



Does the Energy-Friendly SUV Driver Exist in People's Minds?

Judging Energy Consumption Based on the Symbolic Significance of Behaviors

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Who is more energy conscious?

Mr. Smith



11,400 km per year

Ms. Miller



28,700 km per year



Background & Aim

- Energy-saving behavior is preceded by cognitive evaluations of behavioral alternatives
 - Accurate evaluations are a precondition for effective behavior
 - Misconceptions impede adoption of adequate behavior
- Development of interventions
 - ⇒ Understanding energy-related **judgment and decision-making**
 - ⇒ Identification of **misconceptions and biases**

Background & Aim

- Symbolic meaning
 - Behaviors carry **symbolic meaning** (Blumer, 1969)
 - Behaviors **differ** in symbolic significance
- Heuristics
 - People rely on heuristics; a target attribute (not readily accessible) is assessed by **substituting a heuristic attribute** (Kahneman & Frederick, 2002)
 - The heuristic attribute differs from the target attribute
 - ➔ **Systematic biases**

Background & Aim

- ⇒ Behavior's **symbolic significance** may serve as a heuristic attribute

- ⇒ Biased judgments
 - **Underestimation** of energy consumption in cases of positive symbolically significant behaviors
 - **Overestimation** of energy consumption in cases of negative symbolically significant behaviors

Study 1 – Method & Sample

- Online study
 - Internet panel members of the Consumer Behavior group
 - 10 minutes
- Sample
 - 246 participants
 - 61.4 % men, 38.6 % women
 - Mean age 54 years ($SD = 14$)

Study 1 – Material

- Car driver with **symbolically significant positive** behavior:

„Mr. Meier drives a **Toyota Prius** with energy label A with **hybrid drive**. Mr. Meier covers a distance of **28,700 km** with his car per year.”



Actually higher
energy consumption

- Car driver with **symbolically significant negative** behavior:

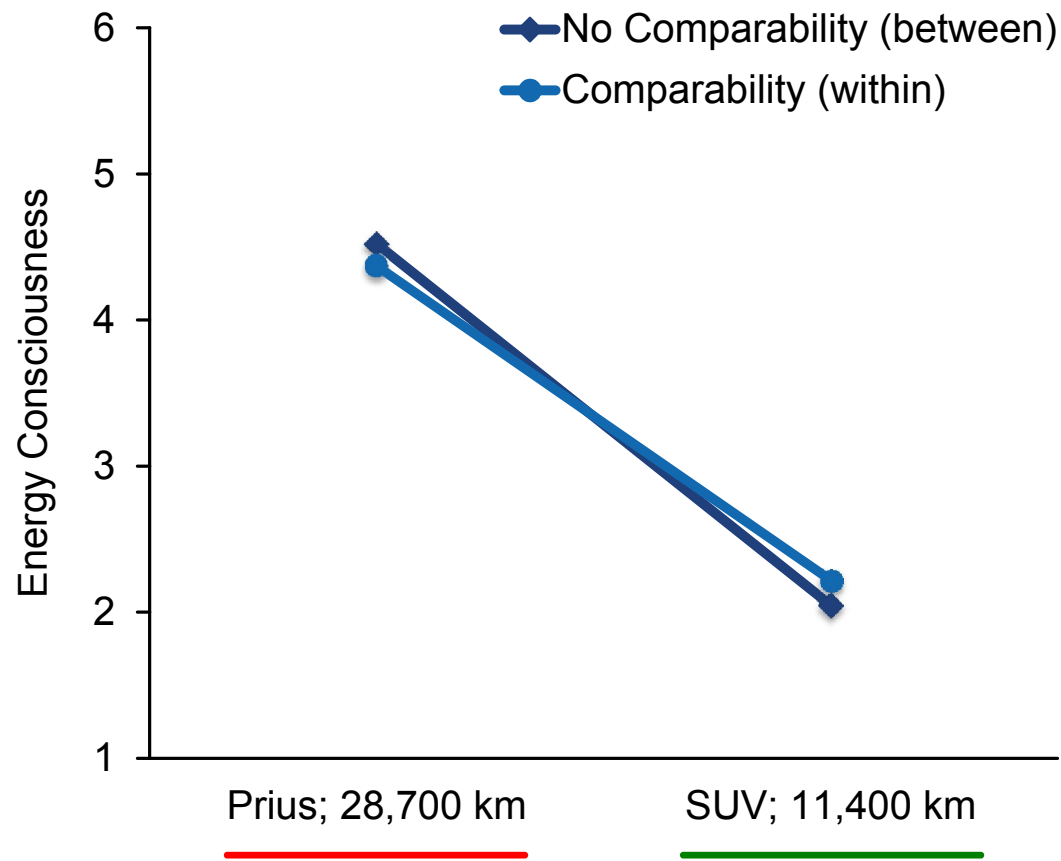
„Mr. Huber drives an **SUV** (sport utility vehicle) with energy label C. Mr. Huber covers a distance of **11,400 km** with his car per year.”



