

# A Social Network Intervention that Promotes Physical Activity Among Adolescents by Using Vlogs: A Randomized Controlled Trial

Thabo van Woudenberg,  
Kirsten Bevelander,  
William Burk,  
Crystal Smit,  
Laura Buijs,  
and Moniek Buijzen

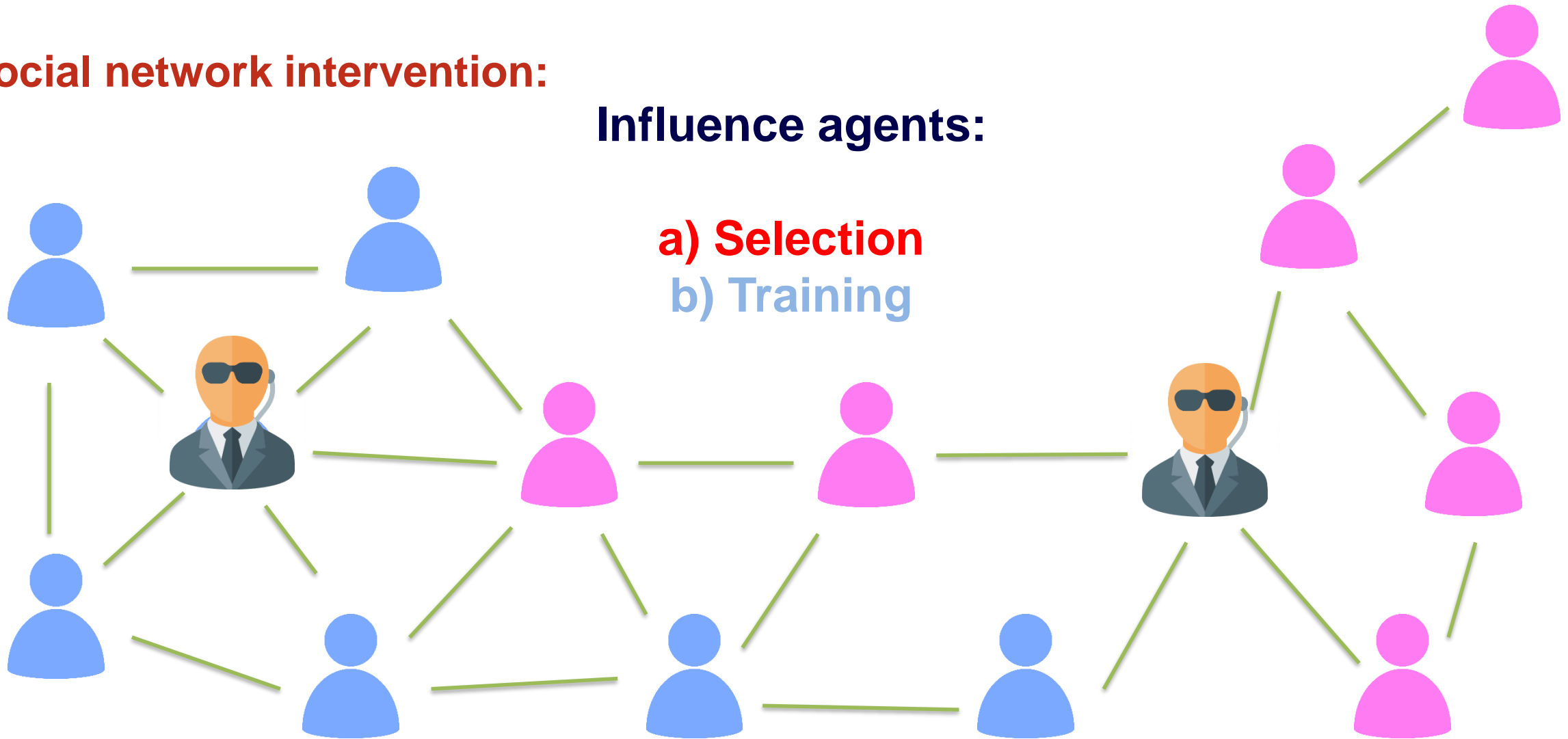
June 2019, Montreal



## Social network intervention:

### Influence agents:

- a) Selection
