A social network implemented intervention promoting physical activity among youth

PhD-day

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The myMovez team

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Aim of the myMovez project

- Promoting a healthy lifestyle for children and adolescents.
- Energy intake and energy expenditure
- Focus on physical activity
Physical Activity Guidelines

• Exercise (WHO, 2014)
  - at least 60 minutes of moderate- to vigorous-intensity physical activity daily.

• Lifestyle physical activity (Tudor-Locke, 2013)
  - Boys: 13.000 steps
  - Girls: 11.00 steps

• 80% of the youngsters do not meet these guidelines (Hallal et al., 2012)
Interventions

• Former interventions to promote physical activity have little effect

Lifestyle physical activity?
Social network intervention

• Most physical activities require peers (e.g. Soccer, hide-and-seek, dodgeball, etc)

• Therefore we have to take the social environment into account

• Social network implemented intervention
(Peer led) social network intervention

• **Rogers’ diffusion of innovations theory**: explains how innovations diffuse to members of a social system

• We will identify the influential agents within a classroom and train them to promote physical activity

• Effective in reducing alcohol consumption and tabacco use.
Wearable lab
Fitbit

Totals
- 13,914 steps
- 0 floors
- 10.37 km
- 2,995 calories

Monthly Totals
- 281,194 steps
- 0 floors
- 210.10 km
- 87,807 calories
Smartphone

- Communication with Fitbit and dataset
- Assessment of social network
- Cycling activities
- Questionnaires (e.g. Daily food intake)
- Social platform
- Experience sampling/Pictures
- Objective measure of social network
Beacon network
Beacon network
4 Studies

- Study 1: Similarity in lifestyle physical activity
- Study 2: Underlying mechanisms of peer influence on LPA
- Study 3: Influence Agents selection
- Study 4: Effectiveness of the intervention
Study 1: Similarity in lifestyle physical activity

- Similarity
- Selection and influence

<table>
<thead>
<tr>
<th></th>
<th>W1</th>
<th>W2</th>
<th>W3</th>
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<tbody>
<tr>
<td>Social network</td>
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<td>Physical activity</td>
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Study 2: Underlying mechanisms of peer influence on LPA

- Social facilitation
  - Number of classmates around you during physical (in)activity

- Modeling
  - Mean scores of LPA of classmates/friend/influential peers.

- Impression management
  - Impression management tactic scales
Study 3: Influence Agents selection

- Centrality by degree [7]
  - Number of nominations
- Centrality betweenness [8]
  - Average geodesic distance to all other actors in the network
- Centrality closeness [4 or 5]
  - Broker role
Study 4: Effectiveness of the intervention

- Mobile socialnetwork implemented health campaign
- Select influence agents based on study 3
- Training them based on underlying mechanism from study 2
- Effectiveness of the intervention compared to a control condition.
# Planning

<table>
<thead>
<tr>
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<th>2017</th>
<th>2018</th>
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<tr>
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<td>Pilot’s</td>
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<td>Phase 1</td>
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## Participants

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<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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</thead>
<tbody>
<tr>
<td>Cohort 1 [PS]</td>
<td>Groep 6 (9-10)</td>
<td>Groep 7 (10-11)</td>
<td>Groep 8 (11-12)</td>
</tr>
</tbody>
</table>

N = 2500
Thank you

- T.vanWoudenberg@maw.ru.nl
- mymovez.nl
- mymovez.socsci.ru.nl
Smartphone

- Communication with Fitbit and server
- Communication with Fitbit and dataset
- Assessment of social network
Smartphone

- Communication with Fitbit and dataset
- Assessment of social network
- Cycling activities
Smartphone

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- Social platform
Smartphone

- Communication with Fitbit and dataset
- Assessment of social network
- Cycling activities
- Questionnaires (e.g. Daily food intake)
- Social platform
- Pictures (e.g. media exposure or food)
Triggers

Based on:
- Physical activity
- Proximity
- Time
- Answers to questions
- Lack of data

We can:
- Send (push)messages
- Ask questions
- Stimulate to perform behavior
- Let them post messages on the message board