



# Toward a humanistic systems science to foster behavior change

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**UC San Diego**  
The Design Lab



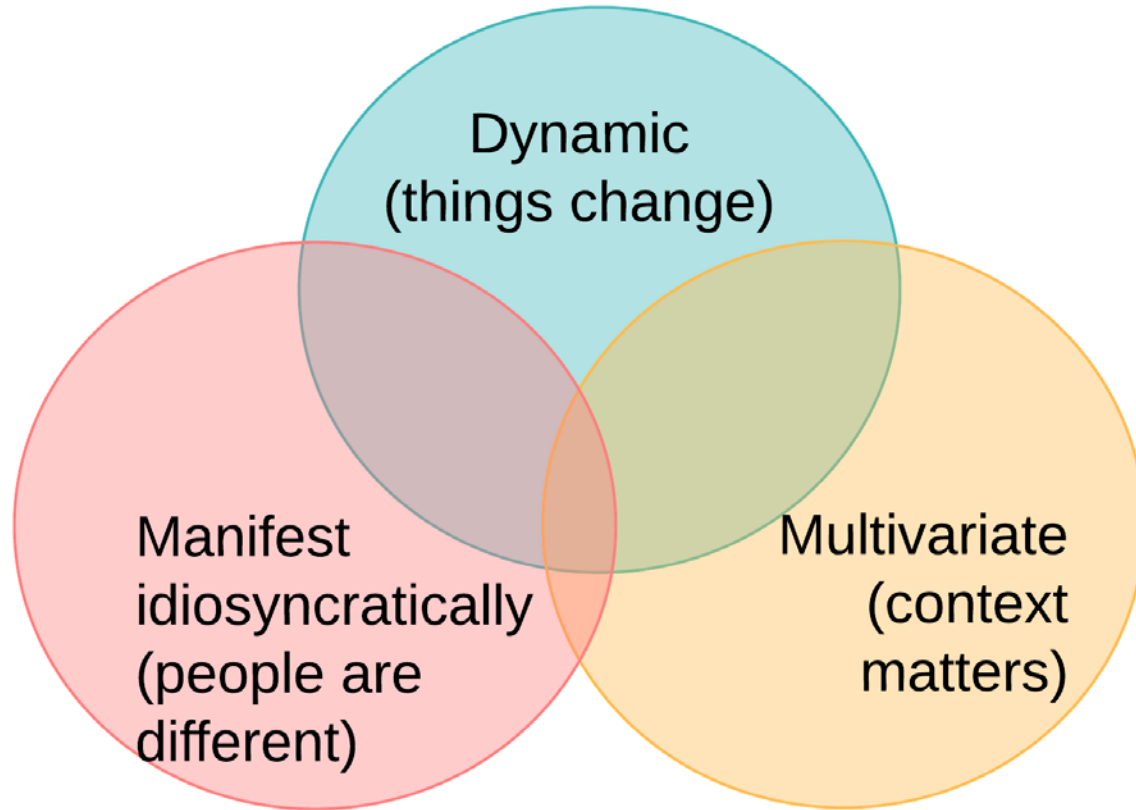
# Disclosures and Acknowledgements

- I am a scientific advisor to:
  - eEcoSphere and HopeLab
- I have been funded by:
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  - National Science Foundation (IIS-1449751)
  - Robert Wood Johnson Foundation (71995, 74610)
  - Google Faculty Research Award

UC San Diego resides on the  
unceded territory of the Kumeyaay Nation.



# As simple as possible, no simpler. - Einstein





# Lessons Learned

Verbs over nouns.