- b) Training



## RQ

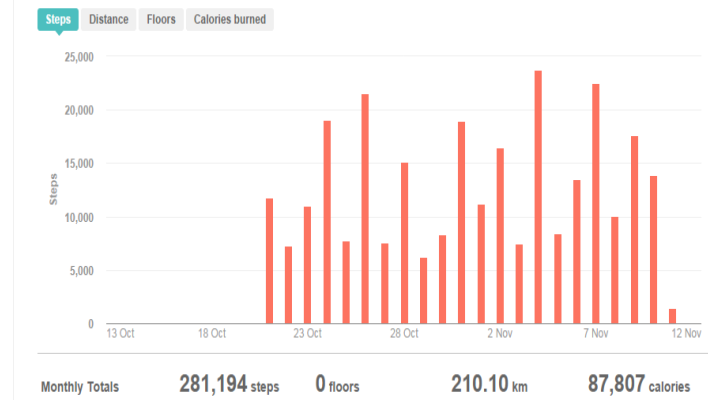
Can a SNI increase physical activity in adolescents?

SNI > Mass media intervention

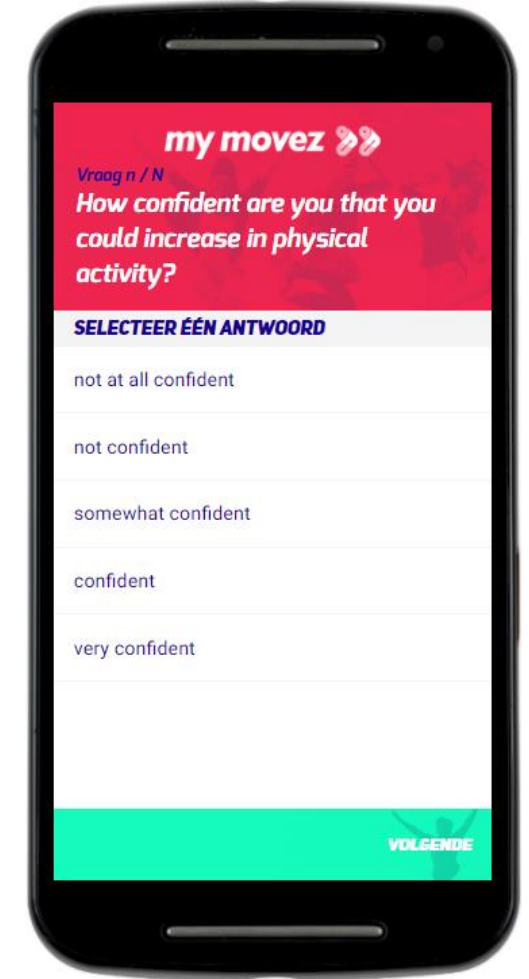
SNI > control

Vlogs!





Questionnaires  
Self-efficacy  
Social norms  
Intentions  
Motivations  
Athletic Competence



