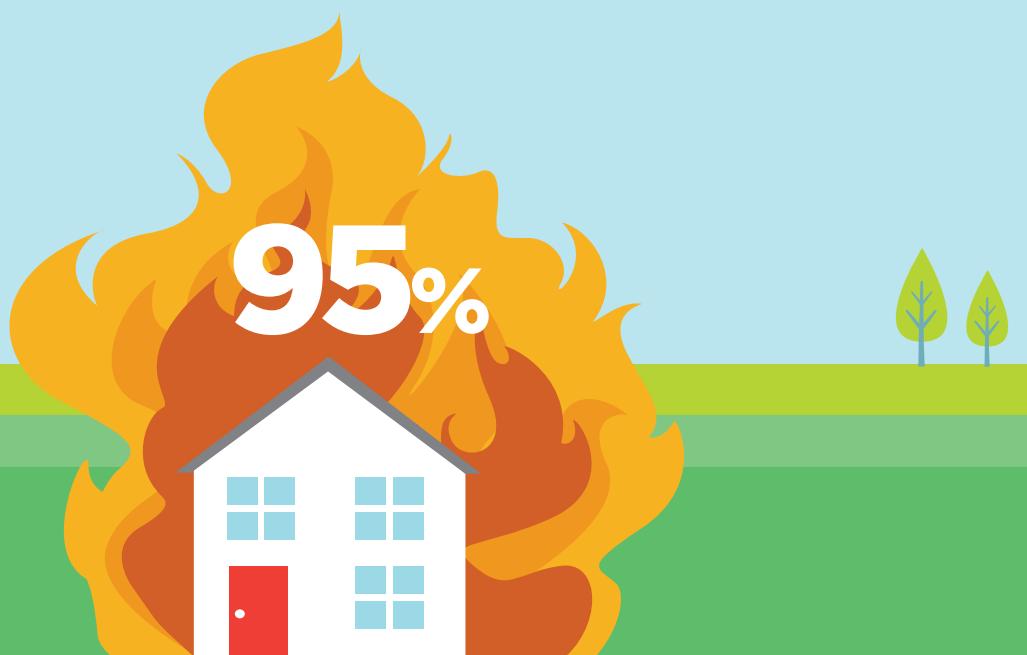
Let's face it, we've confronted them with all the hard, stark facts – polar bears are dying, ice caps are melting, Bangladesh is drowning, deforestation is wiping out orang-utans, flying is evil. We've informed them that it is all their fault – so why, oh why, aren't people 'getting it' and taking action to reduce their impact?

I hope you can see where this argument is heading. Basically over past decades we have taken the approach of bombarding the public with environmental messages that have been almost exclusively negative, pessimistic, overwhelming and misery-laden. We have tried to guilt-trip people into getting on the 'sustainability bus' instead of journeying in their personal, comfortable, air-conditioned cars. We berate them for enjoying themselves through holidays and possessions and keep delivering the same old message that they must give it all up. If they agree to be cold, miserable and badly dressed then maybe, just maybe, we will forgive them for causing this global warming problem in the first place.

This approach has patently not worked; if it had we would be looking forward to a much brighter, cooler future by now. The whole environmental communication sector requires a shake up and needs to adopt a new approach to engaging, educating and engendering behavioural change in the wider public.

This report discusses the initial findings of a year-long study that explores a new, positively focused approach to mass engagement. The approach does away with the 'doom & gloom' method of engagement and replaces it with a technique based on interaction and fun, to test out whether this has more traction and resonance with a public that has largely ignored previous attempts to influence it.

1 IPPC report 2013 states that the climatic change of between 2-6°C we will see this century is 95% certain to be the result of human activities



03

The Events Let the games commence

The ‘fun & games to save the planet’ research project fieldwork took place over a period of six months in 2013. The basic premise was to engage a wide cross-section of audiences in playing environmentally themed games through events and workshops. Generally the events, with the exception of schools and festivals, were aimed at people aged 18 and over, and the data are taken exclusively from questionnaires completed by adults.



“Excellent way of getting people talking about climate change”

Typically four or five games were on offer, including eco-themed versions of traditional, well-known games such as top trumps, bingo, snakes & ladders and the TV game show ‘play your cards right’. Other games supplemented this core set. For example, the carbon footprint of food was explored through all stages of the food chain, eco-driving skills were put to the test and the re-imagining of everyday household objects was encouraged through a creative drawing game. The games were run either through facilitators or were self-play. Attendees were encouraged to play multiple games covering the various topic areas and to discuss the issues highlighted.