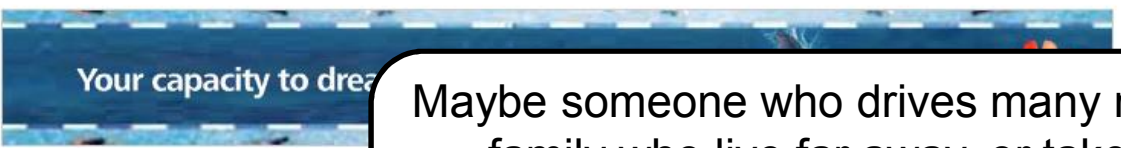
Actually lower
energy consumption

How energy conscious do you consider Mr. Meier / Huber?

Study 1 – Results



- No Comparability:
 $t(162) = 14.40, p < .001, d = 2.25$
- Comparability:
 $t(81) = 11.43, p < .001, d = 1.79$



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Wonkblog

How your brain tells you you're greener than you really are

Maybe someone who drives many miles is visiting family who live far away, or takes care of a disabled loved one ... By setting up choices with limited knowledge of the **circumstances of these drivers' lives**, there are no correct answers.



If the Prius driver **"must" drive that much per year**, the fact that he's driving a Prius means he's doing everything he can to minimize fuel usage given the mileage requirement. The SUV driver, on the other hand, could theoretically "do more"...



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Study 2 – Aim

- Rule out alternative explanations
 - Assumption that **differing purposes or situational** circumstances underlie behavior
 - **Generalization** to other behaviors
- Test robustness
 - Provide **detailed information** on energy consumption
 - **Specifically** ask for judgment of energy consumption

Study 2 – Method & Sample

- Online study
 - Internet panel members of Swiss market research institute
 - 10 minutes
- Sample
 - 507 participants
 - 56.8 % women, 43.2 % men
 - Mean age 47 years ($SD = 14$)

Study 2 – Material

- Car driver with **symbolically significant positive** behavior:
„Mr. Meier drives a **Toyota Prius** with energy label A with **hybrid drive** with a fuel consumption of **3.9 l/100 km**. Mr. Meier lives **in the city and spends his leisure time preferably in nature, in the mountains**. In his leisure time, he covers a distance of 28,700 km with his car per year. **He uses his car only in his leisure time.**”



Actually higher
energy consumption

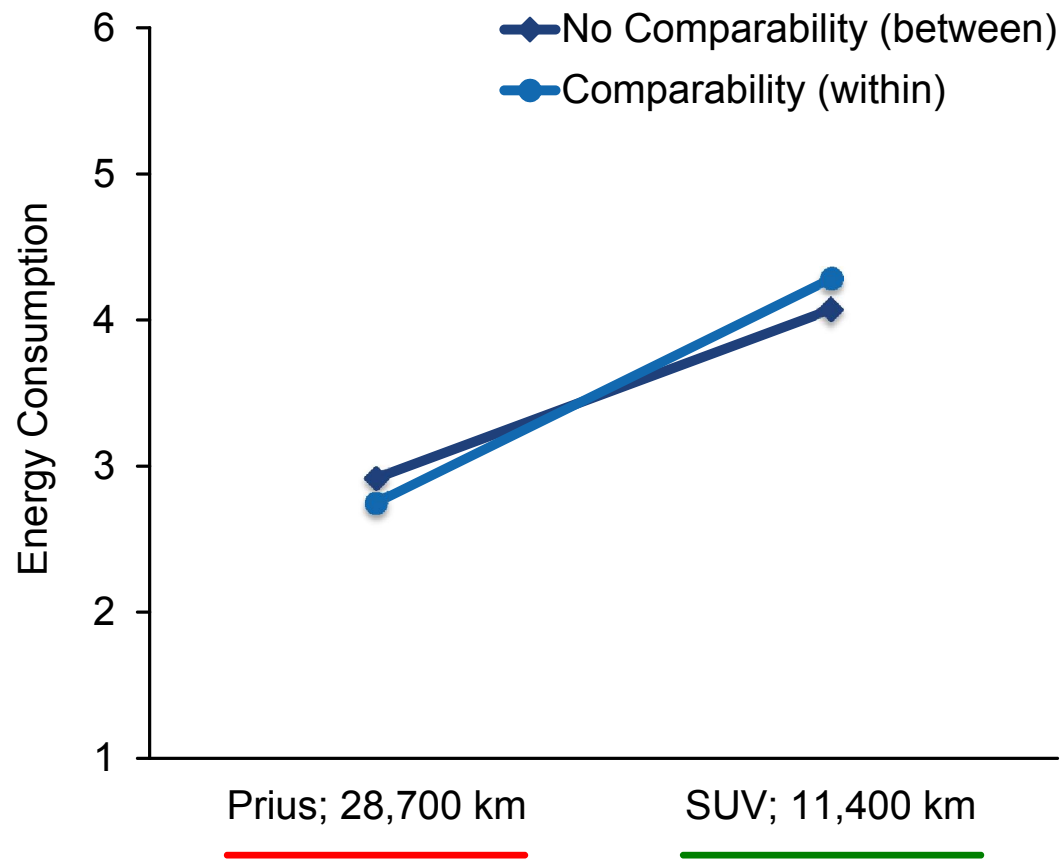
- Car driver with **symbolically significant negative** behavior:
„Mr. Huber drives an **SUV** with energy label C with a fuel consumption of **8.4 l/100 km**. ... In his leisure time, he covers a distance of 11,400 km with his car per year...”



