

# Architecture for well-being and health

## Outline:

- Defining health and well-being
- Introducing the 5-ways to well-being
- Opportunities and implications for design
- Conclusions and speculations

Based on: K. Steemers (2015), 'Architecture for well-being and health',  
Daylight & Architecture, Spring 2015, Issue 23, pp 6-27.

# Health

“a state of complete physical, mental and social well-being”

WHO. (2001). *Fifty-fourth World Health Assembly*. Geneva: World Health Organization.

# Health

The approach sees “health and well-being as interdependent; it holds ‘prevention’ as important as ‘cure’, and looks for long-term solutions rather than more immediately attainable treatments”.

CABE. (2009). *Sustainable places for health and Well-being*. London: Commission for Architecture and the Built Environment.

# Defining and measuring well-being

- Feeling good  
(*hedonic* well-being)
- Functioning well  
(*eudaimonic* well-being)



# Defining and measuring well-being

International evidence has been gathered to measure well-being.

- Based on features of positive well-being that represent the opposite of internationally agreed symptoms for common health disorders.
- Validated with psychometric analyses using a large dataset (ESS: n=43,000).

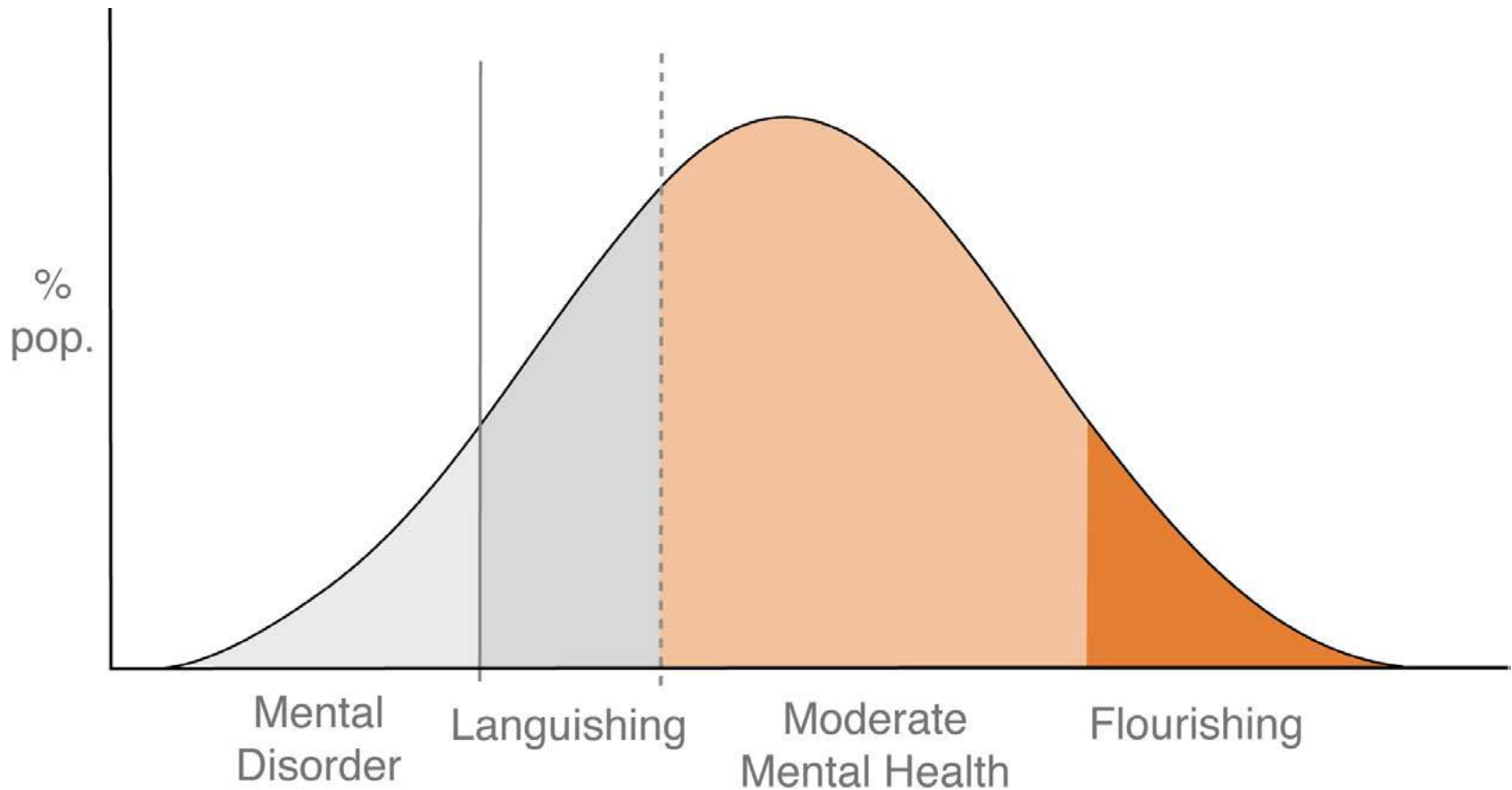
Huppert, F. and So, T. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. *Social Indicators Research*, 837-861.

