

Considering context in population health intervention studies: a systematic review of how changes to the environment may act to promote physical activity

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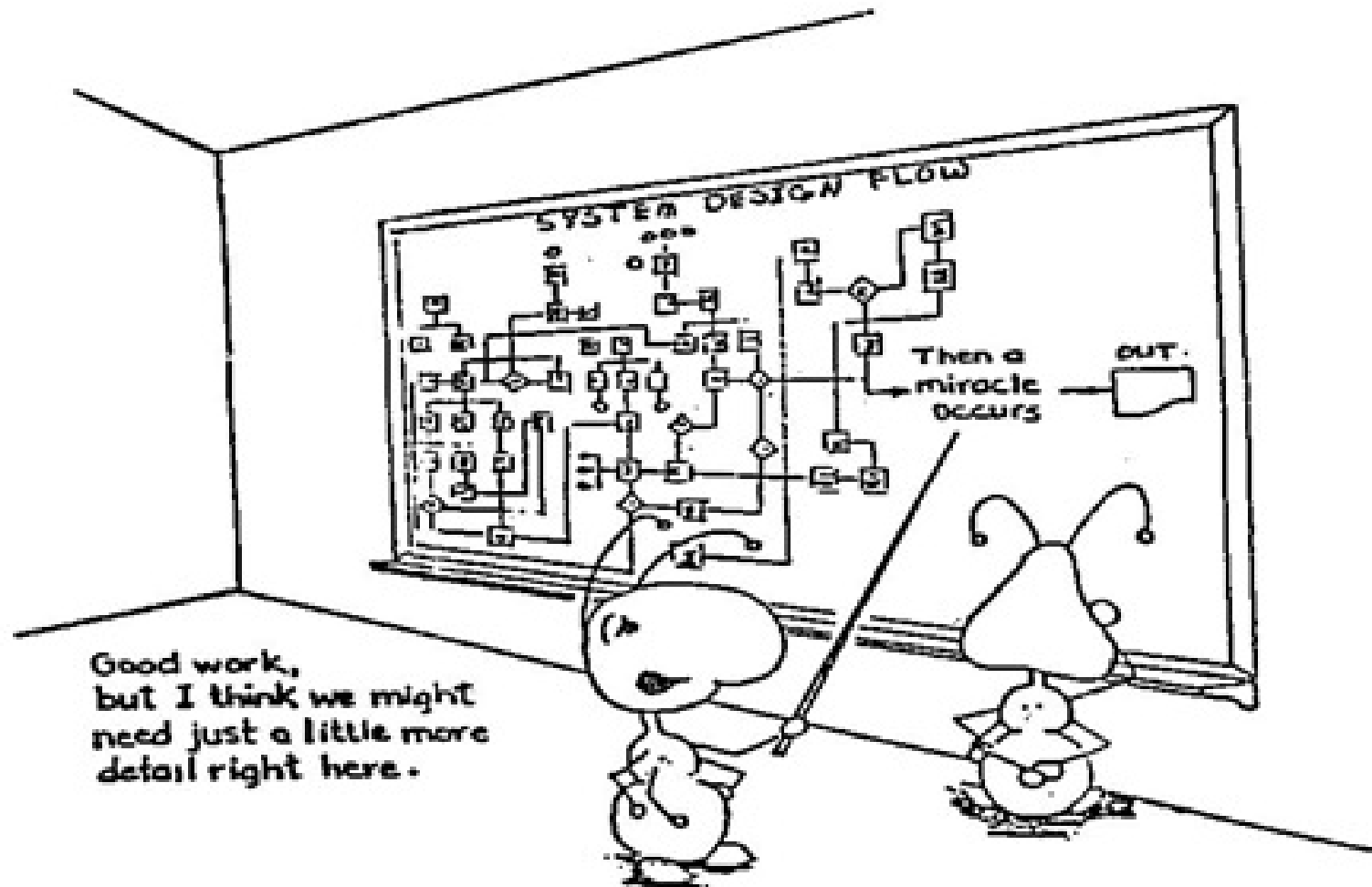
The Lancet, 18 July 2012

‘Inactivity causes 9% of premature mortality, or more than 5·3 million of the 57 million deaths that occurred worldwide in 2008.’

Population health interventions to promote physical activity

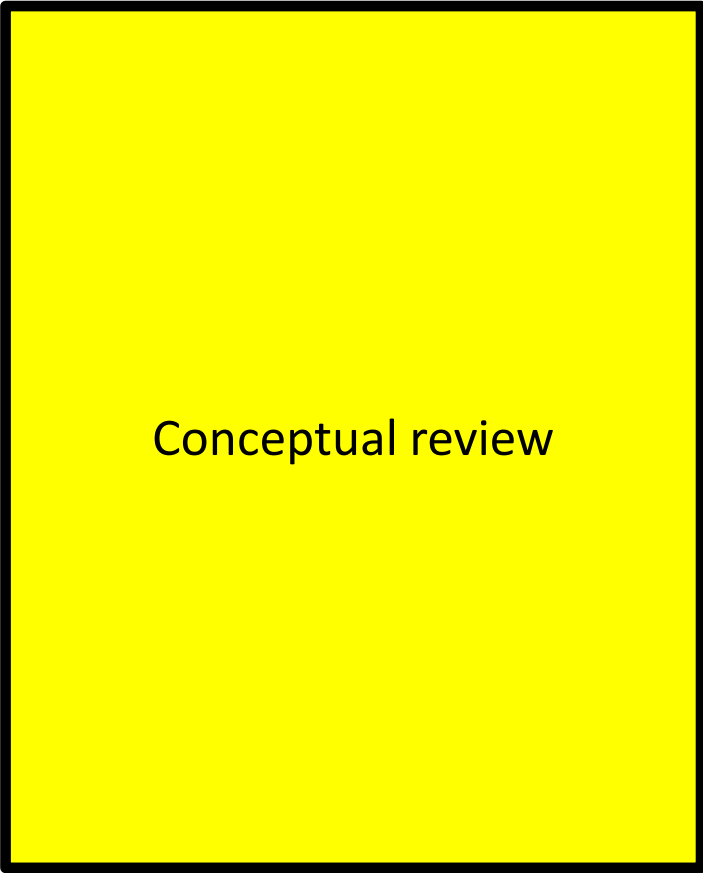






Aim of the review

- To understand **how** changes to the external physical environment act to promote population physical activity behaviour change
- To understand **why** these may or may not be effective