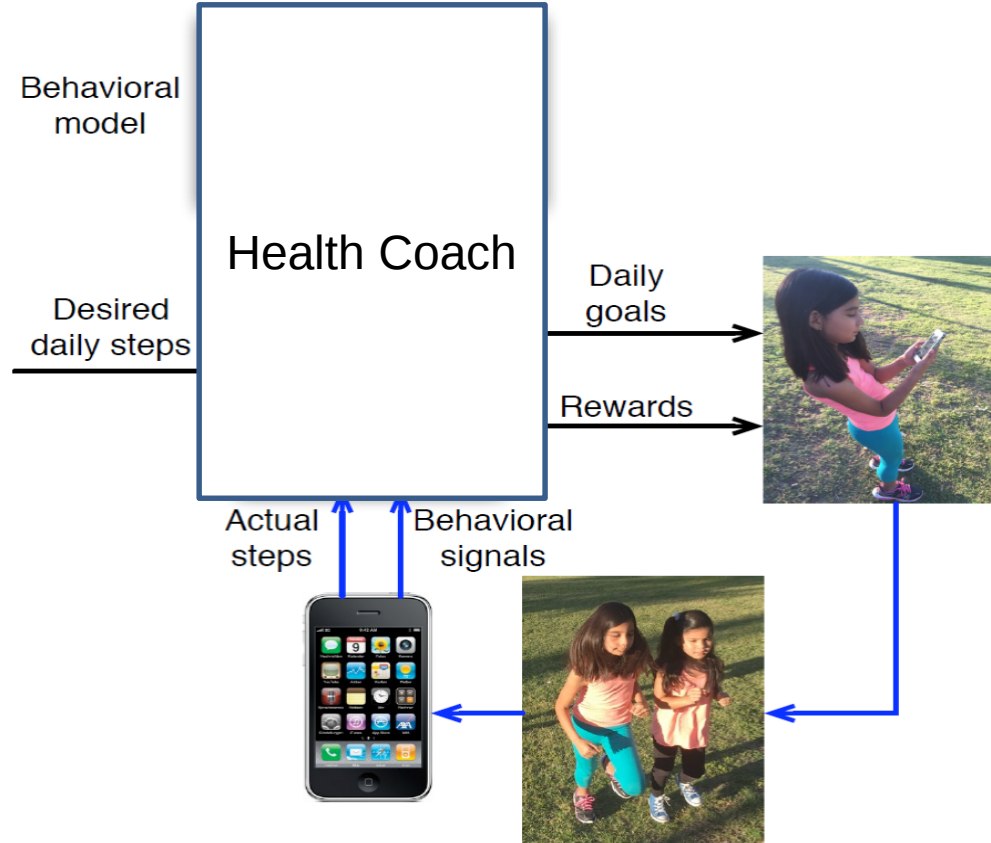
Whoever defines success & categories has the power.

A humanistic systems science needs to both:

- Act more like GPS (tuning to context), less like a yardstick;
- Cultivate appropriate mindsets, processes, & skills of scientists.

# Control Systems Engineering:

## Focusing on dynamics of each “system” in context



# Lessons Learned

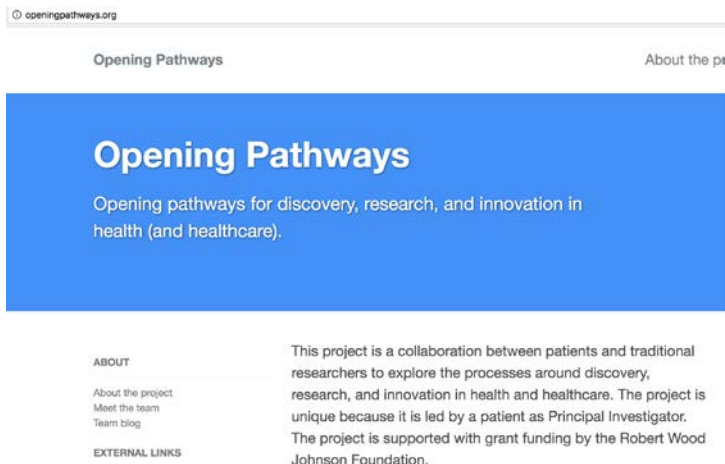
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# Opening Pathways for Innovation



## Dana Lewis, Principal Investigator (PI)



After building her own DIY "artificial pancreas," Dana Lewis helped found the open source artificial pancreas movement (known as "[OpenAPS](#)"), making safe and effective artificial pancreas technology available