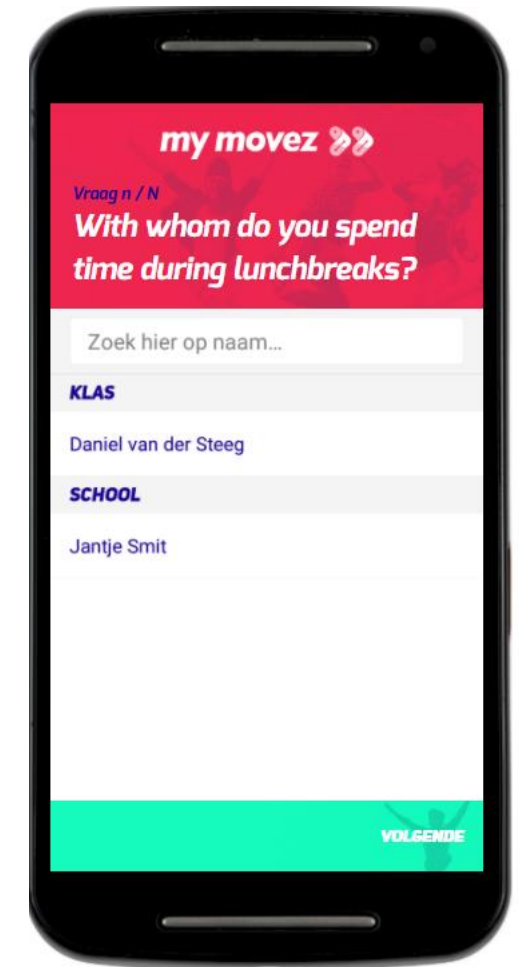




## Sociometric questions

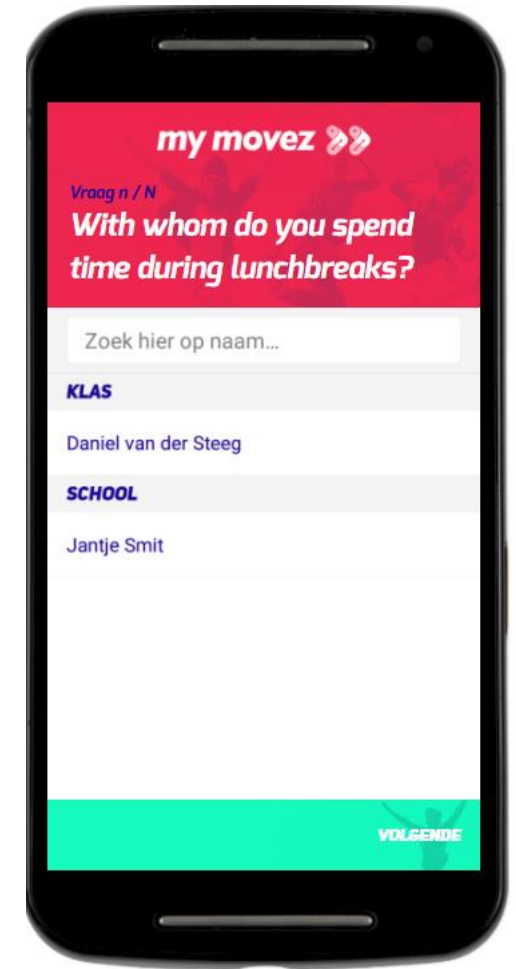
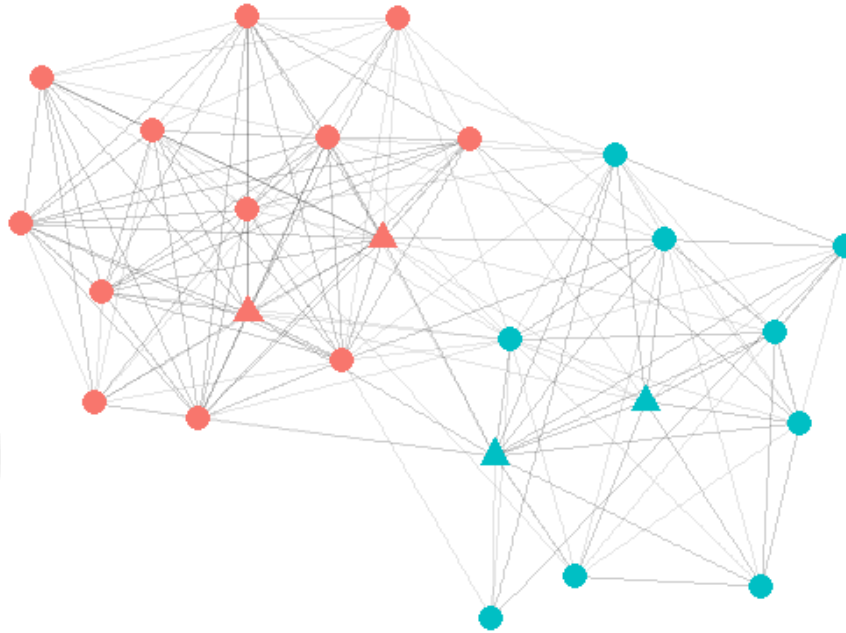
### Peer nomination

Advice  
Leadership  
Want to be like  
Spending time with  
Talking to



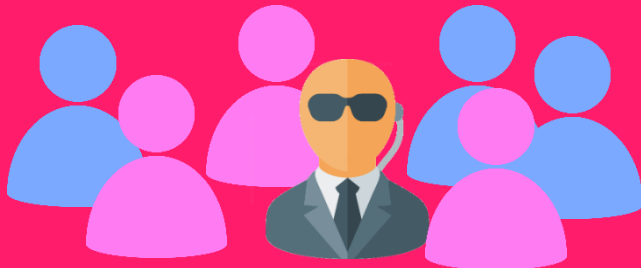


Sociometric questions  
Weighted ties  
Igraph()