Conceptual review



Empirical search

Aim of the conceptual review

- To review **the concepts behind theories** linking changes to the external physical environment and physical activity in adults

Search for underpinning concepts

- Review, conceptual, theoretical or empirical papers
- Used review papers as sources for primary studies
- 8 electronic databases but no grey literature

Study design	Physical activity	Environment
concept* OR theor* OR framework OR review OR systematic OR synthesis OR summary	physical activity OR exercise OR walking OR bicycling OR cycling	environ*
Bauman and Bull (2007)		

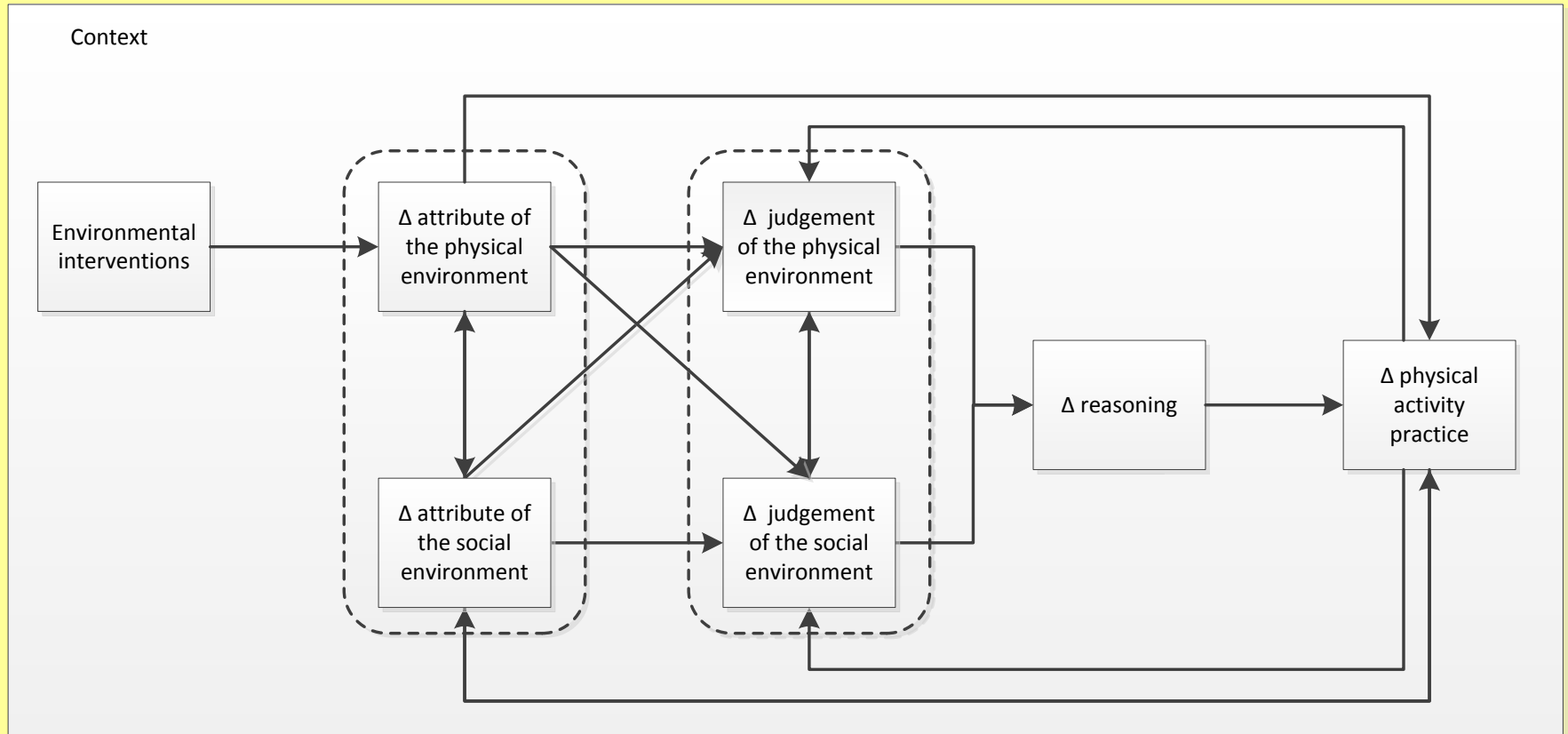
Key concepts to inform a theoretical model

- Conceptualising physical activity
- The role of the environment
- Complexity and systems
- Context
- Conscious and unconscious mechanisms