Actually lower
energy consumption

How do you judge the **energy consumption** of Mr. Huber / Meier with **regard to the mobility behavior** described above?

Study 2 – Results



- No Comparability:
 $t(319) = 7.70, p < .001, d = 0.86$
- Comparability:
 $t(161) = 10.03, p < .001, d = 1.11$

Summary

- Evidence for **reliance on symbolically significant** behaviors
⇒ Biased judgments
- Possibility to **directly compare** the values of two behavioral attributes does not add to judgment accuracy
- Effects persist even if provided with **all information** necessary to reach a 100 % correct judgment

Implications

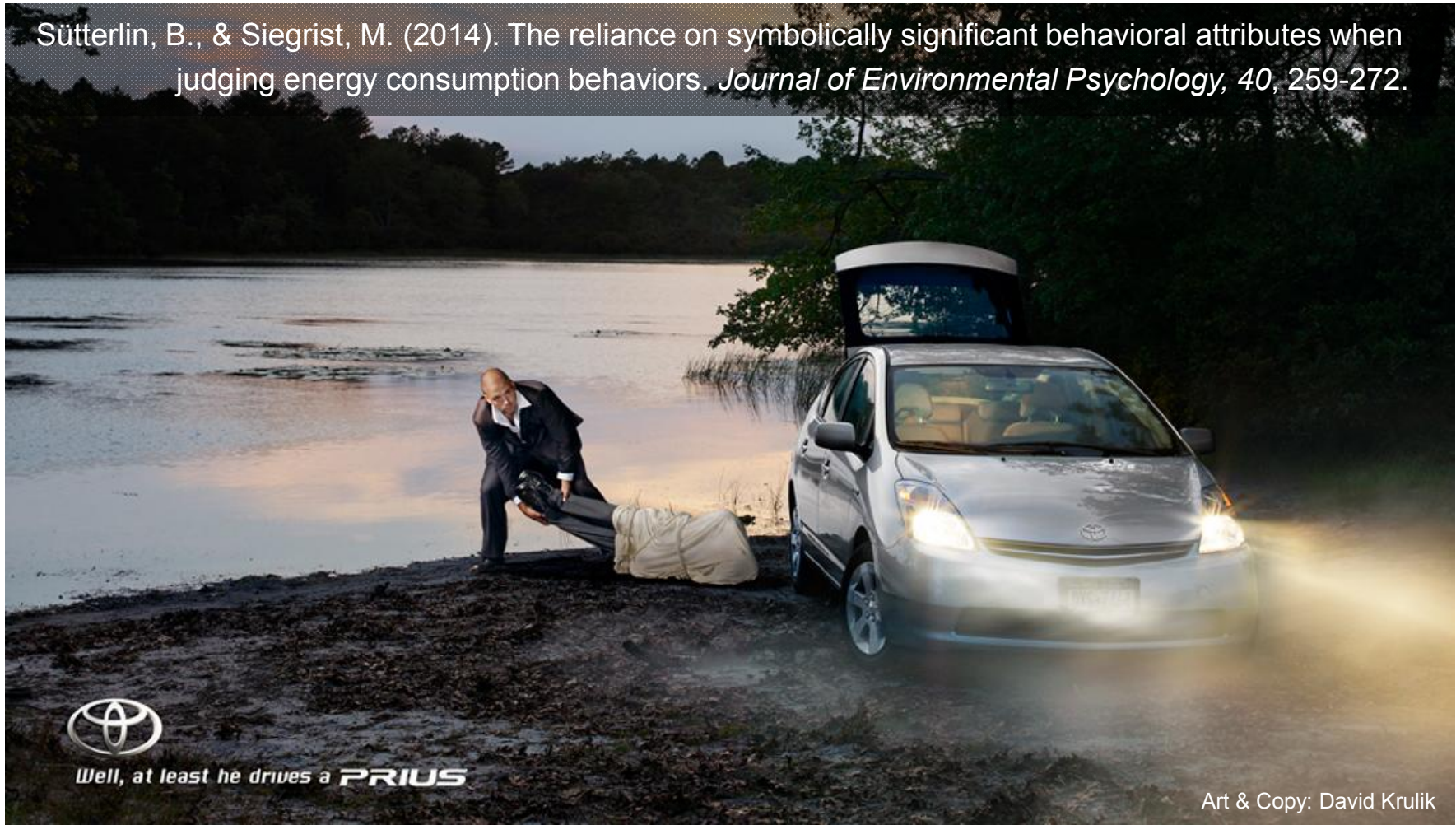
- The symbolic significance fallacy probably affects evaluation of one's own behavior
 - ⇒ Showing positive symbolic significant behaviors could result in **less attention to other** related behavioral aspects
 - ⇒ **Legitimization** to behave in less energy-friendly manners with respect to other consumption behaviors