Large scale events were held in public buildings and festivals and were free for the public to attend. The project launch was held in the Science Museum and hosted 120 people. Further events at both the Science Museum and the Natural History museum were part of their regular ‘Lates’ evenings.

Other smaller events, such as sessions with the WI, Age UK day-care centre and at schools were focused on particular community groups. Events hosted on behalf of organisations and companies were run exclusively for their staff. In total, approximately 500 participants have taken part in events to date.

At some events data was collected before the games commenced. This was to determine socio-demographic details and to gather existing attitudes and opinions regarding environmental issues.

At the end of the events, a questionnaire invited comment on a number of topic areas. Questions covered the games themselves, the environmental actions discussed, views on the information learned and what they might do differently in future as a result of taking part in the games. Where permission was granted we followed up with participants around two to three months later, to ascertain what they recalled of the event they attended, what new actions and behaviours they had adopted as a result of participating, and if they were considering any further actions.

“The games make learning about eco actions fun”

“Enjoyed the conversations generated by getting different people together around a game”

04

The 4Es theory of positive engagement

A move from the ‘misery messaging’ style of communication interventions to a more positive, immersive style of public education and interaction requires a new model of engagement. Through this research work we have developed a working theory that was used as an evaluating framework to test the applicability of the intervention.



The new hypothesis has a working title of the ‘4Es theory of positive engagement’. It is described briefly here.

A successful fun and games approach to environmental behaviour change should tick the following boxes:

1 Entertain

Any communication tool using this technique has to entertain. If people are not enjoying the activity they will not be in a frame of mind where learning will be productive. Participants need to enjoy themselves and consequently be in a relaxed state, receptive to messages.

2 Engage

For the technique to influence behavioural change, individuals have to engage with the process and the messaging. They need to understand that the issues explored through the game mechanic and the actions suggested are relevant to them.

4 Engender

The final piece of the jigsaw is to what extent the process of learning and engaging through games and play can engender behavioural change in the participants beyond the duration of the game.

3 Educate

The third criterion for success is the need for the intervention to educate as well as entertain. The intervention will not achieve its goals if the audience is simply there to have a good time and no effective messaging is apparent in the process.

The following section explores the data gathered from the events to ascertain if the approach can satisfy the four stages of the theory.

“Everyone was friendly and I didn’t waste time feeling guilty about not doing enough regarding the environment – I just felt optimistic”

05

Findings Can games educate?

At the events the participants were asked to rate their experience in terms of enjoyment, engagement with the games, educational content, whether they had learnt anything new about environmental issues and finally if they had been inspired to take action(s) as a result of attending.



Each question was scored on a scale of: strongly agree/agree/neutral/disagree/strongly disagree/no opinion/not sure.

The following analysis gives an average percentage score for each 4E area across all events where data was collected:

Entertainment

97%

agreed or strongly agreed that they enjoyed the event they attended.

3

the average number of games each attendee played.

92%

of all attendees enjoyed the games they played.

These figures show we have strong initial evidence that the first E of the theory is being satisfied – we are entertaining people through the games-led approach.

We also asked how popular non-sporting games were amongst our attendees, and whether they played these types of traditional and online games generally. This question drew a strong positive response with 79% of all attendees agreeing or strongly agreeing that ‘they enjoy various types of non-sporting games and play at least occasionally’.

This result is an interesting finding, and could reflect the growing popularity of ‘casual gaming’ and other online games. Indeed, it is seen that around 70% of the UK population admit to playing casual games, with the average age of a gamer now reaching 35. It’s not confined to the electronic variety either, recent reports show a strong surge in the sale of conventional board games, up 20% per annum in recent years according to John Lewis. This recent trend in the use of play in everyday life could be particularly useful to the adoption of games in environmental education and engagement techniques as people will be familiar with and open to this type of interaction.

Education

We then examined to what extent the games provided useful information regarding environmental issues and actions, as opposed to the session being mainly a form of competitive entertainment where the main concern was winning. To explore this we asked about people’s motivations when playing the games. Were they mostly interested in the competitive element and trying to win? Or were they motivated by what they could learn from the games they played? The results are insightful in terms of helping to understand why people play and whether we can use a games-led approach to educate.

Competitiveness: Overall, 67% agreed or strongly agreed that they particularly enjoyed trying to win. One in four, 26%, were neutral on the subject of winning. Whereas just 7% disagreed or strongly disagreed with that statement. The attendees were obviously a competitive bunch!