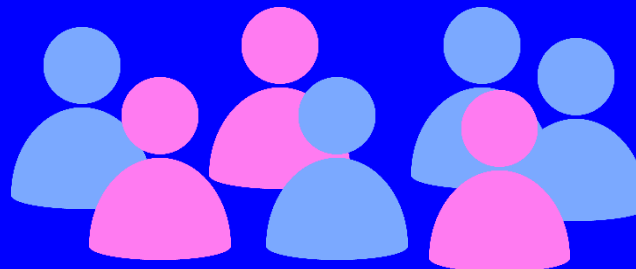


## Conditions

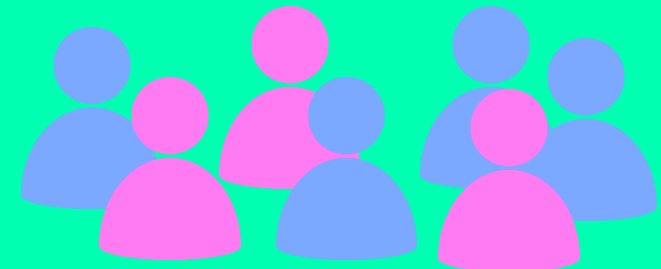
Social network intervention



Mass media intervention



Control



## Sample

Participants:

- 🎯 **446** participants (47% male)
- 🎯 9 to 16 years old ( $M = 11.35$  years,  $SD = 1.34$ )
- 🎯 24 Classes

Social Network	Mass media	Control
7 (N=131)	7 (N=123)	10 (N=192)

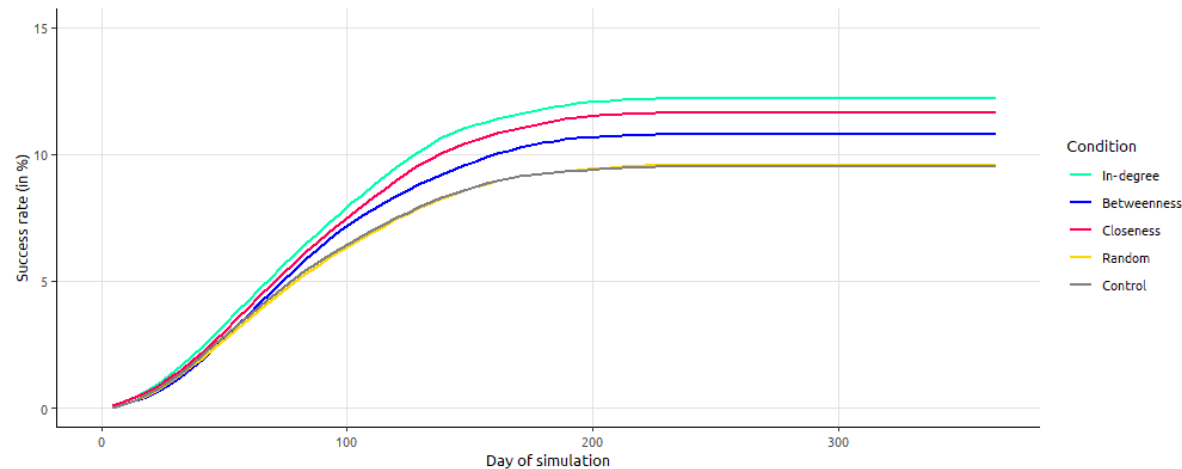




## Sample

Social network condition:

- 15% of the participants
- Closeness centrality



## RESEARCH

### Simulated Social Network Interventions to Promote Physical Activity: Who should be the Influence Agents?

Thabo J van Woudenberg<sup>1\*†</sup>, Bojan Simoski<sup>2†</sup>, Eric Fernandes de Mello Araújo<sup>2</sup>, Kirsten E Bevelander<sup>1</sup>, William J Burk<sup>1</sup>, Crystal R Smit<sup>1</sup>, Laura Buijs<sup>1</sup>, Michel Klein<sup>2</sup> and Moniek Buijzen<sup>1</sup>

In-degree = Closeness

## Sample

Social network condition:

- 15% of the participants
- Closeness centrality
- Keyplayer package
  - But, gender balanced

