

# That's it we're having more insulation: Will householders change behaviours and attitudes after being shown an infrared image of their homes leaking heat?

Auburn, Timothy

<http://hdl.handle.net/10026.1/4159>

---

*All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.*

# "That's it we're having more insulation"! .....will householders change behaviours and attitudes after viewing an infrared image of their homes leaking heat?

Julie Goodhew Tim Auburn Sabine Pahl, School of Psychology, University of Plymouth, UK

Julie Goodhew Tim Auburn Sabine Pahl, School of Psychology, Plymouth University, UK

This longitudinal study explored the impact of showing householders infrared images (of their homes leaking heat) on energy consumption and attitudes.

## RATIONALE

Energy is a scarce commodity and a voluntary reduction in use may be desirable to meet the challenges of, a changing climate, limited supply of fossil fuels.. Households are major contributors to the demand for energy.

## INFRARED IMAGE AS PSYCHOLOGICAL PROMPT

Employs model :

ANTECEDENT                      BEHAVIOUR                      CONSEQUENCE

### AN ANTECEDENT INTERVENTION



Fig 1: Will seeing heat leaking from under the door prompt the householder to draughtproof?

Fig 2: Heat leaking from door. Prompt to insulate the door add a thick curtain?

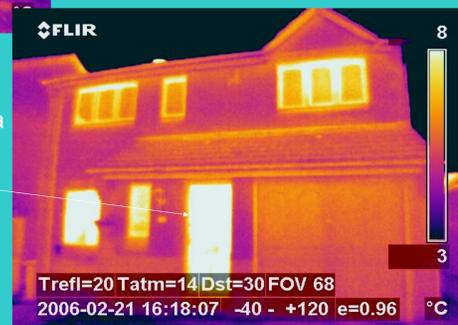


Fig 3

**Specific, tailored and vivid antecedents may be more likely to achieve such behaviour change.**

## METHOD

Participants:

50 householders from a small UK town. 10 of these took part in semi structured interviews.  
A FLIR 265HS Infrared Camera with Zoom attachment

DESIGN	Condition 1	Condition 2	Control
Intervention at t1, follow up at +6 months and + 1 year	<ul style="list-style-type: none"> <li>•Infrared Image of Home</li> <li>•Carbon Footprint</li> <li>•Annual energy usage</li> <li>•Questionnaire</li> <li>•NEP Scale</li> </ul>	<ul style="list-style-type: none"> <li>•Carbon footprint calculation</li> <li>•Annual energy usage</li> <li>•Questionnaire</li> <li>•NEP Scale</li> </ul>	<ul style="list-style-type: none"> <li>•Annual energy usage</li> <li>•Questionnaire</li> <li>•NEP Scale</li> </ul>

Table 1: Showing intervention per condition

## RESULTS

Table 1:Quantitative characteristics of sample.

VARIABLE	Condition 1 n =	Condition2 n =	Control n =
ENERGY USE IN CARBON (kg)	M = 4569 SD = 3214	M = 4912 SD = 3063	M = 5286 SD = 3396
NEP	M = 2.15 SD = 0.56	M = 1.92 SD = 0.54	M = 1.78 SD = 0.48
Type of Home (Mode)	Detached	Detached	Detached

No correlation found between attitude and household energy usage.

### QUALITATIVE RESULTS AND DISCUSSION

Participant exposure to the images led to a suggested energy saving action in some cases. Semi structured interview data suggested stages of analysis of the images, through which the participant made sense of the data, in an iterative pathway. The characteristics of a 'successful' pathway are illustrated in Example 1 with the arrows indicating the image being viewed at the time. Interview data where there was no energy saving action generated suggests that participants 'fall away' from the pathway at one or more points. So, the image may not attract attention, may not have saliency for the viewer, the viewer accounts for the heat loss but rejects a possible solution, or applied flawed folk physics.

### EXAMPLE 1

#### IMAGE NEWNESS ATTRACTS THE ATTENTION

P1: "We're on fire"

P2: "Wow, that looks dreadful"

#### VIEWER ORIENTATES THE IMAGE TO THEIR HOME

P1: Now that's....now that's the side?

I: Is it the side here.

P1: Ah yes. It's this window that I am not sure about.....Oh, yes it is, yes it is. It's the second front bedroom, there is the arch of the front bedroom, you are looking in fact at that window, that window there.

#### IMAGE CONTAINS SALIENT INFORMATION

P1: "You see this is interesting

#### VIEWER SUPERIMPOSES KNOWLEDGE (household habits, thermal dynamics, folk physics).

“

P1: .....is interesting, I don't remember where the blinds were in the bedroom. They were probably drawn, eh here, because you can see here that this is darker and they are the blinds in the bay window. Whereas that side of it, is that because it is illuminated from there or are we actually seeing that the blind was only partially drawn on that side"

#### VIEWER ACCOUNTS FOR INFORMATION IN IMAGE – REJECT or ACCEPT?

P1: ".....because we don't always fully draw them....".

#### VIEWER MATCHES INFORMATION TO 'CORRECT' KNOWLEDGE, ENERGY SAVING ACTION RETRIEVED/SUGGESTED

P1 "On that basis, one of the things that you could do to minimise the heat loss is to have rather heavier curtains."

P2: "We could put the foil behind the radiators in that bay window".

### Conclusion

Householders may change their behaviours and attitudes after being shown an infrared image of their home leaking heat if the image prompts a 'successful' pathway through all of the stages of analysis.