A further analysis of the responses shows a stereotypical breakdown of the sexes however.

Male attendees show themselves to be much more interested in the winning than females. Over a third of men, or 36%, strongly agreed with the statement that they were keen on winning, as compared with only around a quarter of women, at 26%.

Learning through play: We then asked how strongly people agreed with the statement that ‘when playing the games I enjoyed learning new information’. Overall 86% of attendees agreed or strongly agreed with this statement, with 10% neutral on the subject and only 4% disagreeing.

There was no obvious gender bias present in this question however. Both genders came in ‘even stevens’ with 38% of both sexes agreeing strongly that they enjoyed the learning aspect.

This finding is particularly encouraging, as although people are obviously attracted to the games from a competitive aspect, especially the men, they appear very receptive to learning whilst playing. So we can conclude from this initial evidence that it’s not all about the winning!

Findings

Can play engage?

“I enjoyed sharing opinions and approaching the subject from a fun angle”

Engage

We then asked whether attendees had learnt anything new through playing the games, and in particular was the information learnt useful to them, to discover whether they worked as an effective tool to deepen engagement and, crucially, assist behaviour change.

59%

agreed or strongly agreed that they did learn useful new information through playing the games that they could take back home and/or to work.

20%

stated that they did not learn anything new about environmental actions that they didn't know already, with 64% disagreeing with this statement.

We then moved on to ask about whether they felt they could actually do anything with the information they had learned through the games. We asked the question in two slightly different ways, whether they felt they **could** take action and then whether they **would** take extra actions as a result of what they had learnt.

Slightly over half of the audience categorically stated that they would be undertaking new environmentally positive actions.

59%

felt they could now take actions at home to become more environmentally friendly. Fifty one percent of attendees stated they would be taking actions.

12%

agreed or strongly agreed with the statement that they had not been influenced to change anything in their everyday lives - which just goes to show you can't win 'em all!



Findings

The scores on the doors

The final piece of the jigsaw was that we needed to establish whether this technique had any long-lasting 'stickiness' in terms of messaging, and longer term behavioural change, beyond the lifetime of the event itself. With the permission of the attendees, we recontacted them between two or three months after the event they attended and surveyed them on what they could remember of the event itself and crucially had they implemented any actions or were they planning on doing so in the future.

Engender behaviour change

Overall, every respondent to the follow-up questionnaire had taken on new environmental actions. The average number of new actions adopted was four. This was particularly encouraging as the average number of actions subscribed to immediately after events was three. The respondents also stated they were planning on adopting two more actions, on average, in the future.

The nature of the actions already taken versus the actions that were being planned was not surprising. The majority of the actions already adopted were low/no cost behavioural actions such as turning down heating thermostats and the actions being planned tended to be the more costly and/or disruptive type of structural measure such as insulation, buying new efficient appliances and upgrades to heating systems.

20%

The response rate we achieved with the follow up questionnaire and the results we received were overwhelmingly positive.

500 kg/year

Typically the annual carbon saving for the actions that had been adopted, where it could be calculated², came in at just over 500 kg/year for each respondent. So we can say around half a tonne of CO₂ emissions is being saved per household.

640 kg/year

For the actions that were being planned, the average potential carbon saving per respondent was an extra 640 kg/year.

In summary, each respondent to the follow up survey would be saving over 1 tonne of CO₂ per year if they carried out their intended additional actions in addition to the actions they have already adopted.

From this initial data and the qualitative responses received, we can confidently report that there appears to be much potential in exploring further a positive, games-centric approach to environmental engagement and behavioural change.



"My favourite aspect was making learning about eco actions fun"

2 Actions that concerned food choices, recycling/composting, public transport use and investigating renewable energy technologies were not evaluated for carbon savings.

06

The featured eco actions Which actions were chosen?

The games available at events spanned the gamut of sustainability actions that people could take at home – covering energy, waste, water and other resource consumption, shopping for products as well as food, people's travel choices and (for a few events) a chance to test out their eco-driving skills.



The information about the benefits of the actions, both to the planet and their wallets, were described in a number of formats through the different game mechanics.

Attendees could choose the actions they intended to do in the post event questionnaire. These actions are listed below.

The most popular individual actions were to think more carefully about the food they buy in future, not overfilling kettles, putting lids on pans and to recycle and compost more items.

Water related actions generally were extremely popular, with 89% choosing at least one of the water actions listed, ranging from simple habits such as not overfilling the kettle through to taking shorter showers, taps off when brushing teeth and fitting lower flow shower and tap fittings.