Key concepts to inform a theoretical model

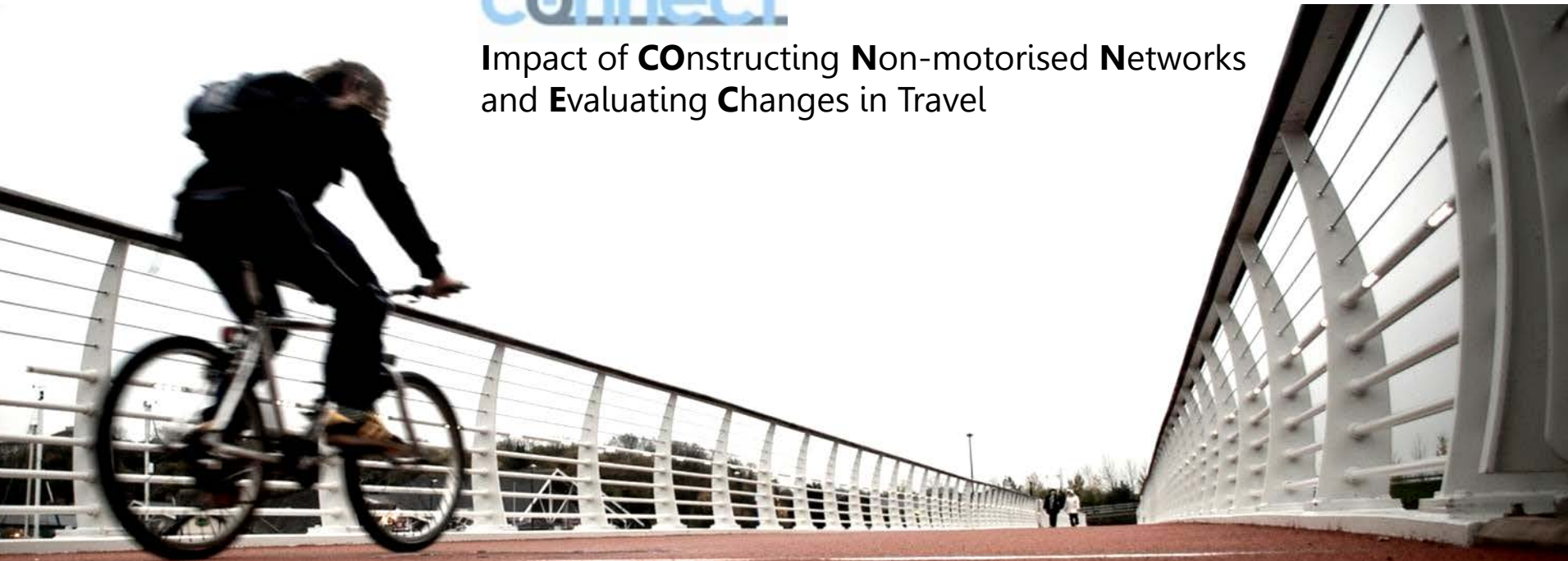
- Conceptualising physical activity
- The role of the environment
- Complexity and systems
- **Context**
- **Conscious and unconscious mechanisms**

Conceptual model for the review





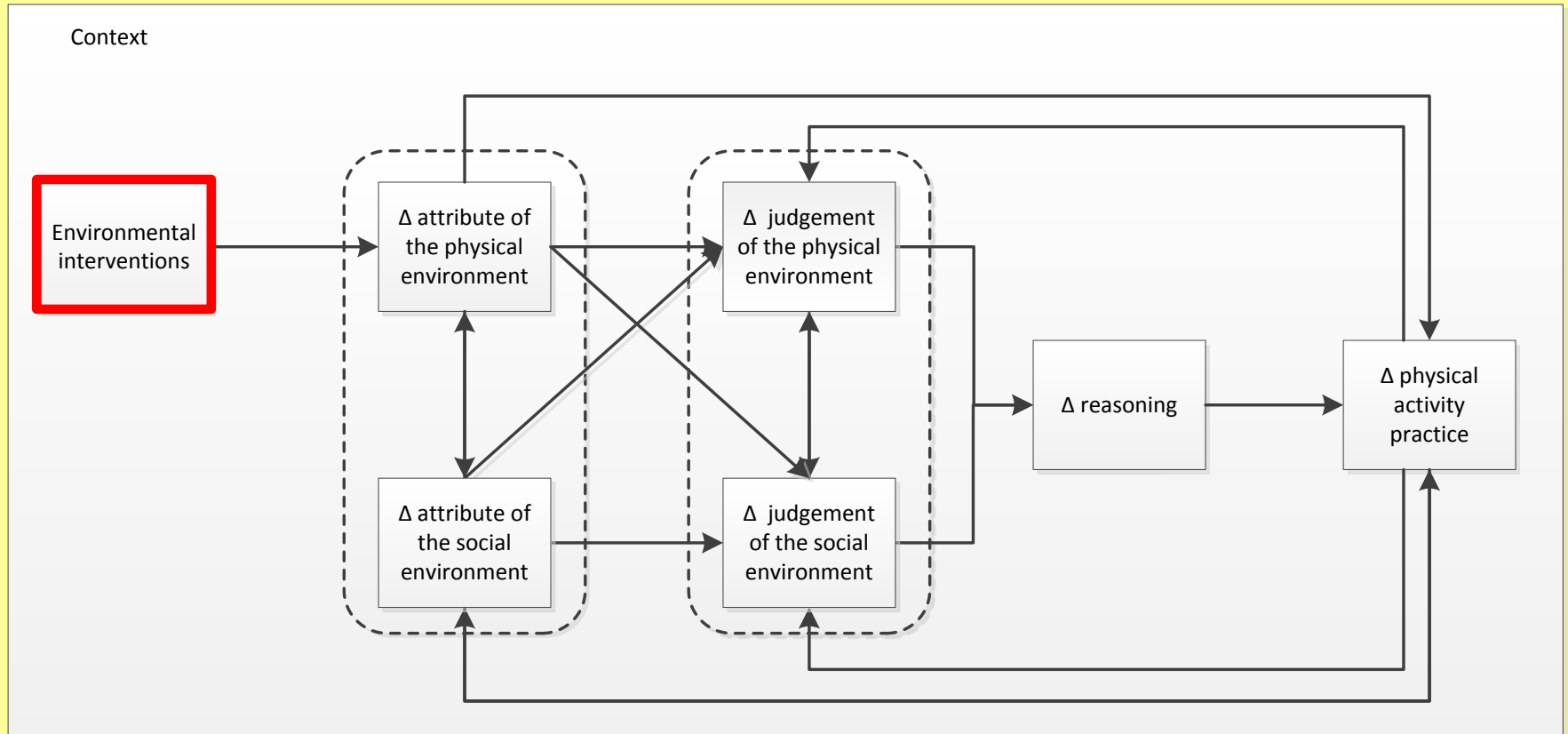
Impact of **CO**nstructing **N**on-motorised **N**etworks and **E**valuating **C**hanges in Travel

