# Positive Computing: Research & Practice in Wellbeing Technology

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## Abstract

Any move towards a future in which technologies genuinely improve our lives requires that those technologies respect, and even foster our psychological wellbeing. Currently there is no systematic integration of wellbeing science into the technology development process but this is changing. Just as the field of ergonomics investigates design that supports physical wellness, we can now design for digital experiences that support psychological wellness. By turning to well-established methods in psychology, neuroscience, and behavioral economics, we can design and develop new technologies in a way that fosters psychological wellbeing and human potential - "positive computing" [1]. In this course we will introduce practical methods for evaluating and designing for wellbeing determinants like autonomy [3,5], competence [5], connectedness [5], meaning [4], and compassion [2], as a first step towards a future in which all digital experience supports flourishing.

## Author Keywords

Design methods, design research, behavior change, self- efficacy, connectedness, emotions.

## ACM Classification Keywords

H.5.m [Information Interfaces and Presentation (e.g., HCI)]: Miscellaneous; H.5.2 [User Interfaces]: Evaluation/Methodology, User-Centered Design; H.5.3[group and Organization Interfaces]: Evaluation/Methodology;
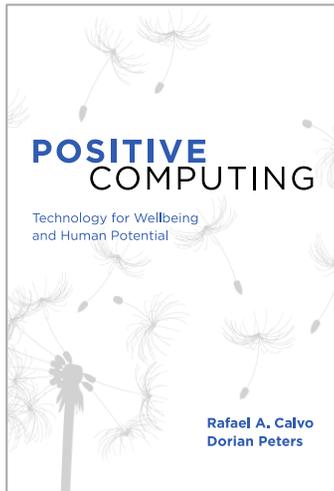
Figure 1 - Resource text to be provided.



Figure 2 – Wellbeing Determinant Cards - Used to guide ideation around wellbeing impact.

**Duration**: 2 x 80 min. sessions

## Learning Outcomes

You will gain:

- **Theoretical foundation** – An understanding theories and evidence from multiple disciplines that can inform the design & evaluation of technology that supports wellbeing.
- **Practical frameworks** for integrating psychological wellbeing into planning, ideation, analysis, and evaluation of new technologies.
- **Scenarios and case studies** that provide examples of the ways technology use can impact wellbeing including technologies specifically designed to respect psychological needs.
- **Group-generated design strategies and ideation** for better supporting wellbeing in your current and future projects.
- **A copy of the resource text** *Positive Computing* for reference.

## Justification

The growing interest among HCI professionals to consider psychological wellbeing as part of design reflects a move towards greater human-centeredness. Only by designing technology that respects and supports our mental health, can we make a happier and healthier (not just more productive) world. In the same way that economists are measuring wellbeing at the national level, and psychologists have been measuring it at an individual level for decades, we are now in a position to systematically incorporate wellbeing measures into the design and evaluation of technology.

## Content

Content of the course includes: A summary of relevant wellbeing theory that can be used to inform technology design [1,6,7], a review of current technologies in the positive computing area, a number of frameworks and tools for bridging theory to practice, and a review of validated methods and instruments available for evaluation of wellbeing impact.

## Background of attendees

Appropriate for HCI professionals of any background and at any point in their career who are interested in exploring the impact of technology on psychological wellbeing.

## Audience size

Flexible but no more than 60 is preferred. Could be run more than once if helpful.

## Presentation format

The course will be conducted as a combination of lecture and group activity.

## Schedule

### Part 1 - Positive Computing, the What & Why
*Presentation + Activity (60 min)*
What is wellbeing really and why design for it? What is positive computing? Wellbeing sciences in a nutshell. Speed dating with key wellbeing researchers and their theories. What are wellbeing determinants?

### Part 2 - How to design for wellbeing.
*Presentation (20 min)*
Frameworks and tools as ways of thinking about the wellbeing technology space. Case studies through the lens of each framework/tool.

### Part 3 - Measuring Wellbeing – Tools and methods
*Presentation (30 min)*
How to measure wellbeing - tools and methods
Who measures wellbeing and how do they do it? The importance of valid measures, evidence-based theory and multidisciplinary collaboration. Case Studies.

### Part 4 - How to use wellbeing psychology towards better design
*Presentation + Activity (50 min)*
Groups brainstorm ideas, analyze stumbling blocks, and suggest evaluation measures, based on wellbeing determinants (with shared worksheet). Wrap-up, future directions.

### Student Volunteers:  one.

### Audio/visual needs
- A projector & screen
- Office supplies: Pens for tables.

### Promotional strategy
- Regular announcements via social media (Twitter, and relevant LinkedIn groups)
- Mail outs to professional mailing lists to which authors have access.
- Announcements via PositiveComputing.org
- Will consult MIT Press for further promotional opportunities as related to textbook.

### Instructors
**Rafael Calvo** is Professor of Software Engineering, ARC Australian Future Fellow and Director of the Positive Computing Lab at the University of Sydney. Rafael is the recipient of 5 teaching awards for his work on learning technologies, and editor of the *Oxford Handbook of Affective Computing.* Rafael is Associate Editor of the IEEE *Transactions on Learning Technologies* and of IEEE *Transactions on Affective Computing* and Senior Member of IEEE. He has over 150 publications in the fields of affective computing, learning technologies, and computational intelligence. His most recent book is *Positive Computing: Technology for Wellbeing and Human Potential* from MIT Press.

**Dorian Peters** is a designer and author who specializes in design for learning and wellbeing. She is Creative Leader at the Positive Computing Lab, as well as UX specialist for the Brain and Mind Centre at the University of Sydney. Her current work explores the use of design to support resilience, autonomy, and compassion in digital experience. Her books include *Interface Design for Learning* (New Riders) and *Positive Computing* (MIT Press). She has degrees in Multimedia Design, Writing and Directing from the University of Sydney and Carnegie Mellon.

### Acknowledgements

### References
1. R.A. Calvo and D. Peters. (2014) Positive Computing: Technology for wellbeing and human potential. MIT Press.

2. D. Peters, R.A. Calvo "Compassion v. empathy: Designing for resilience." (2014) *ACM Interactions* Sep/Oct vol 21, 5. pp 48-53 ACM

3. R.A. Calvo, D. Peters, D. Johnson, Y. Rogers "Autonomy in Technology Design" CHI '14 Extended

Abstracts on Human Factors in Computing Systems. pp 37-40. ACM, 2014

4. R.A. Calvo, D. Peters (2013) "Promoting psychological wellbeing: loftier goals for new technologies" *IEEE Technology and Society*, Dec vol 32, 4. pp 19

5. R. M. Ryan and E. L. Deci, "On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being," *Annu. Rev. Psychol.*, vol. 52, pp. 141–166, 2001.

6. P. Desmet and M. Hassenzahl, "Towards happiness: Possibility-driven design," in *Human-computer interaction: The agency perspective*, Springer, 2012, pp. 3–27.

7. B. K. Wiederhold and G. Riva, "Positive Technology Supports Shift to Preventive, Integrative Health," *Cyberpsychol. Behav. Soc. Netw.*, vol. 15, no. 2, pp. 67–68, 2012.