

Energy-Saving Interventions: Framing Information Based on Personal Values

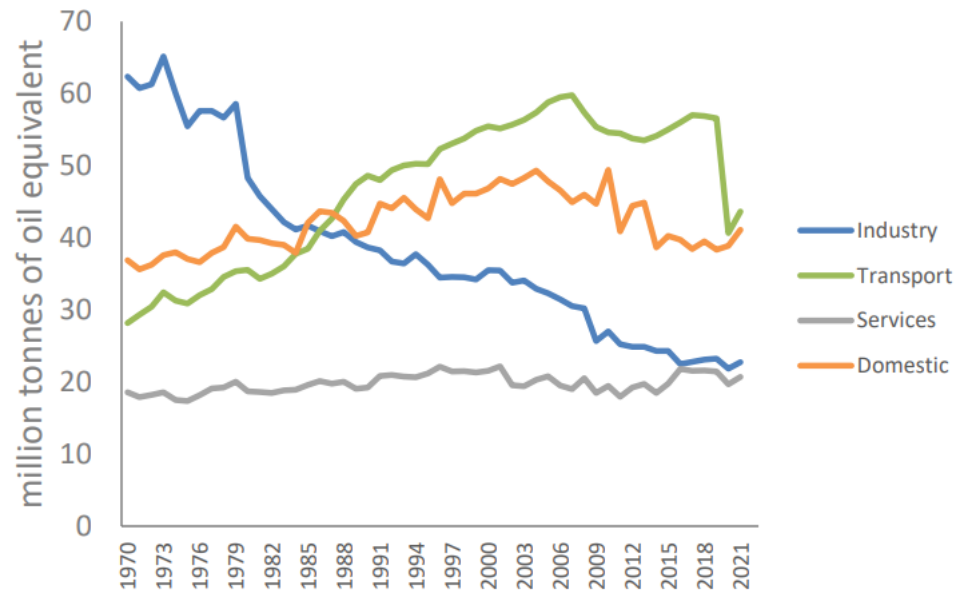
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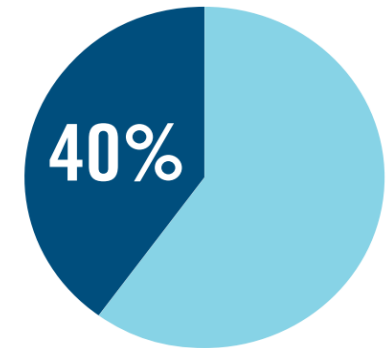