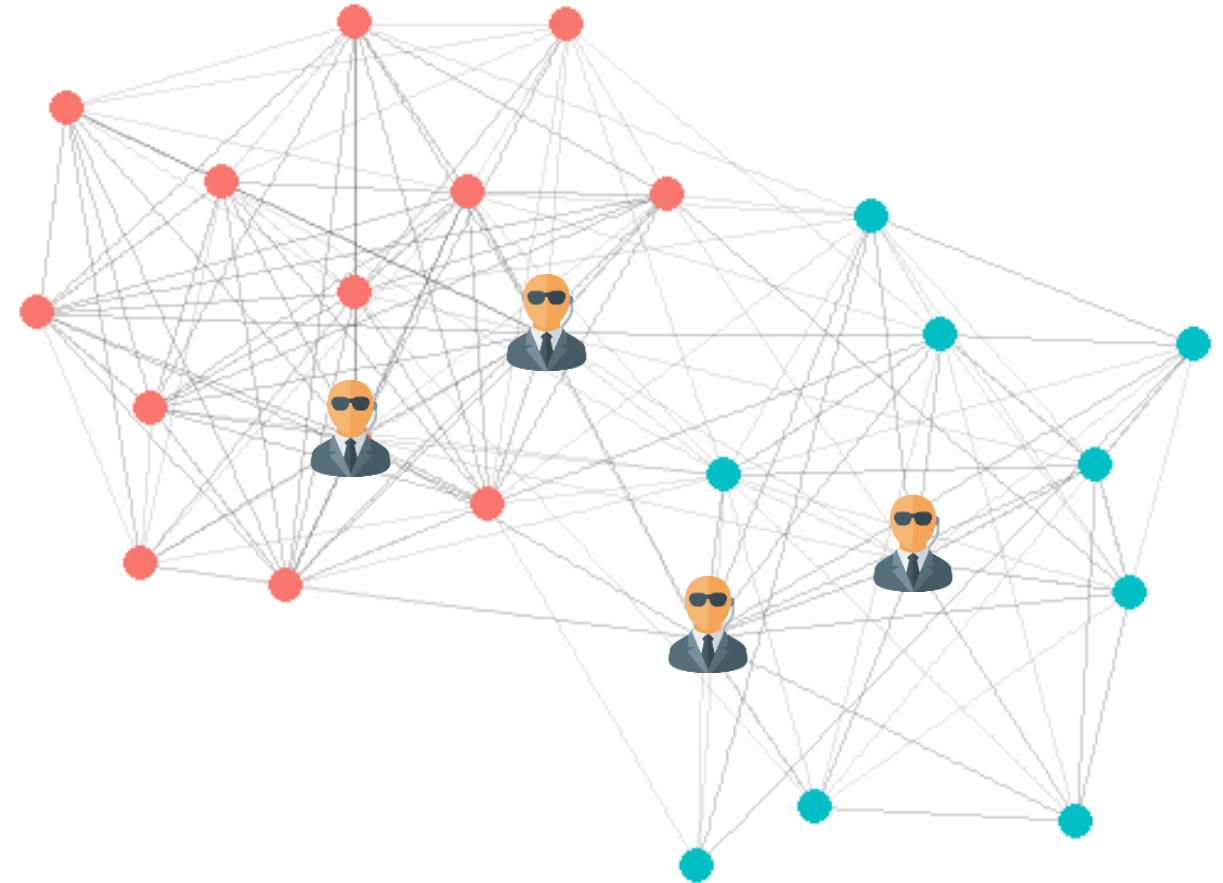
```
125 keyclose_c258<-kpset(c258net, size = 4, type = "closeness", cmode = "indegree", binary = T, method = "min")
126 keyplayers_c258<-keyclose_c258$keyplayers #keyplayers: 2, 3, 5, 25
127 print(c258adj$odelist[c(keyplayers_c258)]) # keyplayer ID's: 5071 5075 5077 5099
128
```






## Sample

Social network condition:

- 15% of the participants
- Closeness centrality
- Keyplayer package
  - But, gender balanced
- 4 or 6 influence agents per class



# Timeline

Pre-measure (February)						
1	2	3	4	5	6	7
	Daily PA					
Secondary variables						
Peer nominations						








