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GoEco!

A Community based eco-feedback approach to promote sustainable personal mobility styles

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1. Current Situation

The sector with the largest energy consumption is transport (FSO 2013).

Although in urban areas alternative and effective sustainable transportation is already available, the goal to reduce private motorized transport is still challenging.

In fact, simple requests for energy conservation can produce a "Social Dilemma" (Dawes and Messick 2000) caused by the "Tragedy of the Commons" (Hardin 1968) .

Single individuals maximize their own short-term interests, depleting common resources and behaving contrary to society's long-term interests.

2. Research Questions

Can eco-feedback, social comparison and peer pressure be effectively used to promote a sustainable lifestyle?

Can they help in reducing private motorized transport and bringing about a transition to different mobility options, such as vehicle sharing, intermodal use of means of transport, public transportation and slow mobility?

Which other social processes and framework conditions play a role in achieving this goal?

3. Method

"Living Lab" Approach (Higgins and Klein 2011): real life users in real life conditions.

Overall 600 active participants (testers) + 200 passive participants (control group).

They test a smart-device application that challenges them to reduce personal vehicle use:

- tracking their movements and inferring the reasons for their trips;
- providing them with feedback on their mobility behavior, actively suggesting alternative and low-impact options;
- creating a virtual community among them, setting up a social comparison rewarding scheme and other gamification mechanisms.

Focus groups and semi-structured interviews provide additional feedback.

The lab is run in the Canton Ticino and the City of Zurich, two different contexts in terms of mobility options and socio-cultural attitude.

4. Relevance

Little attempts were made to explore the potentials of triggering behavior change by combining information and communication technologies (ICTs) and virtual communities.

The gamification of applications, i.e., introducing rewards, goals, feedbacks, cooperation and competition, is a promising approach to address real-life problems (Deterding, Dixon et al. 2011):

- stimulate behavior change at a society level (McGonigal 2011)
- provide Training and Education (Kapp 2012)

Information about structure and content of human relationships (Lazer, Pentland et al. 2009) as well as travel behavior [(Yuan, Raubal et al. 2012);(Cellina, Förster et al. 2013)] is becoming increasingly available.

5. Related Work

Group Behavior

Bond et al. (Bond, Fariss et al. 2012) showed that direct online mobilization has an effect on real-world behavior. Also, indirect effects (e.g., through close friends) are four-times stronger than direct messages. Thus, "strong ties are instrumental for spreading both online and real-world behavior in human social networks".

For correlation of behavior, "social distance appears to matter more than physical distance" (Christakis and Fowler 2013) .

Sustainability, Peer Pressure and Gamification

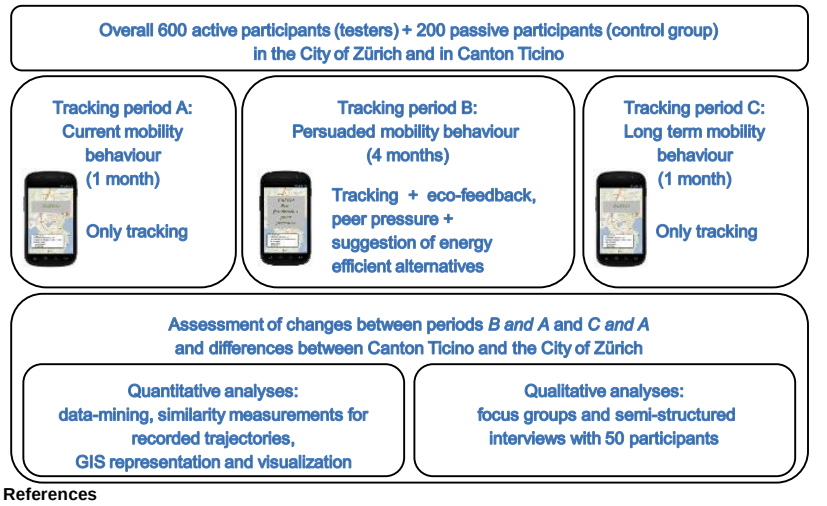
Feedback and gamification approaches were developed in other sustainability fields, mainly for water and energy conversation in households.

Consumptions were monitored through smart meters and communicated to users by user-friendly websites or smartphones [see for example (Darby 2010), (Hargreaves et al. 2013), (Degen et al. 2013), (Fraternali et al. 2012), (Tiefenbeck et al. 2013)].

Opportunities to define electricity saving personal objectives and to engage in virtual challenges with other users, by Facebook or Twitter, are currently being investigated [(Petkov et al. 2011), (Weiß et al. 2012), (De Luca and Castri 2014), (Rizzoli et al. 2014)].

Privacy

Concerns that arise from locating, tracking and monitoring of people need to be addressed in a more holistic manner (Weiser and Scheider 2014).



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