Implications for Interventions

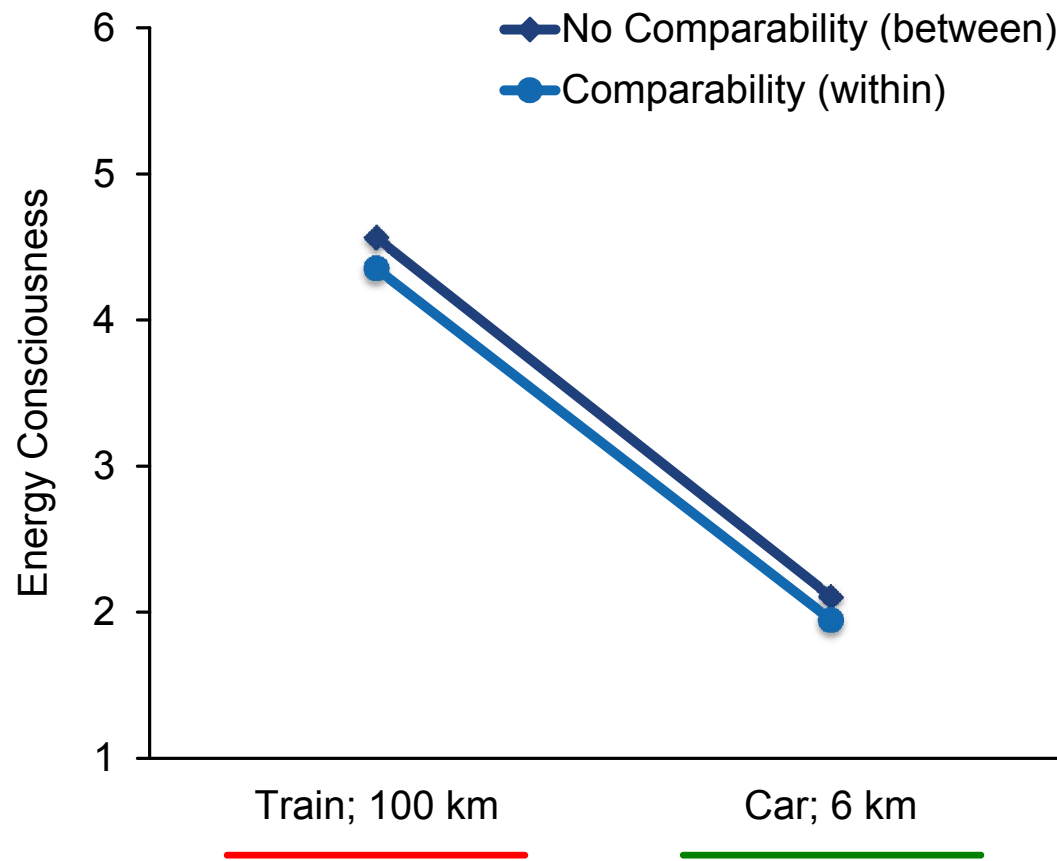
- More attention on symbolically neutral behaviors in communication campaigns
 - ⇒ **Expand focus** to different conservation behaviors
 - ⇒ Emphasize to look at **“the whole picture”**

Thank you for your attention!