UK Energy Context

Energy consumption by sector, 1970 - 2021



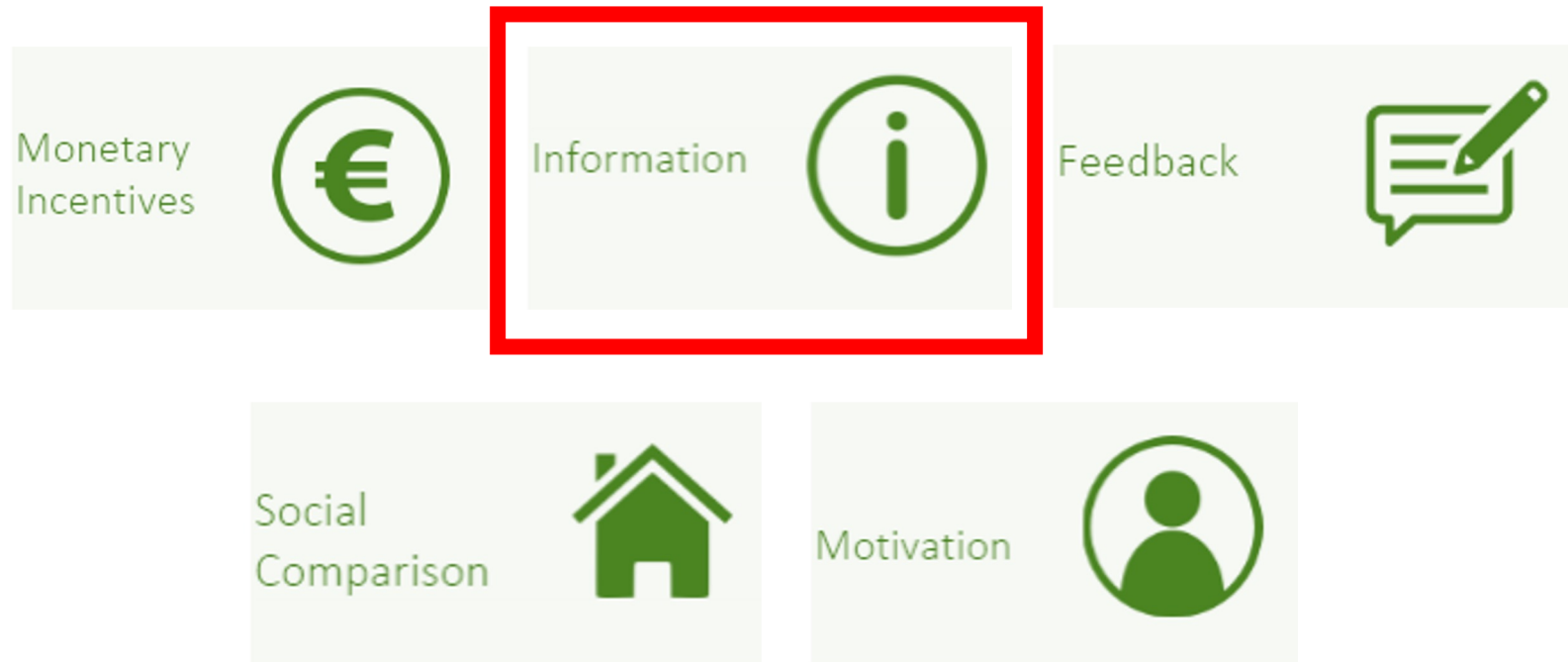
40% of UK emissions come from households.
This means our homes have an important part to play in meeting the 2030 emissions reductions in the Fifth Carbon Budget.



Source: BEIS (2022)

Source: The CCC (2017)

Interventions



Source: Khanna et al. (2021)

