

Consumer thinking about the future and electric vehicles

STEPs Fall Symposium

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Ken Kurani (knkurani@ucdavis.edu)

PH&EV Research Center

California Households, 2017

- Population: All Car-Owning Households; English-speakers
- Sample size , $n \cong 1,700$
- Survey conducted on-line.

Thinking about the future

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Consideration of Future Consequences

“An intrapersonal struggle between present behavior with one set of immediate outcomes and one set of future outcomes.”

- Concern for immediate and far future consequences are theoretically and empirically distinct: CFCS-Immediate and CFCS-Future
- CFCS has been associated with pro-environmental consumer and commute mode choices.
- Underlying logic of the problem often posed for PEVs: consumers either insufficiently value future benefits or are insufficiently certain they will claim such benefits to risk the perceived higher present cost of acquiring PEVs.

Consideration of Future Consequences

- Two groups of seven statements each for CFCS-I and CFCS-F presented in “mixed” order.
 - Each scored on a five-point scale: the extent to which the statement is characteristic of the respondent:
 1. extremely uncharacteristic
 2. somewhat uncharacteristic
 3. uncertain
 4. somewhat characteristic
 5. extremely characteristic
- CFCS-I and CFCS-F scores are the sum of the scores for the corresponding seven statements.
- Example statements
 - Immediate: I only act to satisfy immediate concerns, figuring the future will take care of itself.
 - Future: I am willing to sacrifice my immediate happiness or well-being to achieve future outcomes.

Time Focus Scale

“The attention individuals devote to thinking about the past, present, and future.”

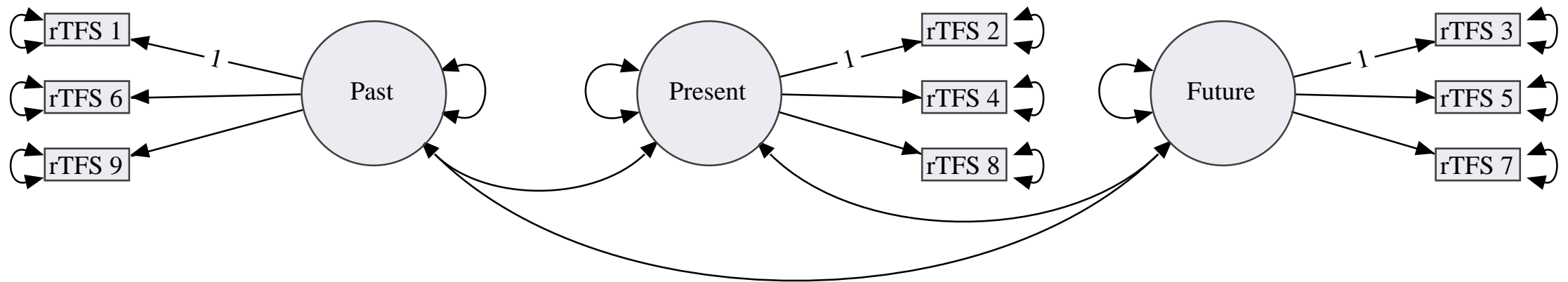
- Allows for shifting attention between past, present, and future, so three measures: TFS-Past, TFS-Present, TFS-Future.
- A sense of being in control is associated with future focus and to a lesser extent present focus.

Time Focus Scales

- Three statements each for past, present, and future focus presented in “mixed” order.
 - Each scored on a seven-point scale as to how often a person thinks about the time frame suggested by each statement, with these named points:
1 = never; 3 = sometimes; 5 = frequently; 7 = constantly
- TFS Past, TFS Present and TFS Future scores are the sum of the scores for the three corresponding statements.
- Example statements
 - Past: I replay memories of the past in my mind.
 - Present: I focus on what is currently happening in my life.
 - Future: I imagine what tomorrow will bring for me.

Confirming construct validity and scale reliability

- Confirmatory factor analysis via structural equation modeling
- Scale Reliability; Cronbach's alpha
- All TFS and CFC scales are accepted to be valid and reliable in these data.