Sütterlin, B., & Siegrist, M. (2014). The reliance on symbolically significant behavioral attributes when judging energy consumption behaviors. *Journal of Environmental Psychology*, 40, 259-272.

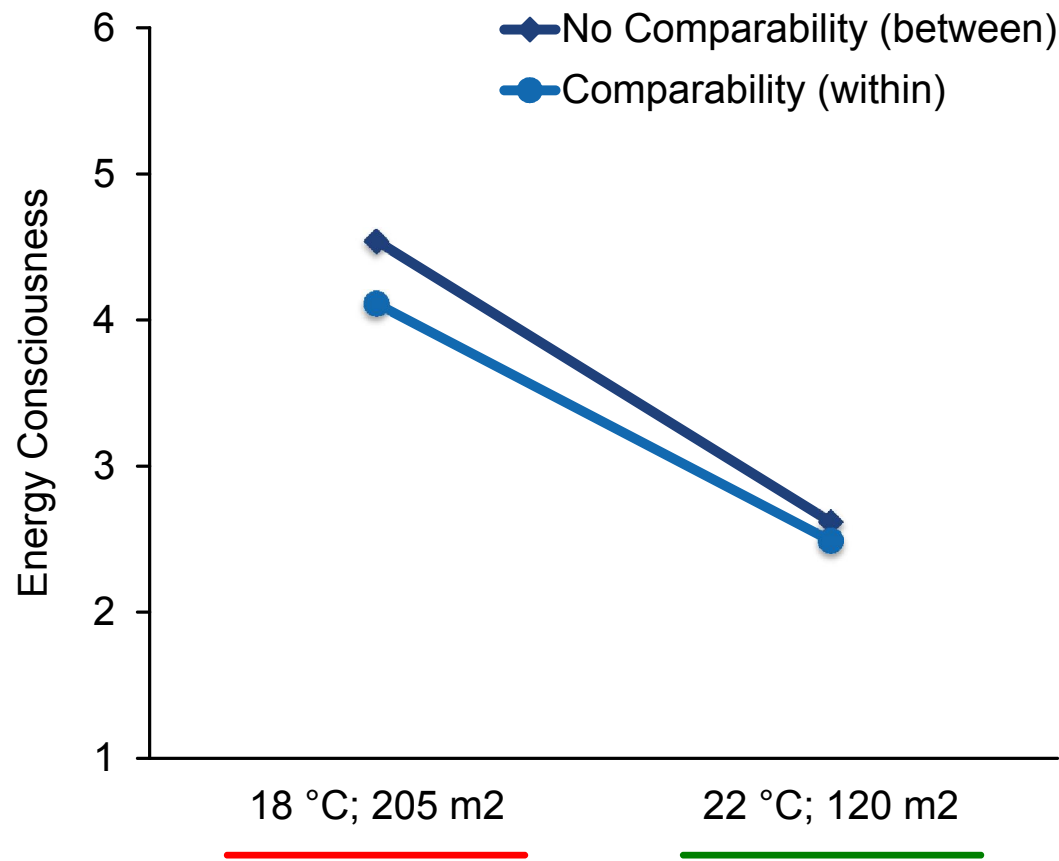


Study 1 – Results – Commuting



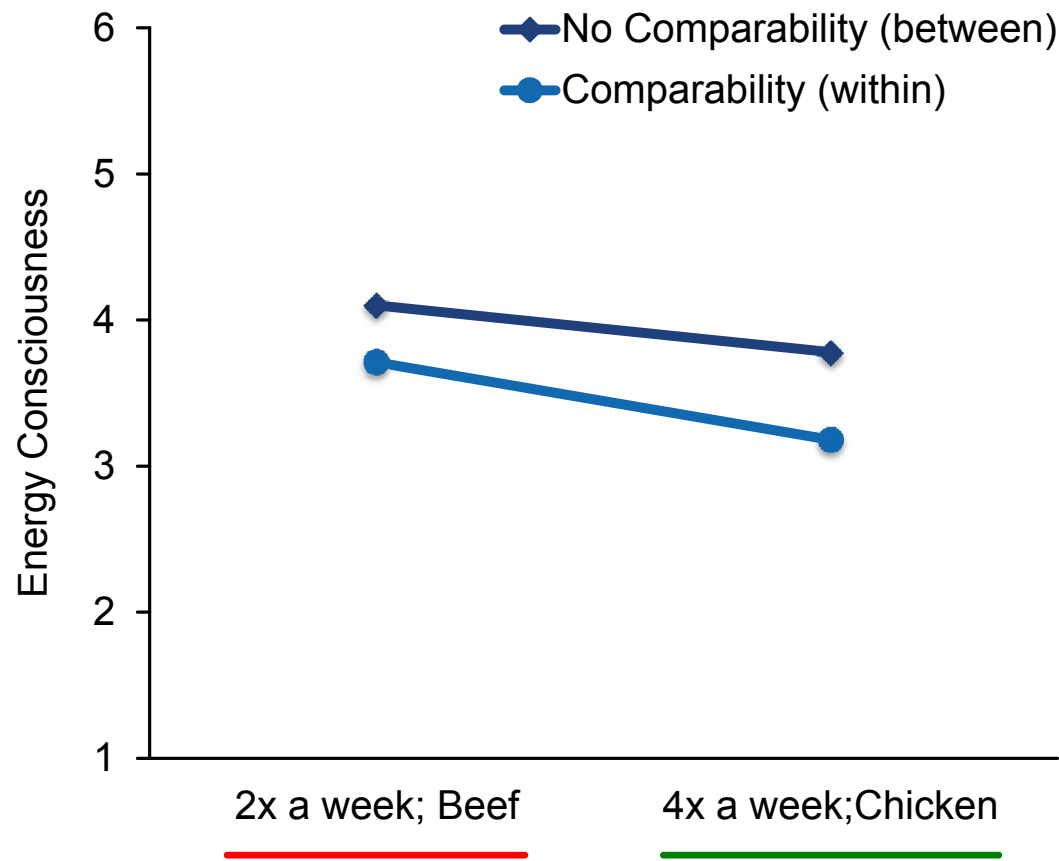
- No Comparability:
 $t(162) = 12.68, p < .001, d = 1.98$
- Comparability:
 $t(81) = 11.05, p < .001, d = 1.73$

Study 1 – Results – Room Heating



- No Comparability:
 $t(162) = 9.84, p < .001, d = 1.54$
- Comparability:
 $t(81) = 9.05, p < .001, d = 1.41$

Study 1 – Results – Meat Consumption



- No Comparability:
 $t(162) = 1.91, p = .029^1, d = 0.30$
- Comparability:
 $t(81) = 3.69, p < .001, d = 0.58$

¹ one-tailed

Material: Symbolically significant information

- Car driver 1 (Prius driver, 3.9 l/100 km), 28,700 km
„Mr. Meier drives a **Toyota Prius** with energy label A with **hybrid drive** with a fuel consumption of **3.9 l/100 km**. Mr. Meier lives **in the city and spends his leisure time preferably in nature, in the mountains**. In his leisure time, he covers a distance of 28,700 km with his car per year. **He uses his car only in his leisure time.**”



Actually higher
energy consumption

- Car driver 2 (SUV driver, 8.4 l/100 km), 11,400 km
„Mr. Huber drives an **SUV** with energy label C with a fuel consumption of **8.4 l/100 km**. ... In his leisure time, he covers a distance of 11,400 km with his car per year. ...”



Actually lower
energy consumption

How do you judge the **energy consumption** of Mr. Huber / Meier with **regard to the mobility behavior** described above?

Material: No symbolically significant information

- Car driver 1 (Prius driver, 3.9 l/100 km), 28,700 km
„Mr. Meier drives a car with a fuel consumption of **3.9 l/100 km**. Mr. Meier lives in the city and spends his leisure time preferably in nature, in the mountains. In his leisure time, he covers a distance of 28,700 km with his car per year. He uses his car only in his leisure time.”



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energy consumption

- Car driver 2 (SUV driver, 8.4 l/100 km), 11,400 km
„Mr. Huber drives a car with a fuel consumption of **8.4 l/100 km**. ... In his leisure time, he covers a distance of 11,400 km with his car per year. ...”



Actually lower
energy consumption

How do you judge the **energy consumption** of Mr. Huber / Meier with **regard to the mobility behavior** described above?

Results