Energy efficiency actions came next in the popularity stakes, simple no cost behavioural actions such as switching things off standby, turning the thermostat down one or more degrees, turning lights off when leaving rooms/building, reducing temperature of wash cycles and not using the tumble drier had almost three quarters choosing one or more of these actions.

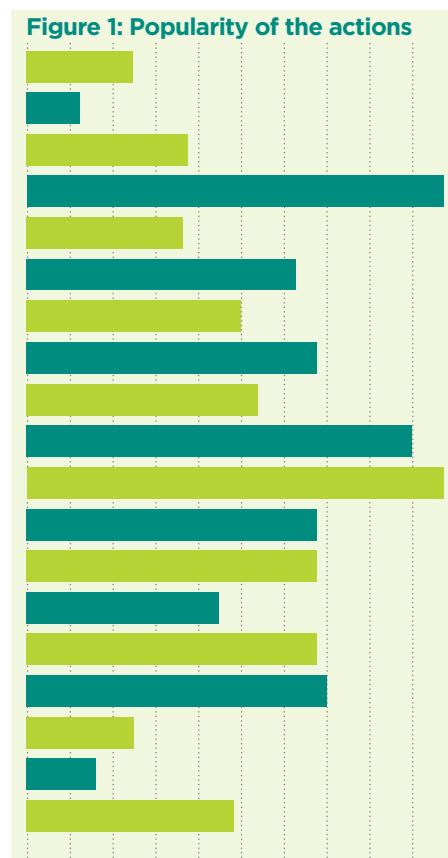
More material-based measures such as loft, wall, not water tank and pipe insulation and/or upgrades to heating systems came in with around 19% of respondents picking at least one of these measures. Buying energy efficient products and appliances were chosen by 43% of respondents.

Transport actions struck a chord with just under half of participants, with 46% choosing at least one of the transport options. They varied from not using your car for short journeys, eco-driving techniques, using public transport more and joining car clubs. However it should be kept in mind that this could be an artefact of the geographical location of the events which were all London based, where people are well versed in using public transport and car usage is already much lower than the national average. An interesting piece of further research would be to compare the popularity of the various actions chosen across the country.

Investigating suitability of renewable technologies was chosen by 12% of respondents.

- Insulation (loft, cavity or solid wall)
- Upgrade heating (boiler, controls)
- Investigate renewable technologies
- Not overfilling kettles/lids on pans
- Car share/car clubs/eco-drive
- Use public transport more
- Buy efficient appliances
- Turn appliances off standby
- Wash clothes at 30/dry outside
- Recycle more/compost/buy wormery
- Think carefully about food purchases
- New loo/hippo/water butt/low flow tap
- Turn lights off when leaving home
- Turn thermostat down 1°
- Buy a laptop not a desktop
- Take short shower/tap off teeth clean
- Replace bulbs with CFLs/LEDs
- Insulate tank/pipes & draught-proofing
- Not use car on short journey/walk/cycle

Figure 1: Popularity of the actions



The actions What people actually did

In the follow-up questionnaire we posed the question regarding which actions, if any, the respondents had adopted or intended to adopt, they were not reminded of the actions they had chosen at the event itself. The responses can be seen in figures 2 and 3.



Figure 2: The actions people have adopted post event

The actions already adopted follows broadly the pattern of what people said they were going to do at the event, so they are consistent. Not surprisingly, the behavioural actions are the most popular short term choices.