# Defining and measuring well-being

Positive feature	ESS item used as indicator
Competence	Most days I feel a sense of accomplishment from what I do
Emotional stability	(In the past week) I felt calm and peaceful
Engagement	I love learning new things
Meaning	I generally feel that what I do in my life is valuable and worthwhile
Optimism	I am always optimistic about my future
Positive emotion	Taking all things together, how happy would you say you are?
Positive relationships	There are people in my life who really care about me
Resilience	When things go wrong in my life it generally takes me a long time to get back to normal. (reverse score)
Self-esteem	In general, I feel very positive about myself
Vitality	(In the past week) I had a lot of energy

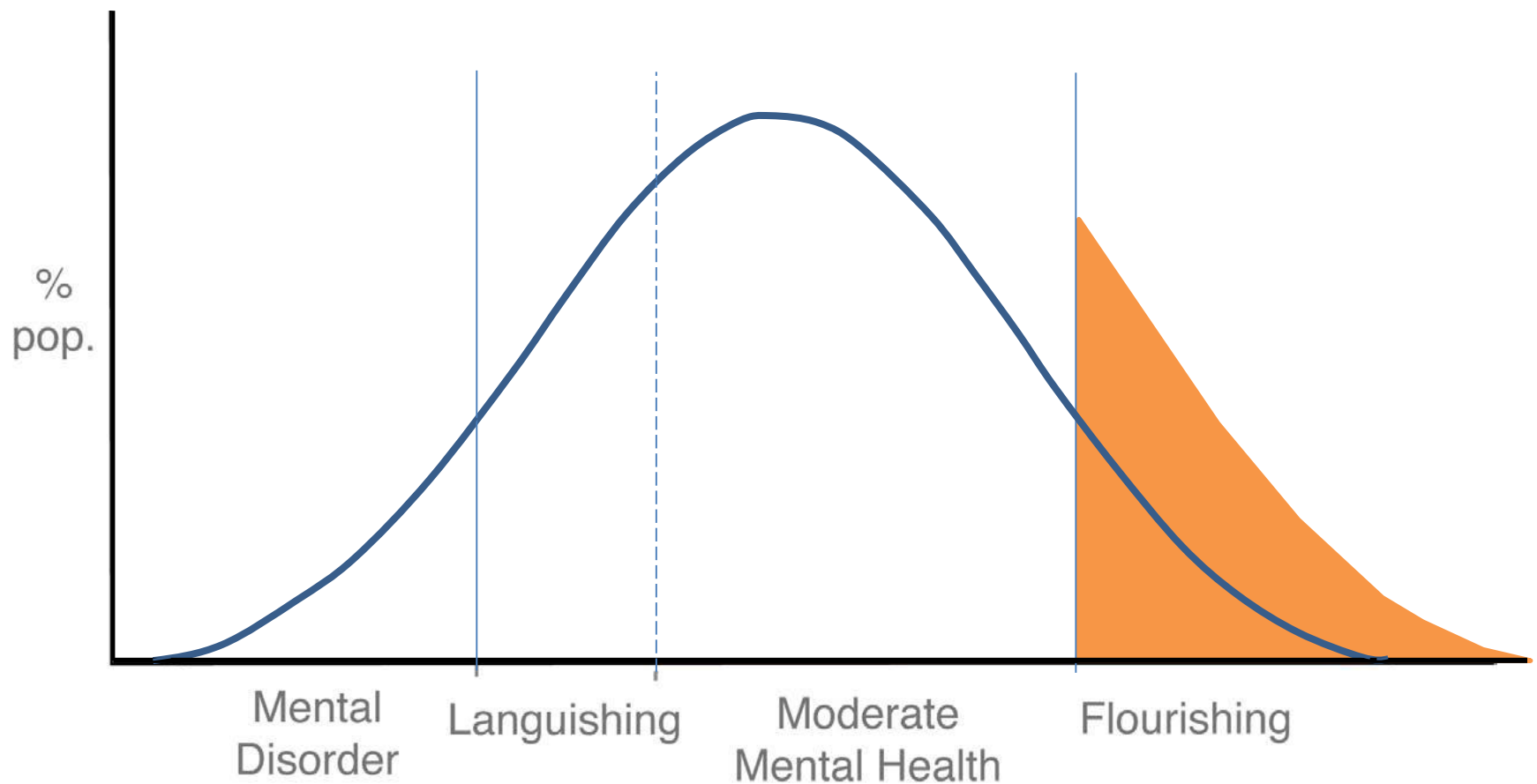
# Defining and measuring well-being

## The mental health spectrum



# Defining and measuring well-being

Behaviour can be strongly influenced by context: “Nudge Architecture”