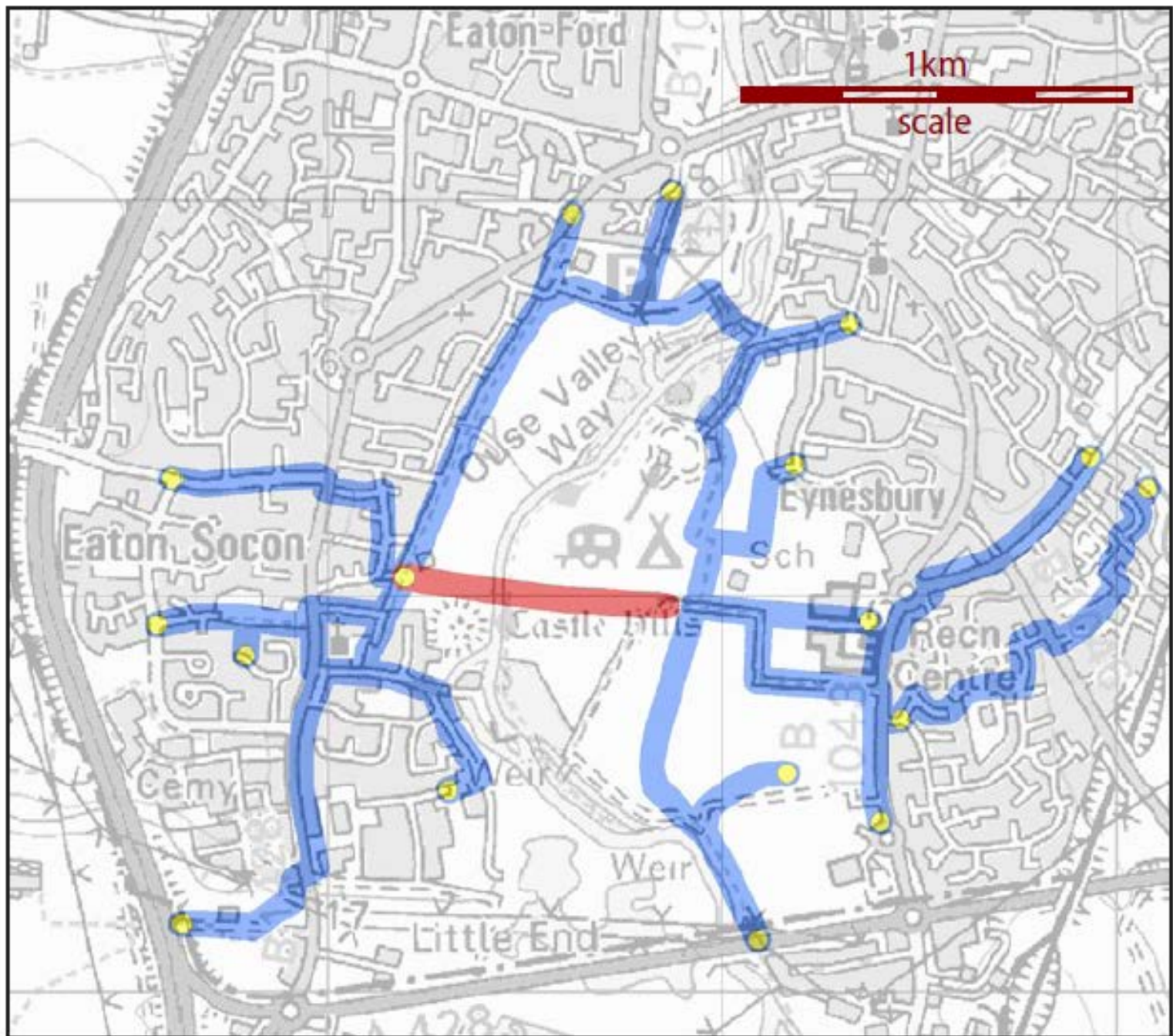


Ogilvie et al., *Am J Public Health* 2011
Sahlqvist et al., *BMC Med Res Methodol* 2011
Powell et al., *Built Environ* 2011
Ogilvie et al., *BMJ Open* 2012
Sahlqvist et al., *Prev Med* 2012
Goodman et al., *Environ Health* 2012
Sahlqvist et al., *Int J Behav Nutr Phys Act* 2013
Brand et al., *Appl Energy* 2013

Bird et al., *Health Psychol* 2013
Adams et al., *Int J Behav Nutr Phys Act* 2013
Goodman et al., *Prev Med* 2013
Song et al., *Environ Plann A* 2013
Goodman et al., *Am J Public Health* 2014
Adams et al., *PLoS ONE* 2014
Sahlqvist et al., *Int J Behav Nutr Phys Act* 2015
Panter et al., *BMJ Open* 2015

