

ALIGNING ARGUMENTATION THEORY WITH BEHAVIOUR CHANGE MECHANISMS

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INTRODUCTION

- Many people want to change their behaviour: exercise more, eat healthily, quit smoking, &c, ...
- Behaviour change (forming new habits/kicking existing habits) is difficult
- **Support** makes a big difference to successful behaviour change whether individual, e.g NHS stop smoking advisors, or group, e.g. supports groups for just about EVERYTHING
- 1:1 support is not feasible for some big problems
- *Digital Behaviour Management* uses technology to support behaviour change

TOWARDS SUSTAINABLE BEHAVIOUR CHANGE

- Adapt existing behaviour change theories
- Apply to digital interactions
- Integrate with argumentation theory
- Aim for **sustainable** behaviour change
- Opportunities for large cost savings, improved environment, better quality of life, peace on earth, good will to all men, ...

SCENARIOS

- 1. Sustainable Urban Transportation
- 2. Managing Preventable Diseases

SUSTAINABLE URBAN TRANSPORTATION

- World's population is increasingly city-based (51% now live in urban areas)
- Transport sector represents 30% of EU final energy consumption & major source of emissions & pollutants
- Emissions from other sectors are generally falling, but transport emissions have risen by 36% since 1990
- Cars account for ~12% of total EU CO₂ emissions (similar numbers for CO, NO, PM, Ozone, Toxics, Volatiles)
 - With consequent effects on quality of life
- Individual travel habits can have a big impact on the quality of urban environments

MANAGING PREVENTABLE DISEASES

- 5 Biggest killers in the UK: Heart Disease, Stroke, Cancer, Lung & Liver Disease
 - 150,000 Deaths/year (30,000 of which are estimated to be avoidable) in England alone
- Biggest causes of mortality in the UK have a lifestyle element
- If you can reduce the behaviours associated with unhealthy lifestyles: [1] Reduce Deaths [2] Save Money

BEHAVIOUR CHANGE

- Popular basic techniques:
 - Goal Setting+review | Monitoring+feedback | Comparison | Prompts+personalisation | Aiding/supporting decision making
- Two popular theoretical models:
 - Fogg's Model of Persuasive Technology or "Captology"
 - Michie's COM-B Model

CAPTOLOGY

- [M]otivation
- [A]bility (make behaviour easier/lower to target's level)
- [T]rigger
- (simultaneously) $M+A+T = \textit{Behaviour more likely to occur}$

COM-B

- [C]apability
- [O]ppportunity
- [M]otivation
- $C + O + M \implies$ Behaviour Change

SO WHAT'S THE PROBLEM?

- Even if a person has the Capability & the Opportunity;
- If a person isn't particularly motivated then
 - behaviour change is less likely to be successful, &
- If behaviour change is successful then
 - it is less likely to be life-long/lasting/sustainable

& HOW ARE WE GOING TO TACKLE IT?

- Informed choices are made in the presence of increased knowledge
- **Dialogue** is a good interaction mechanism for increasing a person's knowledge about the context of their behaviour
- **Argument** is a good way to structure information if it is related to justifying positions
- Assumption: For behaviour change to be sustainable, target must make informed choices about their behaviour

MOTIVATING SUSTAINABLE BEHAVIOUR CHANGE

- Current behaviour changes theories & techniques
 - Have well developed theoretical models for managing behaviour, but
 - Techniques for achieving behaviour change are less well developed
 - Rudimentary forms of information-seeking/persuasion & use of incentives and coercive techniques

BEHAVIOUR CHANGE & ARGUMENTATION

- Align well developed models of (1) interaction, (2) knowledge representation, & (3) reasoning from argumentation theory with the well developed models from behaviour change theory
- AIM:
 - [A] Use arguments to increase motivation
 - [B] Use dialogue to interact with users
 - [B] Adapt the rich range of argumentation schemes and dialogue models to work with behaviour change theories

RESEARCH QUESTIONS

- Which arguments are going to be most 'persuasive' for a given person?
- How do we recognise that one approach should be used rather than another?
- How do we deliver the arguments to our targets?
- What kinds of dialogue are most applicable?

CONCLUSIONS

- Some nice synergies between Behaviour Change Theory & Argumentation Theory
- Argumentation can provide rich interaction models & tools (philosophically & linguistically grounded)
- Behaviour change can provide rich psychological models & tools (important when dealing with real people instead of *ideal agents*)

REFERENCES

- **Office for National Statistics: <http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Causes+of+Death>**
- **European Commission (Climate Action Policies): http://ec.europa.eu/clima/policies/transport/index_en.htm**
- **Fogg, B. J. (2003) “Persuasive Technology”**
- **Michie, S. & van Stralen, M. M. & West, R. (2011) “The Behaviour Change Wheel”**
- **Wells, S. (2012) “A Domain Specific Language for Describing Diverse Systems of Dialogue”**
- **Wells, S. (2013) “Towards a Foundation for Comprehensive Argumentation Scheme Support in Argumentative Dialogue Games”**

ADDENDUM

- Because I know someone will ask:
 - **“What if a person isn’t even motivated enough to listen to the arguments/engage in dialogue/&c?”**
- Currently outside scope of research
- Assume a minimal level of motivation:
 - Many people recognise that they have behaviours that need to change (often there is some crisis that occurs early enough to raise the issue)
 - Broad governmental policy & public information campaigns already raise awareness of issues
 - Assume there is social diffusion: social norms shift as a result of of (local & national) political will, opinion formers, and issue awareness