# Well-being

## The UK Government's 'Foresight' report led to the definition of the “Five Ways to Well-being”.

Foresight. (2008). *Mental capital and well-being*. London: The Government Office for Science.

Aked, J., Thompson, S., Marks, N., & Cordon, C. (2008). *Five ways to well-being: The evidence*. London: New Economics Foundation.



# Five Ways to Well-being

1. Connect
2. Keep Active
3. Take Notice
4. Keep Learning
5. Give

have been associated with positive mental health and shown to be influenced by physical design characteristics.

Anderson, J. (2014). *Urban design and well-being*. Cambridge: Doctoral thesis, University of Cambridge.

Aked, J., Michaelson, J., & Steuer, N. (2010). *Good foundations: Towards a low carbon, high well-being built environment*. London: New Economics Foundation



Photo: Jamie Anderson

# 1. Connect

e.g. The quantity and quality of social connections correlates with reported well-being as well as physical health.

Foresight. (2008). *Mental capital and well-being*. London: The Government Office for Science.

Dolan, P., Peasgood, T., & White, M. (2008). A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 94-122.

Helliwell, J., & Putnam, R. (2004). The social context of well-being. *Philos Trans R Soc Lond B Biol Sci*, 1435-1446.





## 2. Keep Active

Global and meta-studies demonstrate that physical activity reduces symptoms of mental and physical ill-health.

Krogh, J., Nordentoft, M., Sterne, J., & Lawlor, D. (2011). The effect of exercise in clinically depressed adults: systematic review and meta-analysis of randomized controlled trials. *J Clin Psychiatry*, 529-538.

Lee, I., Shiroma, E., Lobelo, F., Pushka, P., Blair, S., & Katzmarzyk, P. (2012). Impact of physical activity on the world's major non-communicable diseases. *Lancet*, 219-229.

Sofi, F., Valecchi, D., Bacci, D., Abbate, R., Gensini, G., Casini, A., et al. (2011). Physical activity and risk of cognitive decline: a meta-analysis of prospective studies. *J Intern Med*, 107-117.



# 3. Take Notice

Being mindful is a behaviour that reduces symptoms of stress, anxiety and depression.

Chambers, R., Gullone, E., & Allen, N. (2009). Mindful emotion regulation: An integrative review. *Clinical Psychology Review*, 560-572.

Hofmann, S., Sawyer, A., Witt, A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *J Consult Clin Psychol*, 169-183.

Tang, Y., Yang, L., Leve, L., & G.T., H. (2012). Improving executive function and its neurobiological mechanisms through a mindfulness-based intervention: Advances within the field of developmental neuroscience. *Child Dev Perspect*, 361-366.



## 4. Keep Learning

Aspirations are shaped in early life, and are modified by the environment.

Those participating in, for example music, arts and evening classes, achieve higher subjective well-being.

Gutman, L., & Akerman, R. (2008). *Determinants of aspiration*. London: Centre for Research on the Wider Benefits of Learning, Institute of Education.

Jenkins, A. (2011). Participation in learning and wellbeing among older adults. *International Journal of Lifelong Education*, 403-420.





# 5. Give

Creating settings for pro-social rather than self-centred behaviour has a positive impact.

Such behaviours are related both to spending on others (as opposed to oneself) and through volunteering and offering help.

Aknin, L., C.P., B.-L., Dunn, E., Helliwell, J., Biswas-Diener, R., Kemeza, I., et al. (2010). *Prosocial spending and well-being: Cross-cultural evidence for a psychological universal*. Cambridge (MA): National Bureau of Economic Research.

Dunn, E., Aknin, L., & Norton, M. (2008). Spending money on others promotes happiness. *Science*, 1687-1688.

Plagnol, A., & Huppert, F. (2010). Happy to help? Exploring the factors associated with variations in rates of volunteering across Europe. *Social Indicators Research*, 157-176.