Instruction

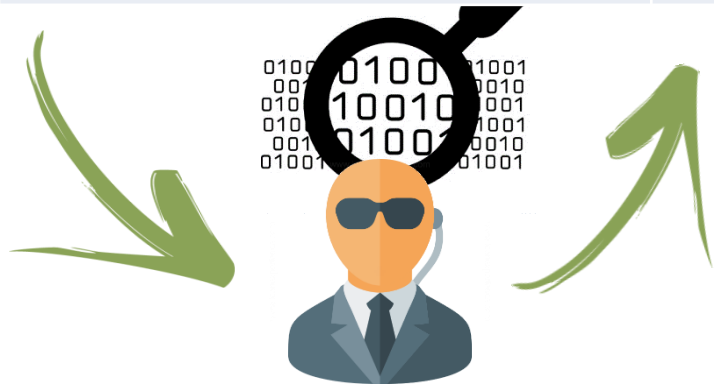
Editing



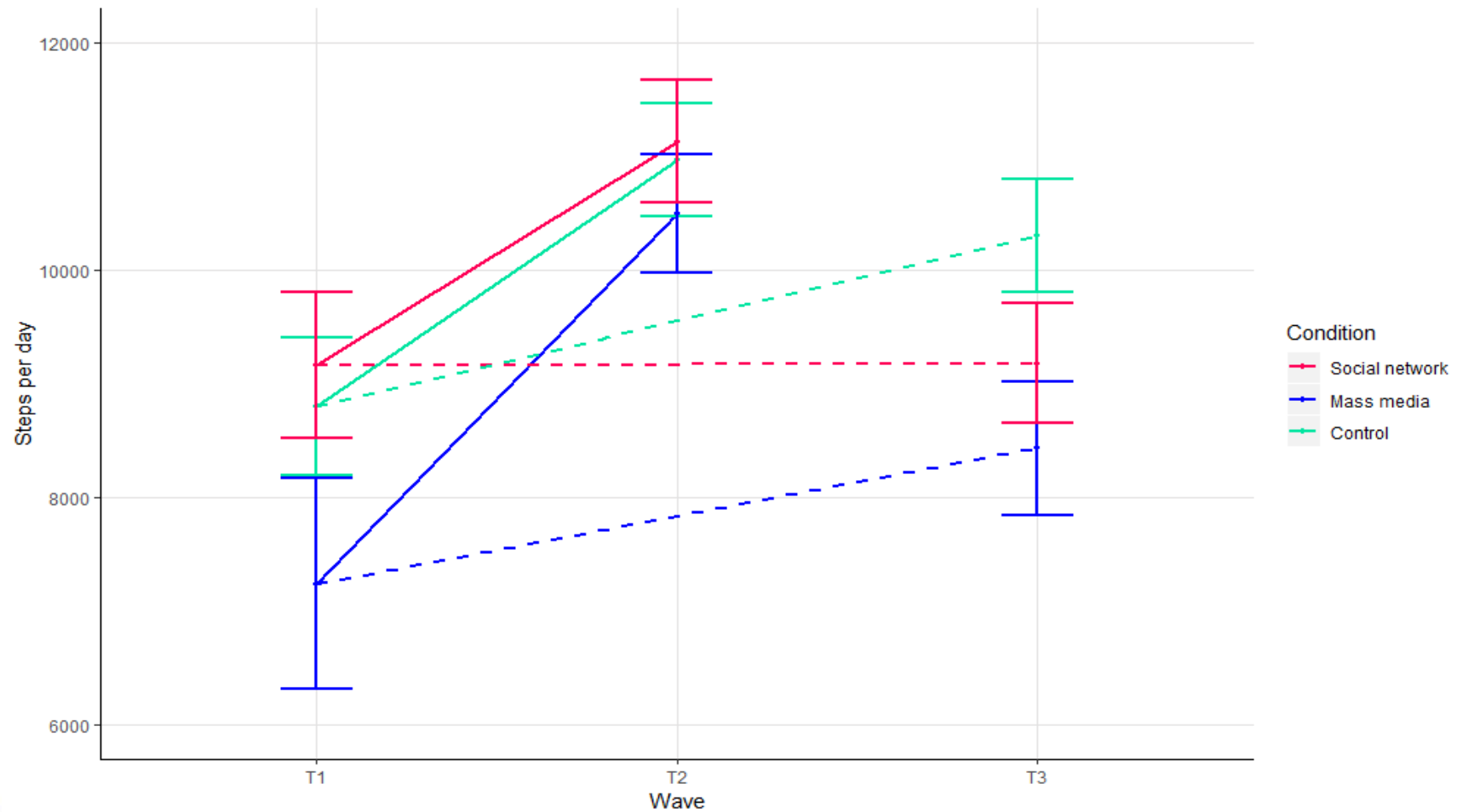


# Timeline

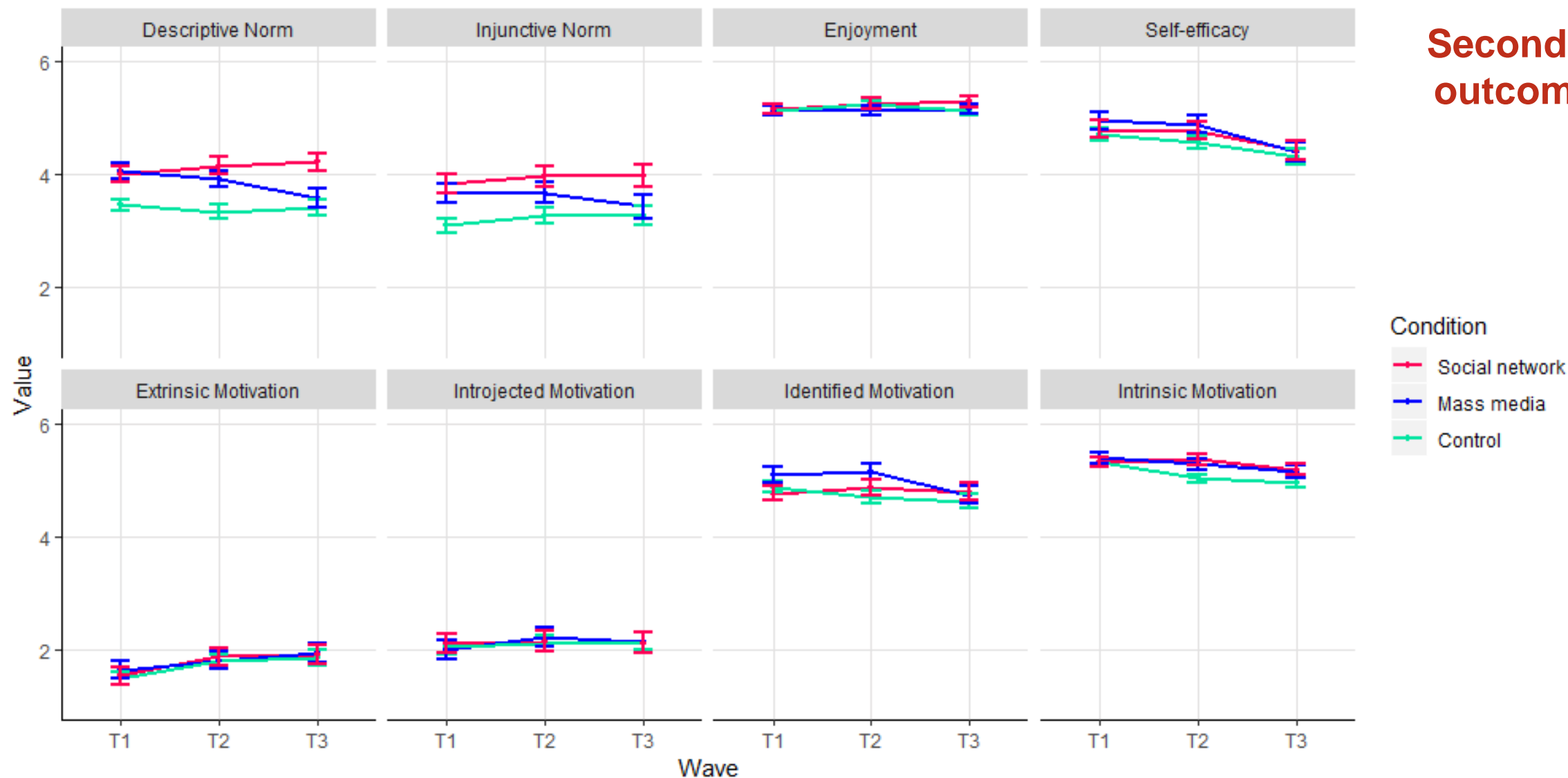
Pre-measure (February)							Intervention (April)						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
	Daily PA							Daily PA					
Secondary variables							Secondary variables						
Peer nominations							V1	V2	V3	V4	V5	V6	