Descriptive Statistics

- **Consideration of Future Consequences**

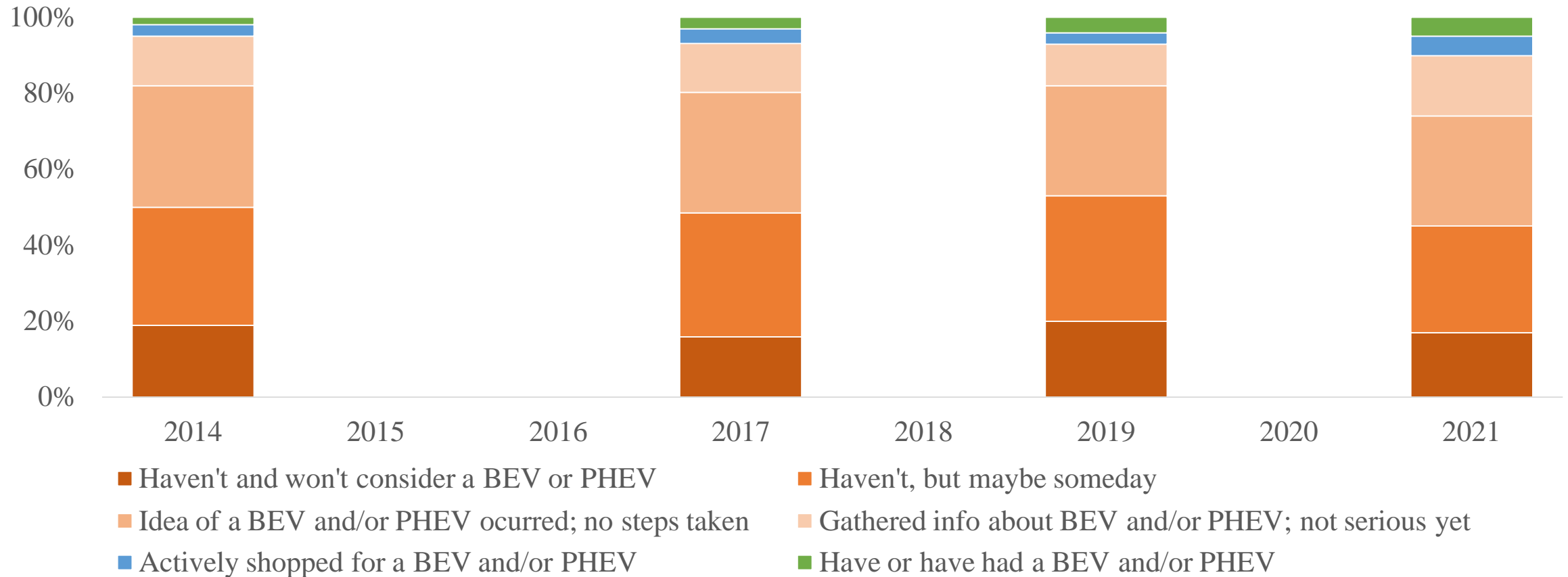
- Conceptual scales
 - Range: 7 to 35;
- Observed scales
 - CFCS-I mean
 - Range: 7 to 35
 - Mean = 20.8
 - CVCS-F
 - Range: 7 to 35
 - Mean = 25.5

- **Time Focus Scales**

- Conceptual scales
 - Range: 3 to 21
- Observed scales
 - TFS-Past
 - Range: 3 to 21
 - Mean = 14.1
 - TFS-Present
 - Range: 5 to 21
 - mean = 15.5
 - TFS-Future
 - Range: 3 to 21
 - mean = 15.6

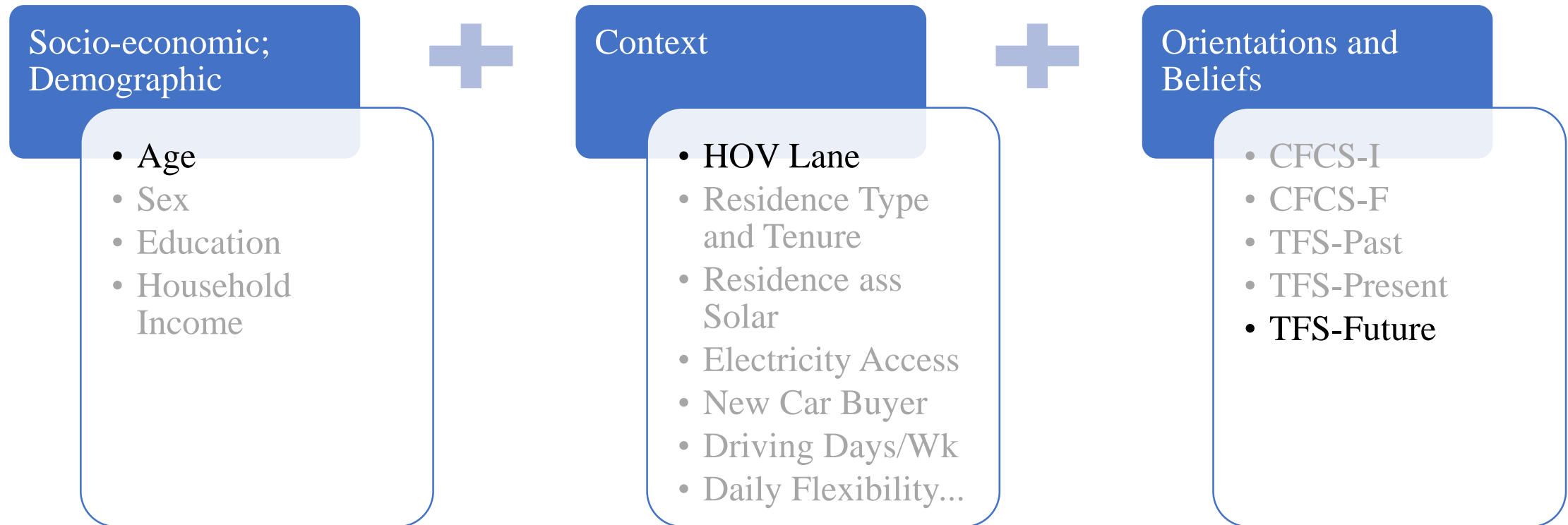
Thinking about battery electric and plug-in hybrid electric vehicles (PEVs)