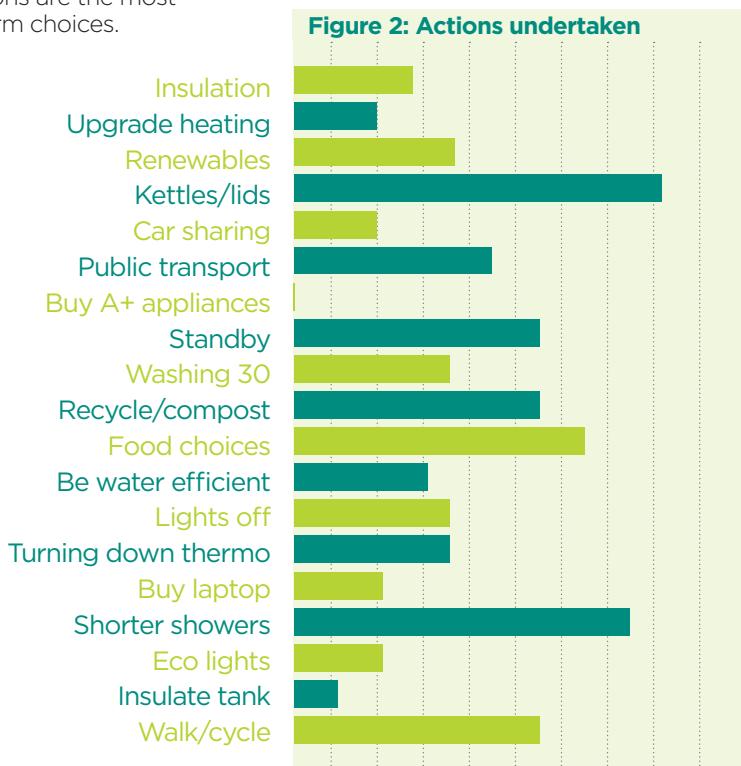


Figure 3: Actions on the 'to do' list



Figure 3: Actions people are planning to adopt in future

This chart depicts what the same respondents reported they are intending to do in the future. It can be seen that more costly and potentially disruptive actions score higher here as it can take some time and planning to carry out more involved measures such as insulation and replacing/upgrading heating systems.

07

Case studies Play in the workplace

Apart from the public events, we also worked with organisations and companies to explore ways in which games and play could be used in the workplace to help engage employees in environmental action at work.

Findings from the London Fire Brigade

73%

of LFB staff enjoyed learning new information from the games they played compared with 54% saying it was very important to try to win.

45%

of them said they enjoyed playing non-physical games and played at least occasionally.

64%

agreed that they felt they could now take action to help LFB become more green.

51%

said they would be taking extra actions at home or at work as a result of what they had learnt. Just 18% said the game had not influenced them at all.

Here we describe two examples of work related projects.

London Fire Brigade

With the LFB we supplied a pilot number of Watches with packs of eco action trumps. These were then available for play over a two week period while the firemen/women were waiting for the next call out. The unique nature of the LFB workplace was chosen as it closely resembles a home environment. Fire personnel work, eat and sleep at the station while on duty, and hence many of the home related actions had a usefulness within the workplace as well as at home.

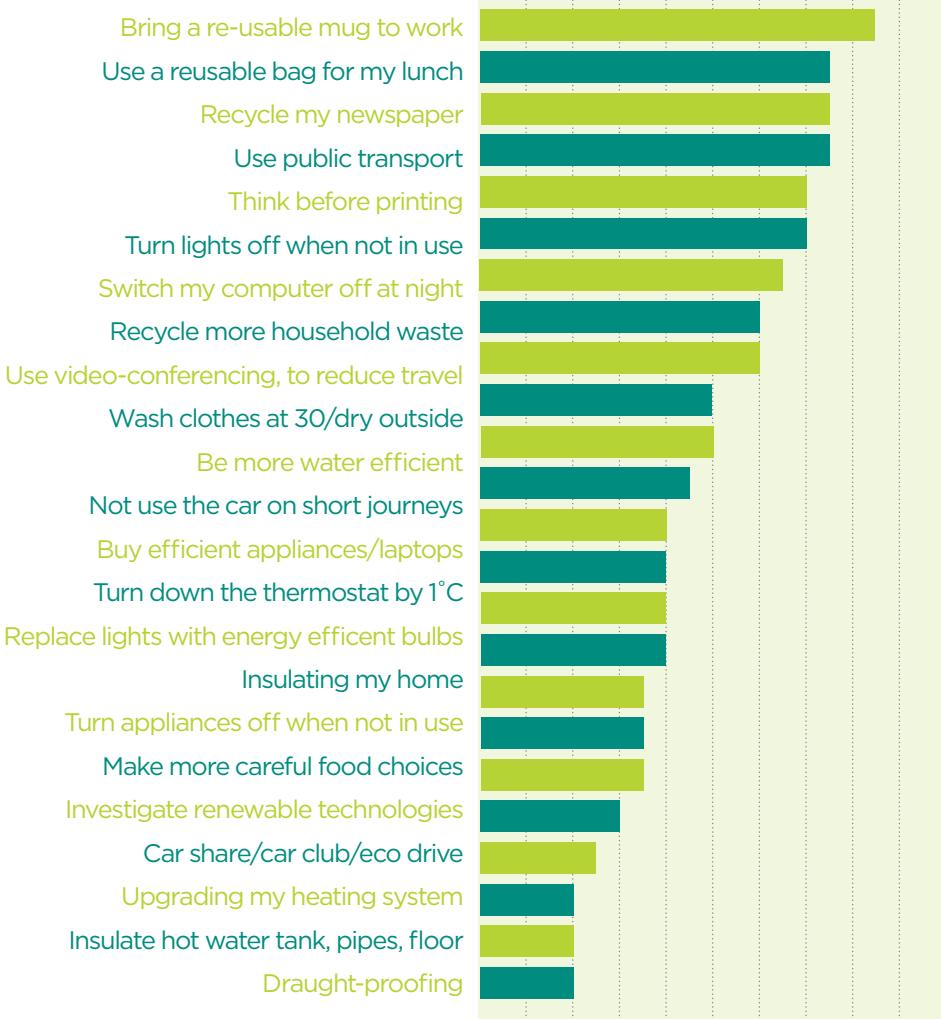
The pilot study results were encouraging with nearly three quarters of participants stating they enjoyed learning new information and 64% agreeing that they now felt more able to help LFB become a greener workplace.