## Mean steps per day



## Secondary outcomes

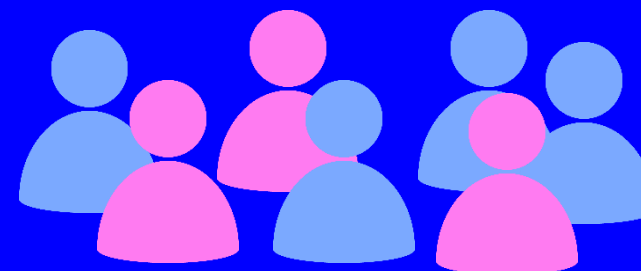


## Social network intervention



$(M = 15.69, SD = 20.60)$  |  $t(1000) = 7.67, p < .001$

## Mass media intervention



$(M = 7.21, SD = 14.60)$



## Social network intervention



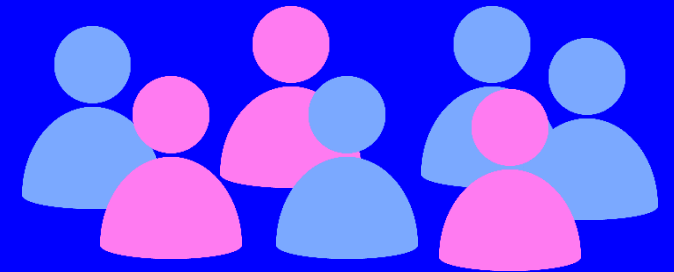
# SCREENTIME



Like



## Mass media intervention



( $M = 69.09$ ,  $SD = 30.42$ ) |  $t(306.73) = 8.88$ .  $p < .001$  | ( $M = 40.20$ ,  $SD = 32.72$ )



## Social network intervention



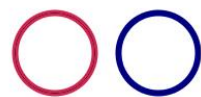
( $M = 4.68$ ,  $SD = 1.61$ )

# SCREENTIME



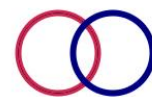
Like

1



IK VLOGGER(S)

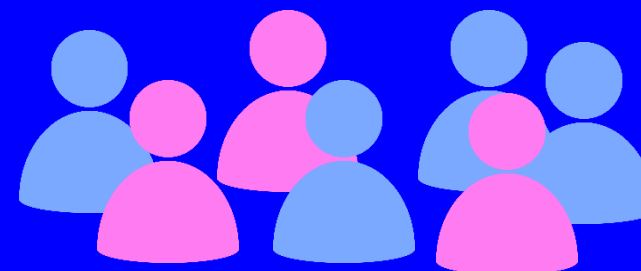
7



IK VLOGGER(S)

$t(739.75) = 9.54$ ,  $p < .001$

## Mass media intervention



( $M = 3.46$ ,  $SD = 1.97$ )



# Conclusions

- No evidence that the social network intervention is more effective than the mass media intervention or control
- Explorations suggest that a social network intervention increases the perceived descriptive social norm
- Explorations suggest that the intervention message is better received in the social network intervention compared to the mass media intervention



# Limitation

- Increase during the intervention in all conditions
  - no idea why the control group also increased
- Intervention period is (too) short
  - Dependent on battery of the fitbit, and planning of schools
- The influence agents liked filming the vlogs
  - Needed some help in the filming process (primary school)



## #daretoshare

- Summer = end of the project
  - Data publicly available
- Social network data
  - Peer nominations (e.g. friendship, leadership)
  - Proximity measures based on Bluetooth
  - Communications on social platform
  - Other data →
- [T.vanwoudenberg@bsi.ru.nl](mailto:T.vanwoudenberg@bsi.ru.nl)
- @thabovw



[Study protocol](#) | [Open Access](#) | [Open Peer Review](#)

### Youth's social network structures and peer influences: study protocol MyMovez project – Phase I

Kirsten E. Bevelander, Crystal R. Smit, Thabo J. van Woudenberg, Laura Buijs, William J. Burk and Moniek Buijzen ✉

*BMC Public Health* BMC series – open, inclusive and trusted 2018 18:504

<https://doi.org/10.1186/s12889-018-5353-5> | © The Author(s). 2018

**Received:** 20 December 2017 | **Accepted:** 21 March 2018 | **Published:** 16 April 2018

✓ [Open Peer Review reports](#)





## Contact information

Thabo van Woudenberg  
Behavioural Science Institute  
Radboud University, the Netherlands

[www.TvanWoudenberg.com](http://www.TvanWoudenberg.com) ← Slides  
[t.vanwoudenberg@bsi.ru.nl](mailto:t.vanwoudenberg@bsi.ru.nl)

[mymovez@ru.nl](mailto:mymovez@ru.nl)  
[www.mymovez.eu](http://www.mymovez.eu)



Moniek Buijzen  
PRINCIPAL INVESTIGATOR



Kris Bevelander  
RESEARCH COORDINATOR



William Burk  
STATISTICAL ANALYSIS EXPERT



Thabo van Woudenberg  
PHD - PHYSICAL ACTIVITY



Crystal Smit  
PHD - NUTRITION



Laura Buijs  
PROJECT COORDINATOR



Esther Rozendaal  
PROJECT ADVISOR



Rebecca de Leeuw  
PROJECT ADVISOR



# my movez



**NWO**  
Netherlands Organisation  
for Scientific Research  
KIEM (Kennis Innovatie Mapping)