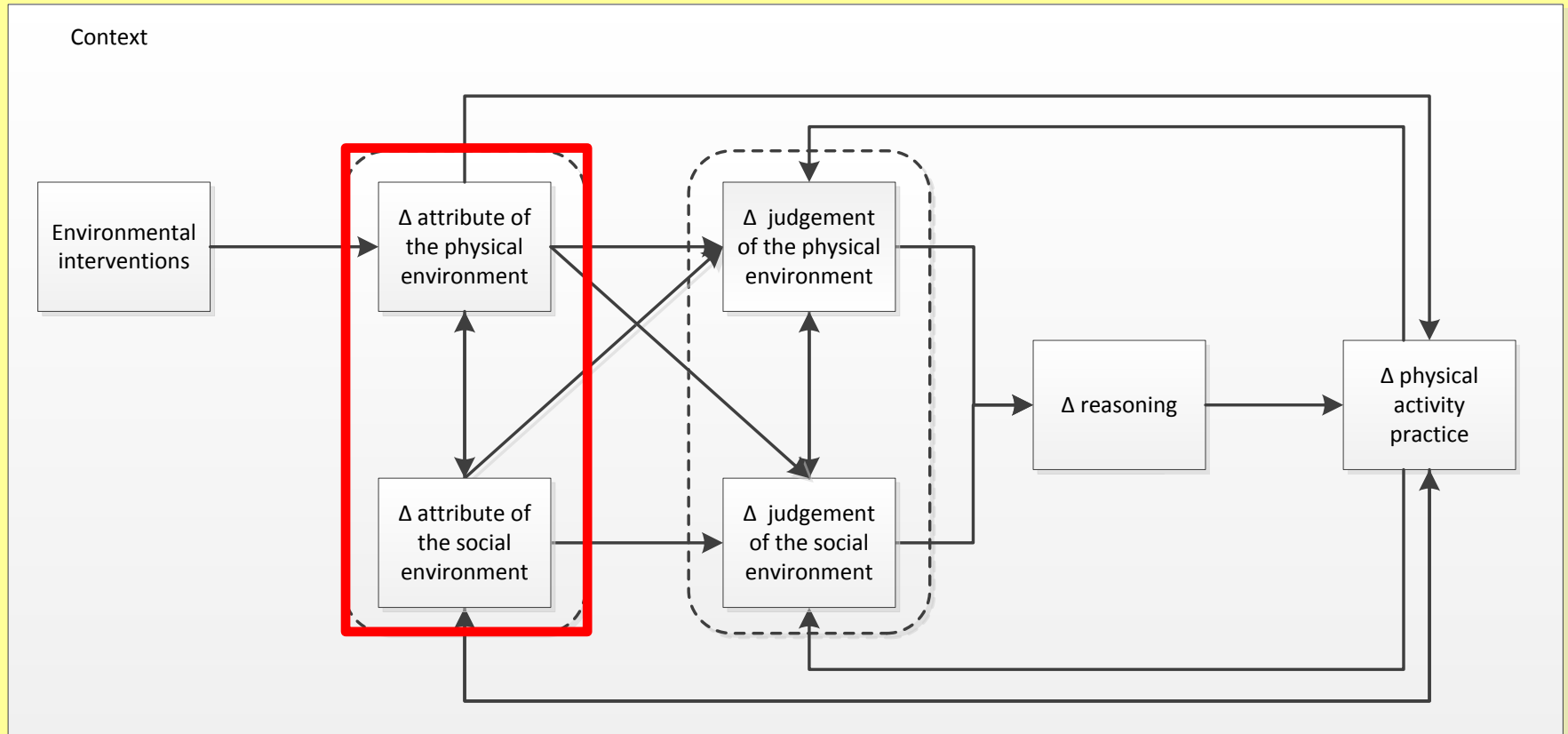
Conceptual model for the review





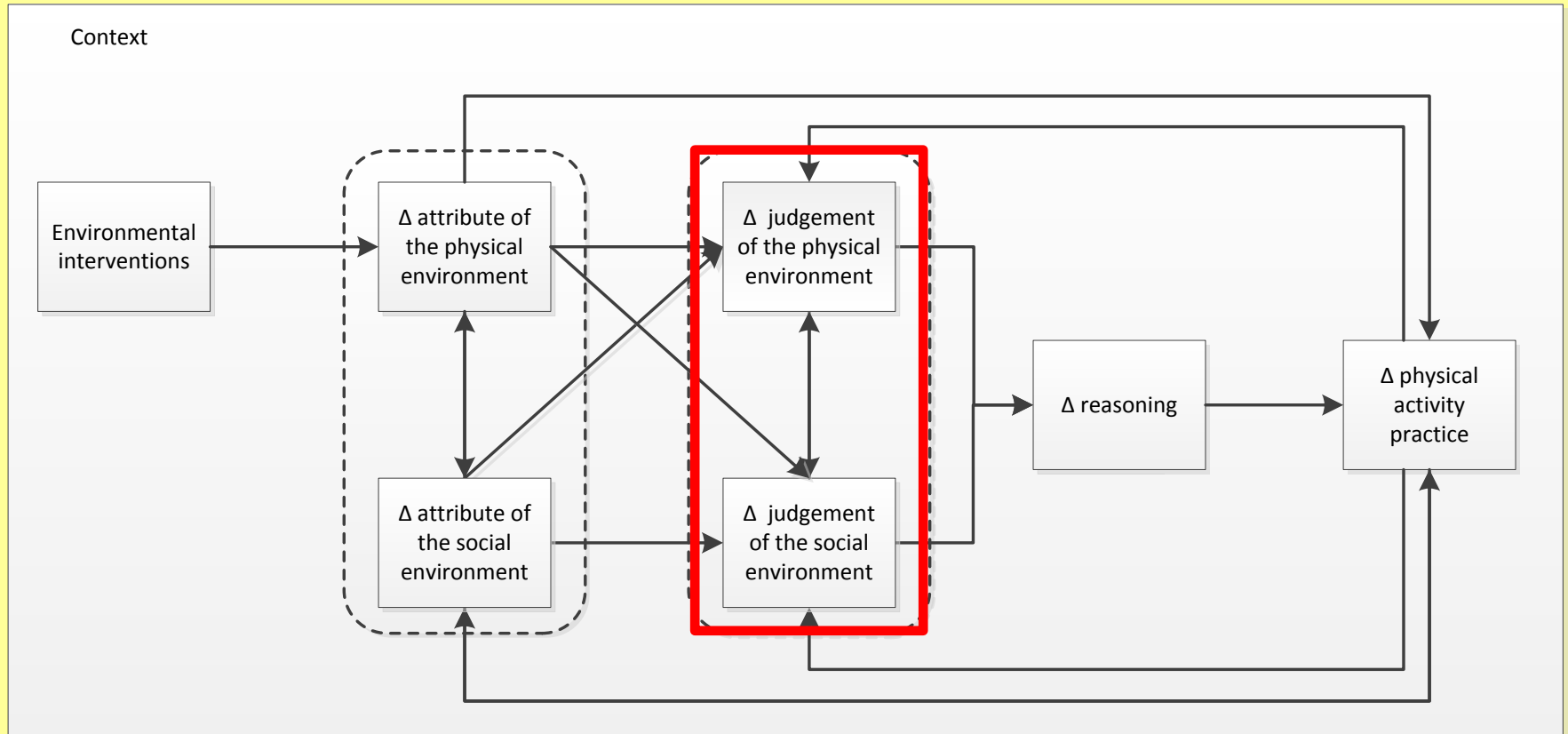


Conceptual model for the review

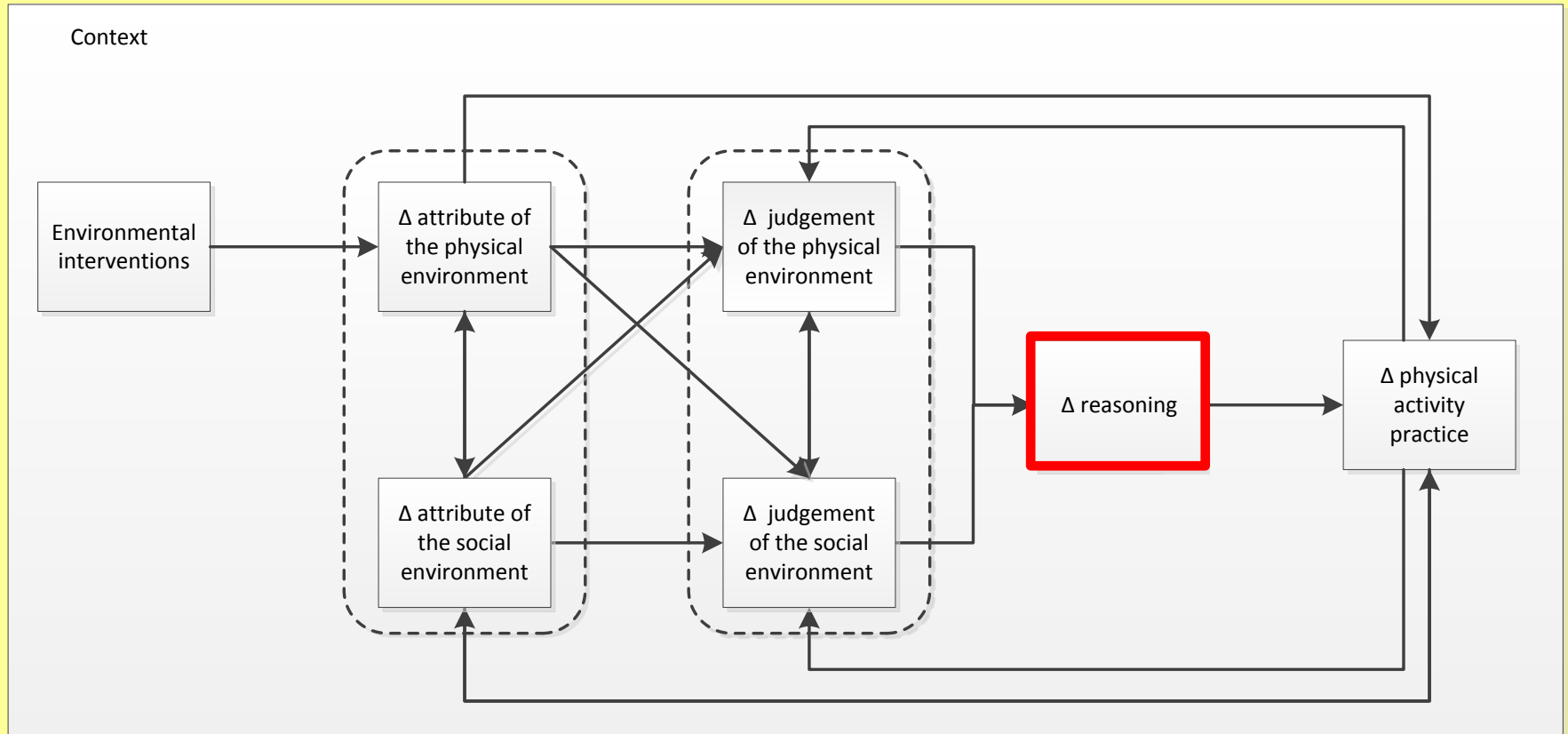




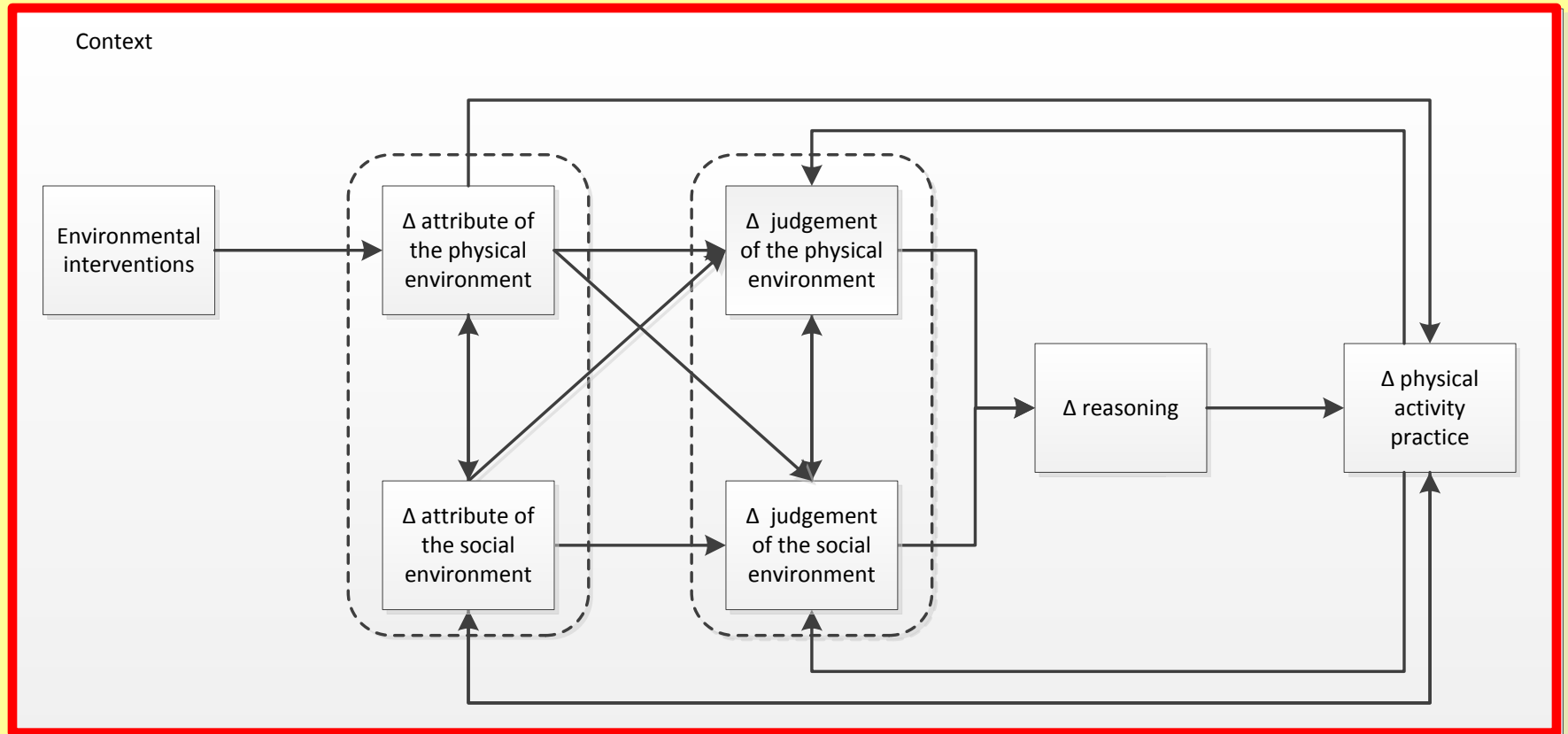
Conceptual model for the review