Information Based Interventions

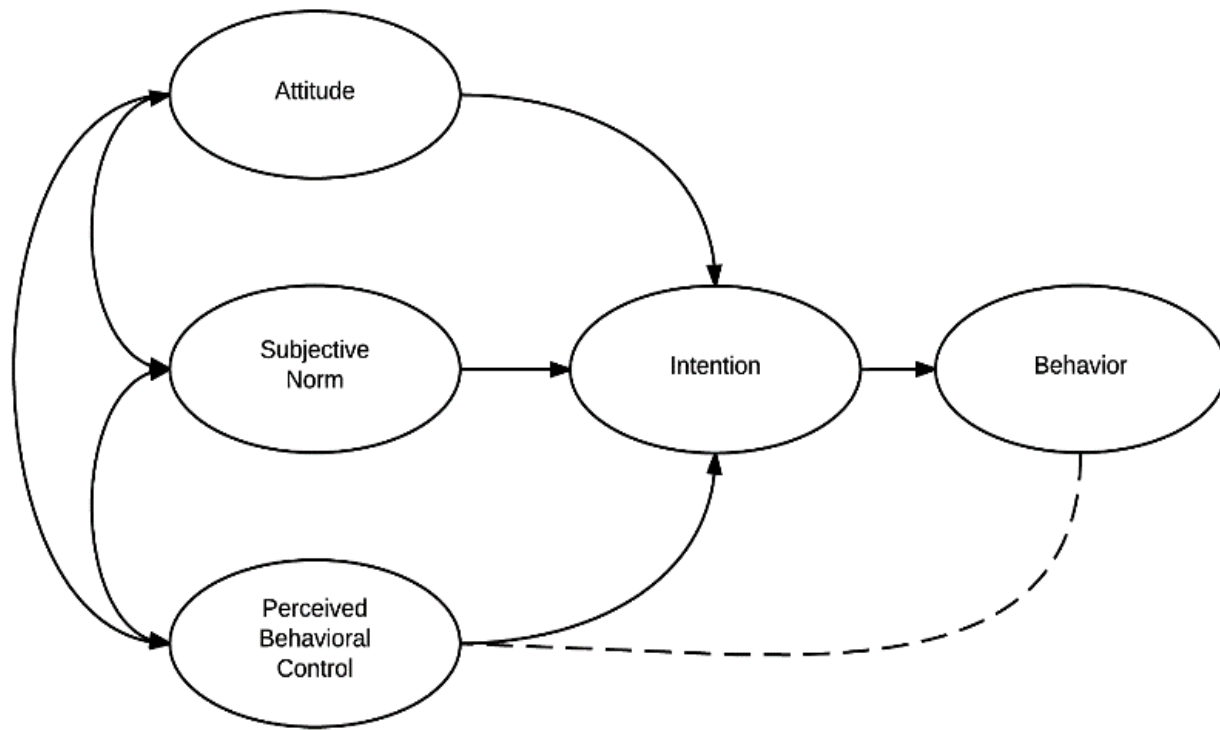
How they work

- Energy is an 'invisible' utility (Pink & Mackley, 2012)
- Information-based interventions aim to draw attention to a household's energy use to reduce their information deficit (RAND Europe, 2012), providing actions and (tailored) advice.

Effectiveness

- Delmas et al. (2013): 7.4%
- Khanna et al. (2021): 5.6%
- Watson et al. (under review): 11.2%

Theory of Planned Behaviour



Source: Ajzen (1991)

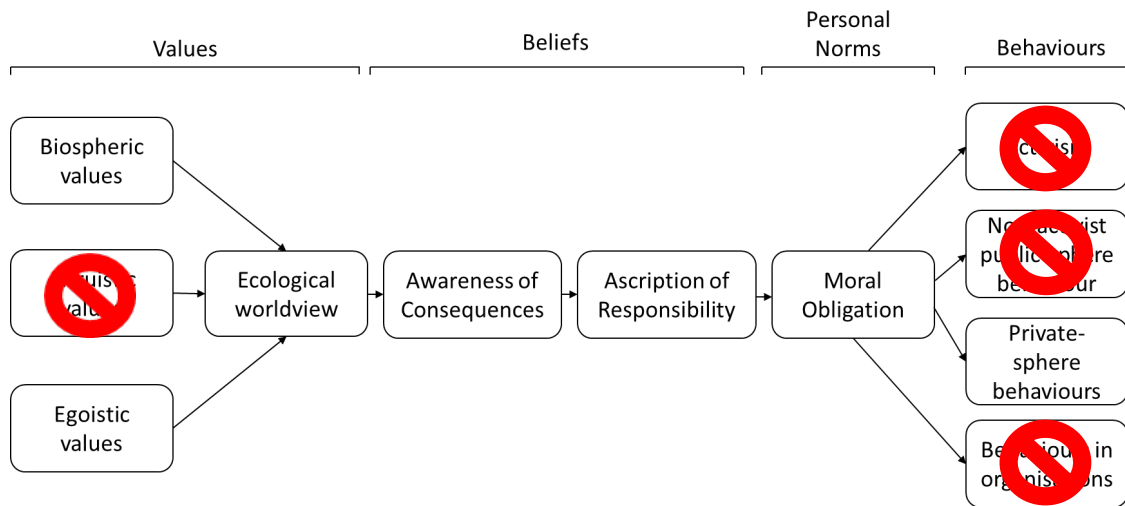
Strengths

- One of the most frequently cited models (Setiawan et al., 2020)
- Replicated in different types of behaviour
 - Including pro-environmental behaviour
- Recognises the role of intentions