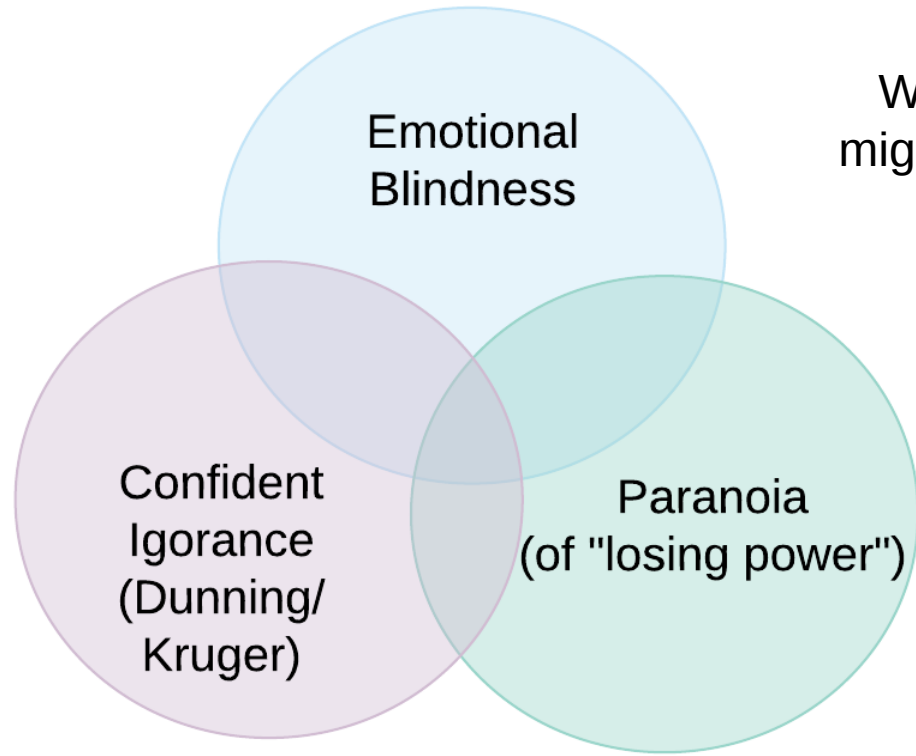
(sooner) for people with diabetes around the world. She is part of the #WeAreNotWaiting movement & engages with patient communities globally to solve healthcare problems in new and innovative ways. She's working to scale patient-led innovation and scientific discovery in more patient communities. She is active on Twitter as [@DanaMLewis](#).