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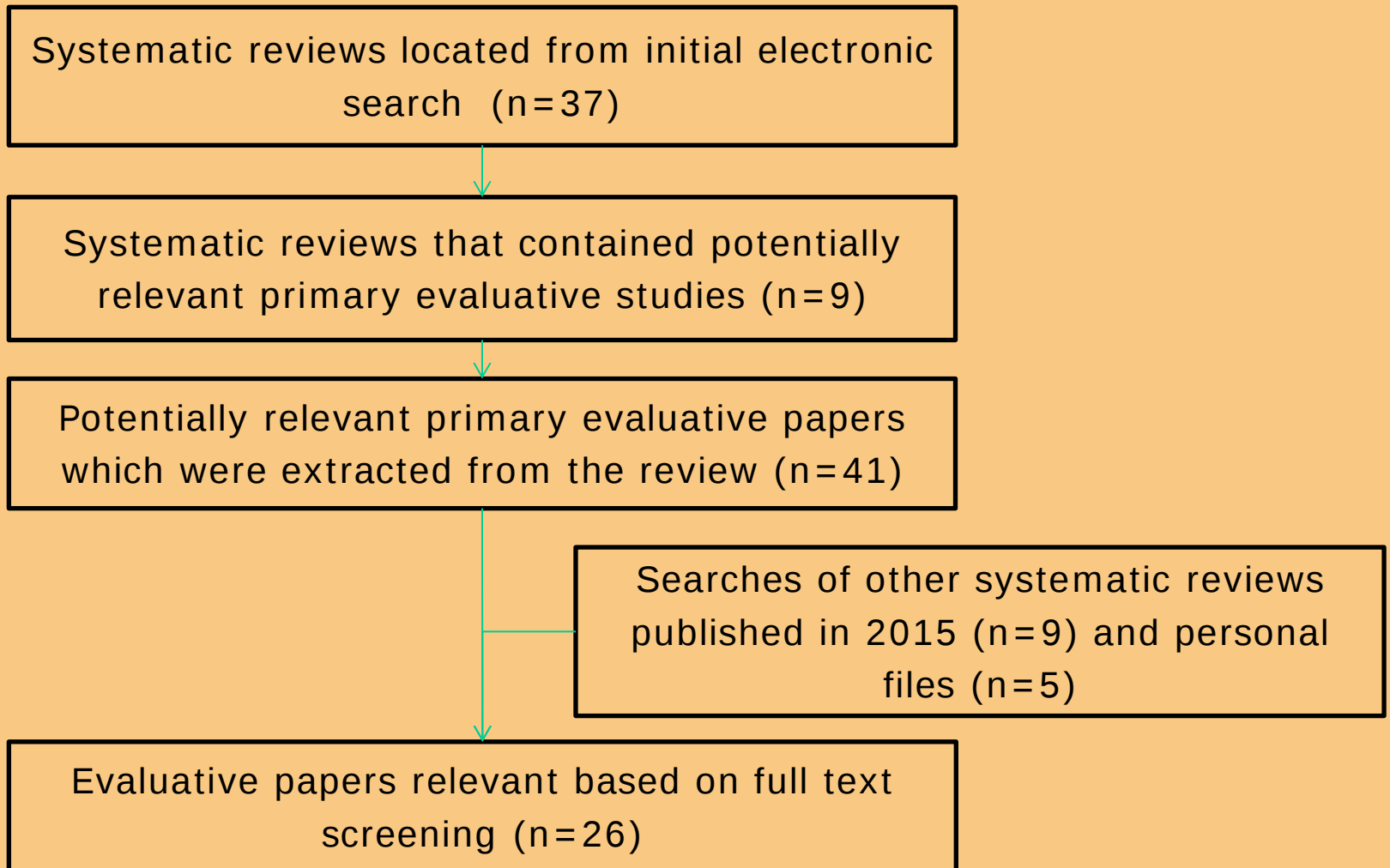


Conceptual model for the review



Initial search for evidence on mechanisms

Initial search for evidence on mechanisms



Identifying study clusters