Meier, S., & Stutzer, A. (2008). Is volunteering rewarding in itself? *Economica*, 39-59.



# Five Ways to Well-being

How do the 'Five Ways to Well-being' relate to the built environment?

The following section identifies evidence and speculations for each of the 5-ways.



Photo: Jamie Anderson



# 1. Connect

The provision of local 'everyday public spaces' creates opportunities for people to connect.

Key qualities include:

- location;
- places;
- adaptability;
- homeliness;
- pleasantness;
- specialness.

Cattell, V., Dines, N., Gesler, W., & Curtis, S. (2008). Mingling, observing, and lingering: everyday public spaces and their implications for well-being and social relations. *Health Place*, 544-561.



# 1. Connect

- Pedestrian-oriented development is correlated with a sense of community, strongly related to opportunities for social interaction.

Lund, H. (2002). Pedestrian environments and sense of community. *Journal of Planning Education and Research*, 301-312.

- Connections to natural, green or landscape qualities have been widely associated with a range of health benefits.

Ward Thompson, C. (2011). Linking landscape and health: The recurring theme. *Landscape and Urban Planning*, 187-195.



# 1. Connect

“public spaces that brought people together and where friendships and support networks were made and maintained were key to a general sense of well-being”

Cattell, V., Dines, N., Gesler, W., & Curtis, S. (2008). Mingling, observing, and lingering: everyday public spaces and their implications for well-being and social relations. *Health Place*, 544-561.







Moments of  
connecting:  
^ through food,  
> with nature  
and light,  
< with each  
other



## 2. Keep Active

Urban design characteristics associated with increasing activity include:

- access to physical activity facilities,
- convenient and proximate access to destinations,
- high residential density,
- mixed land use and
- walkability.

Bauman, A., & Bull, F. (2007). *Environmental correlates of physical activity and walking in adults and children: A review of reviews*. Loughborough: National Centre for Physical Activity and Health, for the National Institute of Health and Clinical Excellence (NICE).

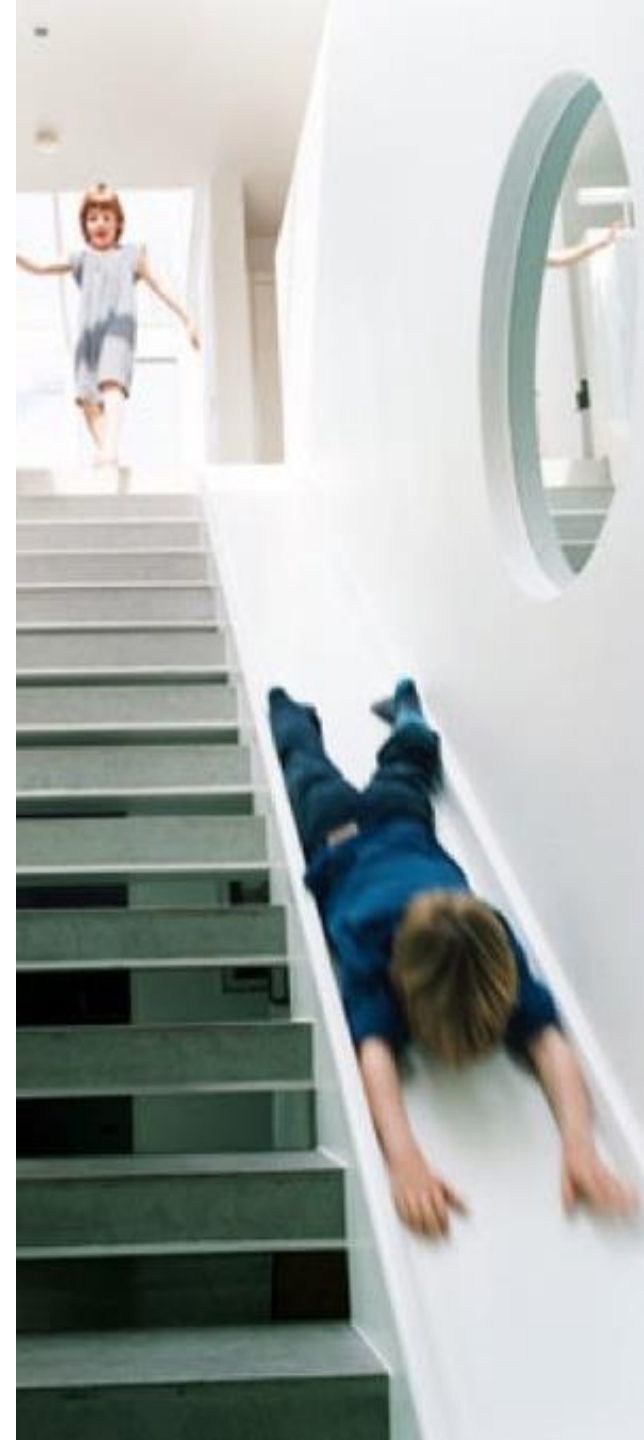


## 2. Keep Active

- physical activity outdoors outdoors and preferably natural environment, but exercise indoors can be equally effective.