A top four accountancy firm

We worked with a well-known accountancy firm in the City of London, to help them turn their regular annual corporate sustainability day event into an interactive fun learning event. We hosted a lunchtime drop-in eco action games room, where staff could come and visit in their lunch hour and try out a few of the games. The Stig even made an appearance and joined in with a game of eco action trumps.

The feedback results from the event were very positive and Figure 4 shows the actions, both at home and at work, that were pledged on the day.

Figure 4: Popularity of actions



08

The rematch

This initial research study has proven that the theory of a positive, games-centric approach to education and engagement in environmental action can be effective and work as a motivational technique.

This first pilot stage concentrated its activities and fieldwork in the proximity of London, primarily as a consequence of the connection with the London Leader programme, but we have ambitious plans.

It is now intended that the next steps should replicate the research around the country and involve larger and more diverse audiences to ascertain the extent of the usefulness of this approach in different demographics and community groups.

With funding, this approach could be adapted for the school environment and linked to curricular topics and activities.

We are now seeking partners, both within the academic sector and commercial world, and grant funding to be able to scale up the research effort and our outreach activities.

If you would like to get involved, or discuss funding or research partnership opportunities, please contact us.

Look out for our first mobile App game, eco action trumps, available to download from the App store Christmas 2013.



Supported by:



Thank you

We would like to thank the following people and organisations for making the events happen:

Thanks to the following organisations for hosting events:

Science Museum
Natural History Museum
Age UK Day Care Centre
The WI Streatham
St Josephs Primary School
Festival of Thrift
Streatham Food Festival
The Tate
EY
GreenerHomes Event
UCL Institute of Sustainable Resources Conference

Thanks also to the volunteer 'fun & gamers' who have helped with organising and for being games masters/mistresses.

So thank you:

Jamie Beevor; Andy Brown;
John Condon; Faithful Conteh;
Michael Davies; Nicoletta Landi;
Lili Laratea; Sally May; Lydia Makin;
Alessandra McConville; Robb McDonald;
Ross Mitchell; Anna Plodowski;
Ro Randall; Tom Robinson;
Alister Scot and Jamie Wallace.

Design: zuma-creative.com
Word and numbers: Paula Owen paulaowenconsulting.co.uk
Photography: nicholasgates.co.uk and EY

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Contact us

For more information on any of the eco action games products (available to purchase) or services, please visit:

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M 07920 090931

T 020 8671 3530

E info@ecoactiongames.org.uk

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Press

The research generated a large amount of media interest, here we list a selection:

BBC news online

www.bbc.co.uk/news/science-environment-21655918

2Degrees Network

www.2degreesnetwork.com/groups/employee-engagement/resources/seven-games-help-save-planet/

Guardian Sustainable Business

www.guardian.co.uk/sustainable-business/gaming-gamification-save-the-planet

CSR Wire

csrwire.sharedby.co/share/C83qdX

Arts Council England

blog.artscouncil.org.uk/blog/arts-council-england-blog/fun-and-games

Huffington Post

www.huffingtonpost.co.uk/paula-owen/can-games-help-save-the-planet_b_2755430.html

CBC Breakfast show

www.cbc.ca/metromorning/episodes/2013/05/10/eco-games/

How gamification can help your business engage in sustainability

Paula Owen, founder of the project, has written a book on how using fun and games can help your organisation, community group or business engage stakeholders, staff and customers in sustainability.

You can buy or rent the book at:

Dosustainability.com

Use code Game15 for 15% discount.



Who knows, one day we may even get Clarkson playing eco action games.