- Intervention studies act as the index citation
- Find all other related studies using three points of access
 - Citations
 - Authors
 - Project

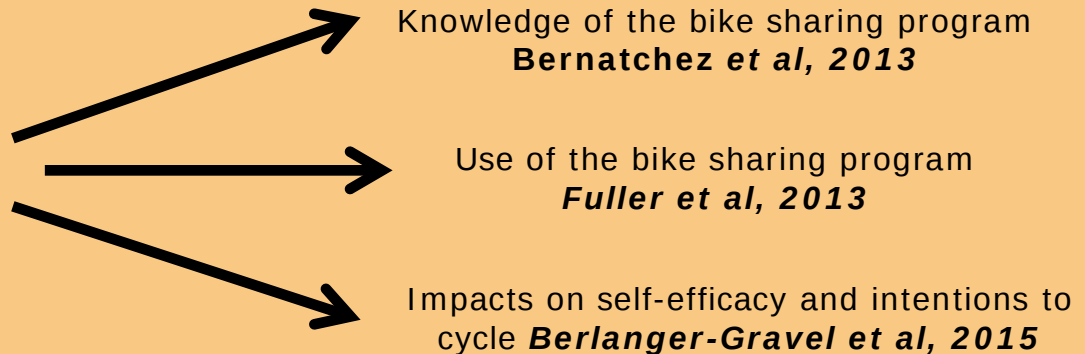
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For example: Evaluation of a bicycle share program