Thompson Coon, J., Boddy, K., Stein, K., Whear, R., Barton, J., & Depledge, M. (2011). Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. *Environ Sci Technol*, 1761-1772.

- Design strategies to promote indoor physical activity include:
  - exercise space,
  - stair use, and
  - attractive circulation routes





## 2. Keep Active

- Three-storey homes to increase personal energy expenditure.
- Climbing one floor by stairs accounts for approximately 3% of extra daily energy expenditure.
- Getting up 20 times from a seated position equates to about 10% of a healthy daily total of metabolic activity.

Baker, N., Rassaia, S., & Steemers, K. (2011). Designing for occupant movement in the workplace to improve health. *5th International Symposium on Sustainable Healthy Buildings* (pp. 25-33). Seoul: Centre for Sustainable Healthy Buildings, Kyung Hee University.



## 2. Keep Active

- Make circulation an enjoyable experience and provide rewards for the movement
- Separate key spaces with stairs to encourage movement

Baker, N., Rassaia, S., & Steemers, K. (2011). Designing for occupant movement in the workplace to improve health. *5th International Symposium on Sustainable Healthy Buildings* (pp. 25-33). Seoul: Centre for Sustainable Healthy Buildings, Kyung Hee University.





### 3. Take Notice

- the provision of art, planting and landscaping, wildlife features (e.g. insect boxes), and seating.
- diverse types of open space (combining green as well as hard landscaping), and a higher relative proportion of public to private space.

Anderson, J. (2014). *Urban design and well-being*. Cambridge: Doctoral thesis, University of Cambridge.



## 4. Keep Learning

- in a home that is clean and uncluttered, safe for play and not dark or monotonous.

Guo, G., & Harris, K. (2000). The mechanisms mediating the effects of poverty on children's intellectual development. *Demography*, 431-447.

- eye contact is an important variable, influencing seating arrangements.

Marx, A., Fuhrer, U., & Hartig, H. (2000). Effects of classroom seating arrangements on children's question-asking. *Learning Environments Research*, 249-263.



## 4. Keep Learning

- interior environments need to be physically and thermally comfortable, safe, well lit, quiet and have clean air.
- the opportunity to engage in art, music, reading and evening classes





# 5. Give

- environmental stressors reduces helping behaviour

Honold, J., Wippert, P.-M., & van der Meer, E. (2014). Urban health resources: Physical and social constitutes of neighborhood social capital. *Procedia - Social and Behavioural Sciences*, 491-496.

- people are less altruistic in urban than in rural environments

Korte, C., & Kerr, N. (1974). Response to altruistic opportunities in urban and nonurban settings. *Social Psychology*, 183-184.

- self-reported altruistic behaviour is more prevalent in neighbourhoods which incorporate space design related to diversity, proximity, accessibility and qualities that have been mentioned

Anderson, J. (2014). *Urban design and well-being*. Cambridge: Doctoral thesis, University of Cambridge.



# Conclusions



The Five Ways to Well-being suggest a rich set of design strategies.

Even an anticipated modest 10% effect of the built environment (from the literature) is a significant nudge.

Current speculations are:

1. Design to be technically 'good enough' but adaptable to encourage occupants to be active, aware and engaged
2. 'Nudge' positive behaviours, by providing situations and stimuli for users to exploit
3. Design can order our relationships with each other and our environment, and create interactive settings for improving well-being



# Conclusions

- Our well-being is intimately linked with moments of delight and behavioural opportunity
- A poor building has few such moments and leaves our lives impoverished, whereas successful architecture is one where there is an accumulation of many moments of delight that support the five ways of well-being
- “Design-led interventions can make better choices easier” and nudge us towards positive well-being



King, D., Thompson, P., & Darzi, A. (2014). Enhancing health and wellbeing through 'behavioural design'. *Journal of the Royal Society of Medicine*, 336-337.

# Thank you

K. Steemers (2015), 'Architecture for well-being and health', Daylight & Architecture, Spring 2015, Issue 23, pp 6-27.

(available online:

<http://thedaylightsite.com/architecture-for-well-being-and-health/>).

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