<http://openingpathways.org/>

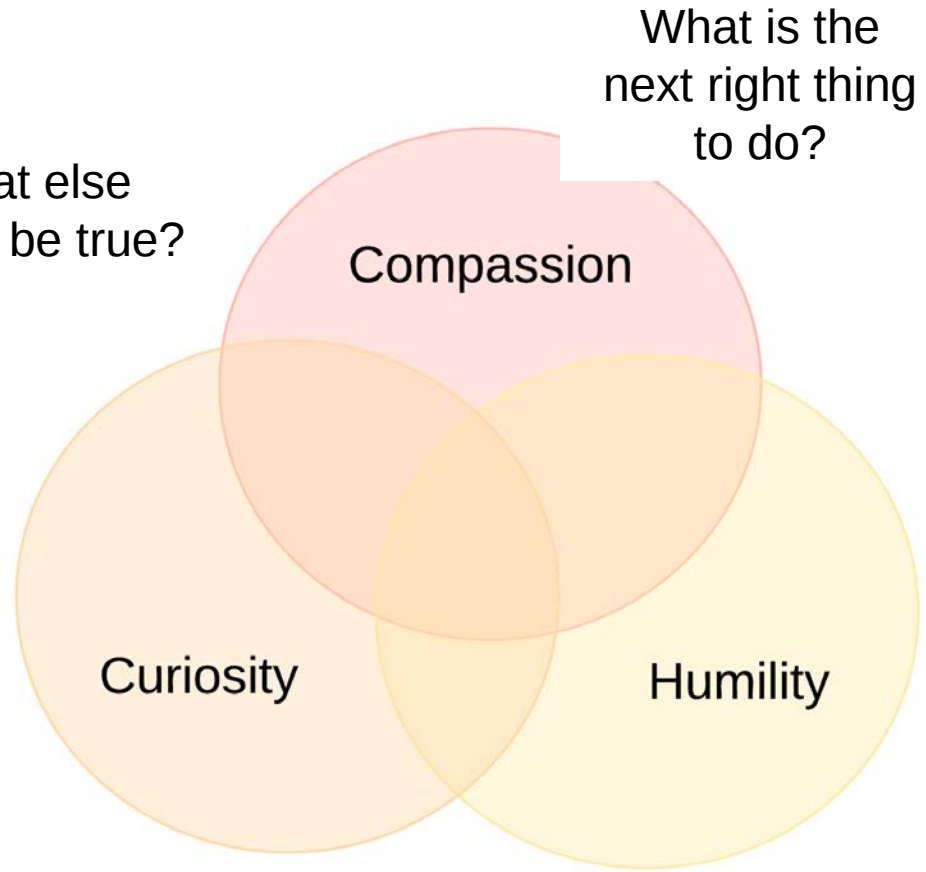
Support  
provided by



Robert Wood Johnson  
Foundation



What else  
might be true?



What is the  
next right thing  
to do?

How do you know?

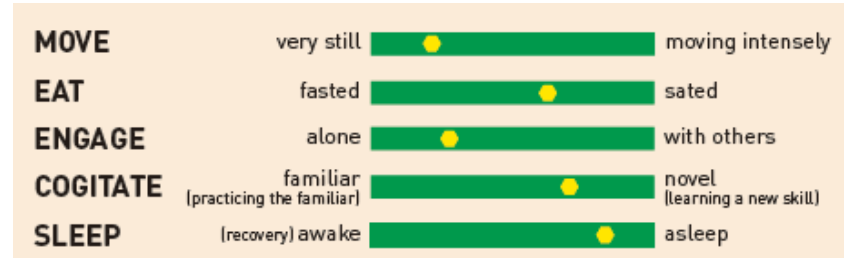
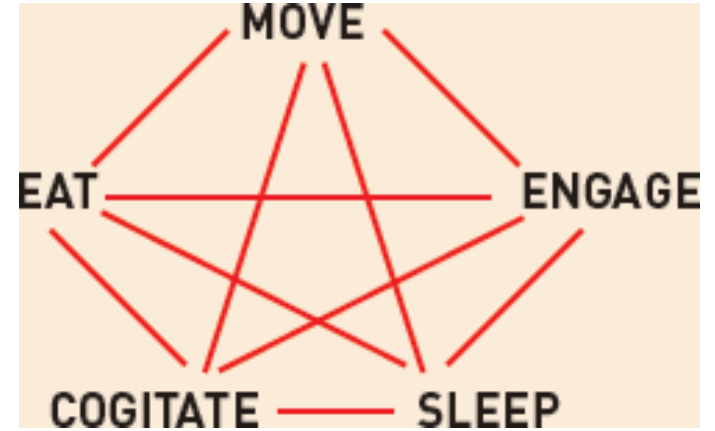
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# Implications for Systems Science for Obesity

- Focus more on dynamics, interconnectivity, and flows within and across “systems” (individual units in context) [verbs] over interventions, “levels,” and “outcomes” [nouns].
- Those served by science must take part in defining success criteria and categories to enable trustworthy models and algorithms.
- Training in humanistic systems science is essential and likely should balance:
  - Mathematics, computation, modeling, and algorithm development
  - Cultivating humanistic scientists
    - mindsets (e.g., compassionate, curious, and humble),
    - processes (e.g., triangulation, studying root causes, iteration)
    - skills (e.g., fusion/de-fusion, listening, synthesizing)



I look forward  
to the discussion.