PEV Consideration: 2014, 2017, 2019, and 2021

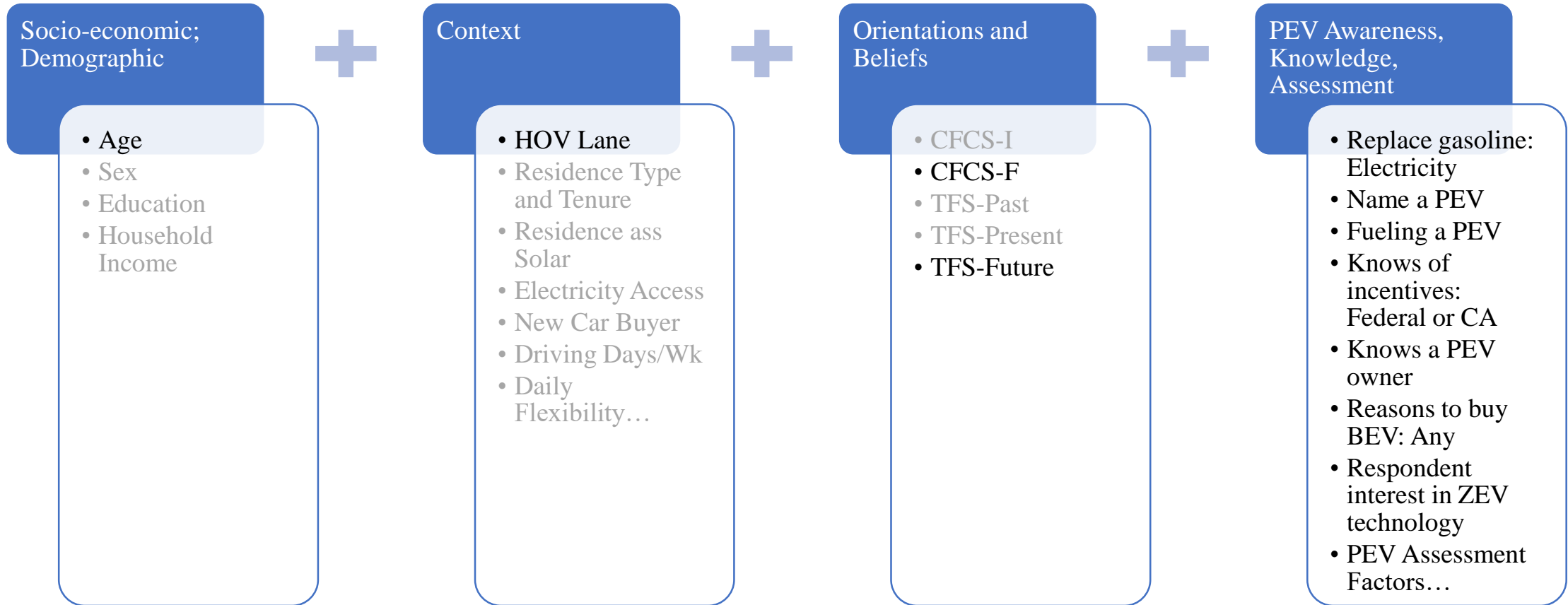


Are CFCS and TFS related to PEV Consideration?

Statistically Significant Variables in Models of PEV Consideration



Statistically Significant Variables in Models of PEV Consideration



Conclusions

- The more time a person thinks in the future the more likely they are to have already given more consideration to PEVs
- Thinking in neither the past nor present is associated with PEV Consideration

Conclusions

- The more a person's present actions are shaped by far future consequences of that action, the more likely that person is to have already considered PEVs.
 - Consistent with the narrative that people with lower discount rates, longer time frames, a greater variety of future consequences they value, or some combination of all three are more likely to have already considered a PEV.
- Conversely, immediate consequences of present actions have no relationship to PEV Consideration.
 - Calls for careful testing of the flip-side of the narrative, i.e., that myopic consumers are wary of PEVs because of a tradeoff between perceived high present cost and uncertain future savings.

Conclusions

Increasing electric vehicle consideration among (the vast majority of) people who have paid no to little attention to electric vehicles may be aided by understanding:

- When and how people form time orientations,
- How “trait-like” these orientations are,
 - Who is susceptible to shifting their orientations toward the future, and
- What messaging or actions would be effective for people who place more emphasis on present consequences or have stronger past and present orientations.

Thank you

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Ken Kurani

knkurani@ucdavis.edu