Fuller et al, 2013

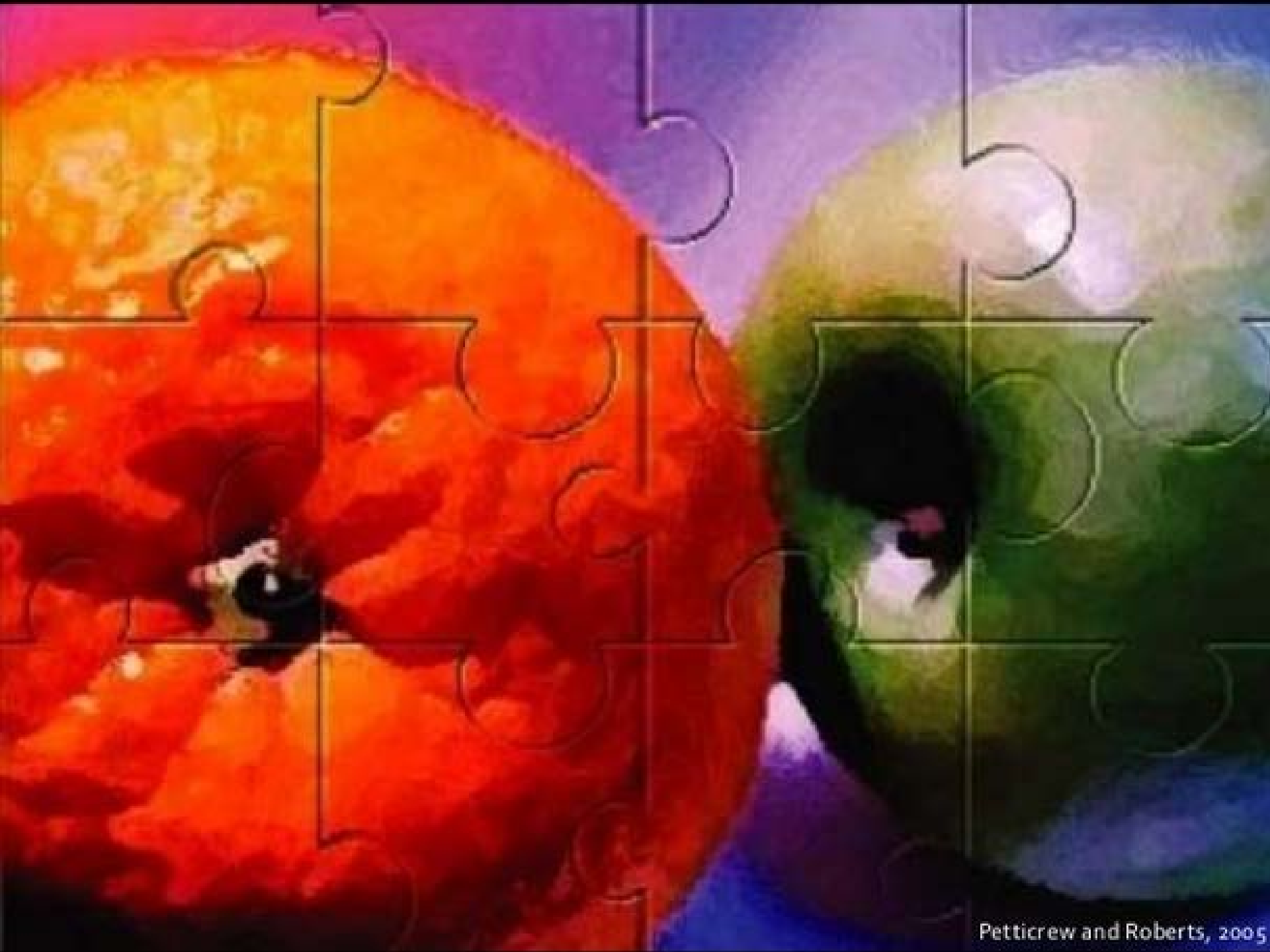


Context	Mechanism	Outcome
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Environment hostile for car use and for walking and cycling	Off road routes provided a safe well lit environment for walking and cycling	Provided conducive environment for walking and cycling
	Changed the balance between transport options	Provided conducive environment for walking and cycling

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Fragmented routes for walking and cycling	Connected routes Provided a large contrast with existing infrastructure	Provided conducive environment for walking and cycling Visible
Visible scheme	Repeated exposure provided familiarity and acted as a landmark	Increased awareness of route and connections
Aware of the scheme and knowledge of the route	Provides a convenient route	People from inside and outside of local area are motivated to use it
Seeing other use it	Desire to try, not wanting to miss out/be socially excluded	Uses the infrastructure for the first time
Positive first experience	Motivated and confident to continue using it	Increases walking and cycling behaviour
Already active individuals	Offers another place to be active	Increased visibility of physical activity participation in the local area



Acknowledgments and further details

Review team: Jenna Panter, Cornelia Guell, Rick Prins and David Ogilvie

The work presented was undertaken by those within the Physical Activity and Public Health programme, a core programme of the MRC Epidemiology Unit and Centre for Diet and Activity Research (CEDAR). CEDAR is a UKCRC Public Health Research Centre of Excellence. Funding from the British Heart Foundation, Economic and Social Research Council, Medical Research Council, National Institute for Health Research and the Wellcome Trust, under the auspices of the UK Clinical Research Collaboration, is gratefully acknowledged.

For further information and references please visit:

www.mrc-epid.cam.ac.uk
www.cedar.iph.cam.ac.uk



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