Weaknesses

- General behaviour model
- Limited predictive validity (Sniehotta et al., 2014)
- Focuses on rational factors (Sheeran et al., 2013)
 - Values have been shown to affect pro-environmental behaviour (Schultz & Zelezny, 1998; de Groot & Steg, 2009; Wang et al., 2021)

Value-Belief-Norm Model



Strengths

- Developed to explain pro-environmental behaviour
- Recognises non-rational factors

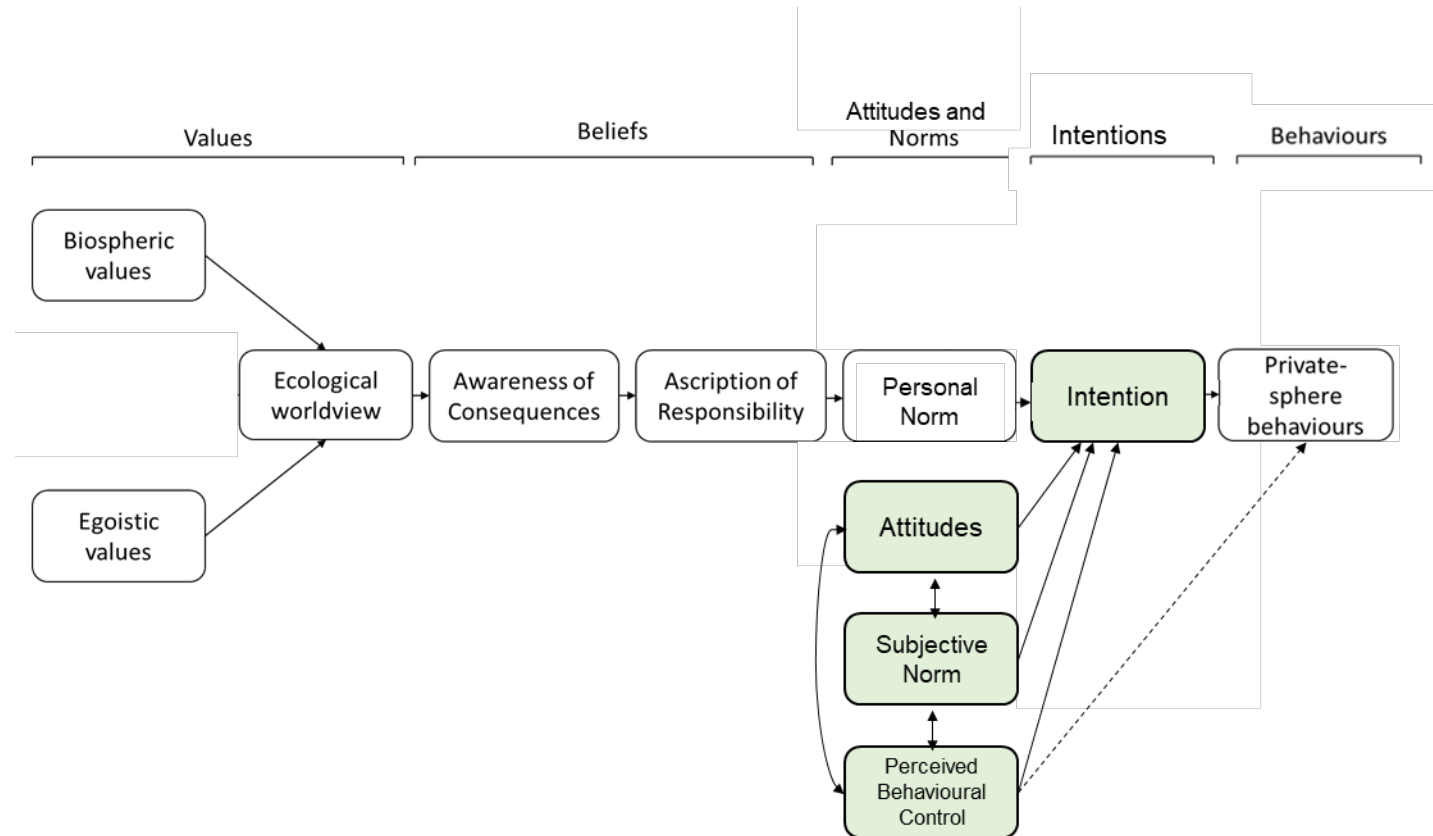
Weaknesses

- Does not include factors found to be significant, e.g., intentions

Source: Stern (2000)

Combined Model

- Consumption of local, organic food (Chen, 2020)
- Private-sphere pro-environmental behaviour (Gkargkavouzi et al., 2019)
- Responsible computer purchasing (Loo et al., 2023)



Values and intervention framing

Van den Broek et al. (2017)

- Paper saving intervention for students
- Those with biospheric value orientation found environmental framing most effective, economic framing least effective
- Those with egoistic value orientation found economic framing most effective, environmental framing least effective
- Combined economic and environmental framing lay between the two for both groups

Research Aims and Questions

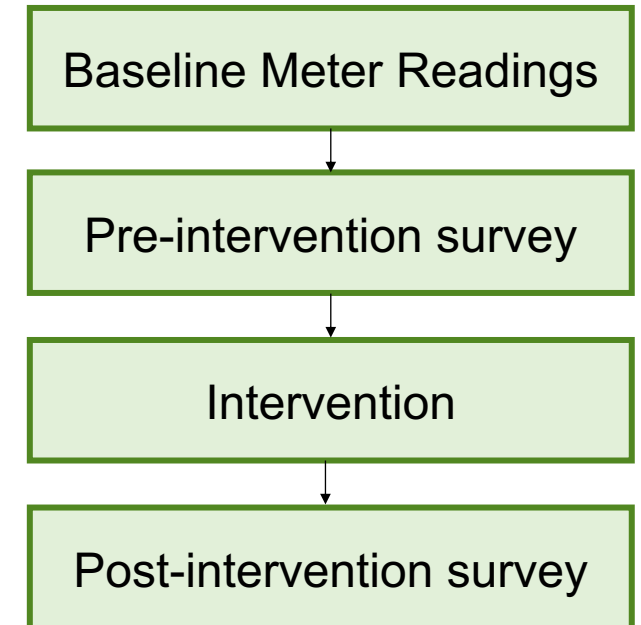
Examine the effectiveness of an information-based energy-saving intervention and possible significant factors

- Does the intervention's framing affect its effectiveness?
- If so, can value orientation explain this relationship?

Investigate the explanatory power of the Theory of Planned Behaviour (TPB), Value-Belief-Norm Model (VBN) and a combined TPB-VBN model

Method

- Randomised field experiment
- Online surveys
- Energy saving leaflets, sent via email
- 3 treatment conditions (+ control group)
 - Economic framing
 - Environmental framing
 - Combined framing



Measures

- Housing characteristics
- Sociodemographic characteristics
- Meter readings
- Past pro-environmental behaviour (Whitmarsh and O'Neill, 2009)
- Behavioural Intentions (Adapted from Ru et al., 2018)
- Value Orientation (Steg et al., 2012)
- TPB and VBN (Wang et al., 2018)
 - Personal norms, subjective norms, perceived behavioural control (Li et al., 2018)

Take-away Points

- The effectiveness of information-based energy reduction interventions needs to be examined
- A combined TPB-VBN model may answer some of the criticisms of the individual models and explain energy (reduction) behaviour
- The framing of interventions may affect their effectiveness, based on the values of the audience

Thank you for
listening

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