Similarity of physical activity in youth: Selection and/or influence?

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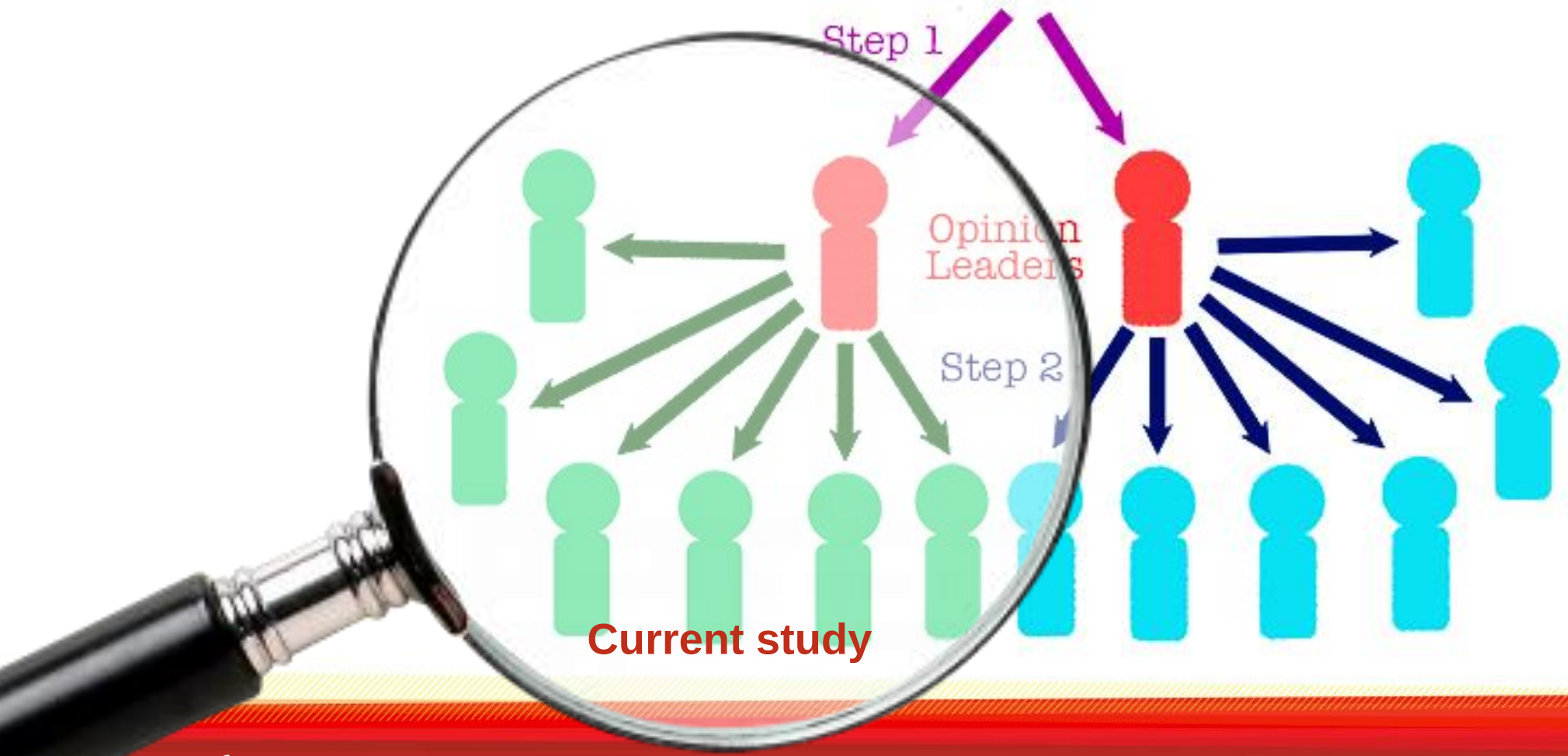
my movez

- Promoting a healthy lifestyle for children and adolescents.
- Focus on physical activity

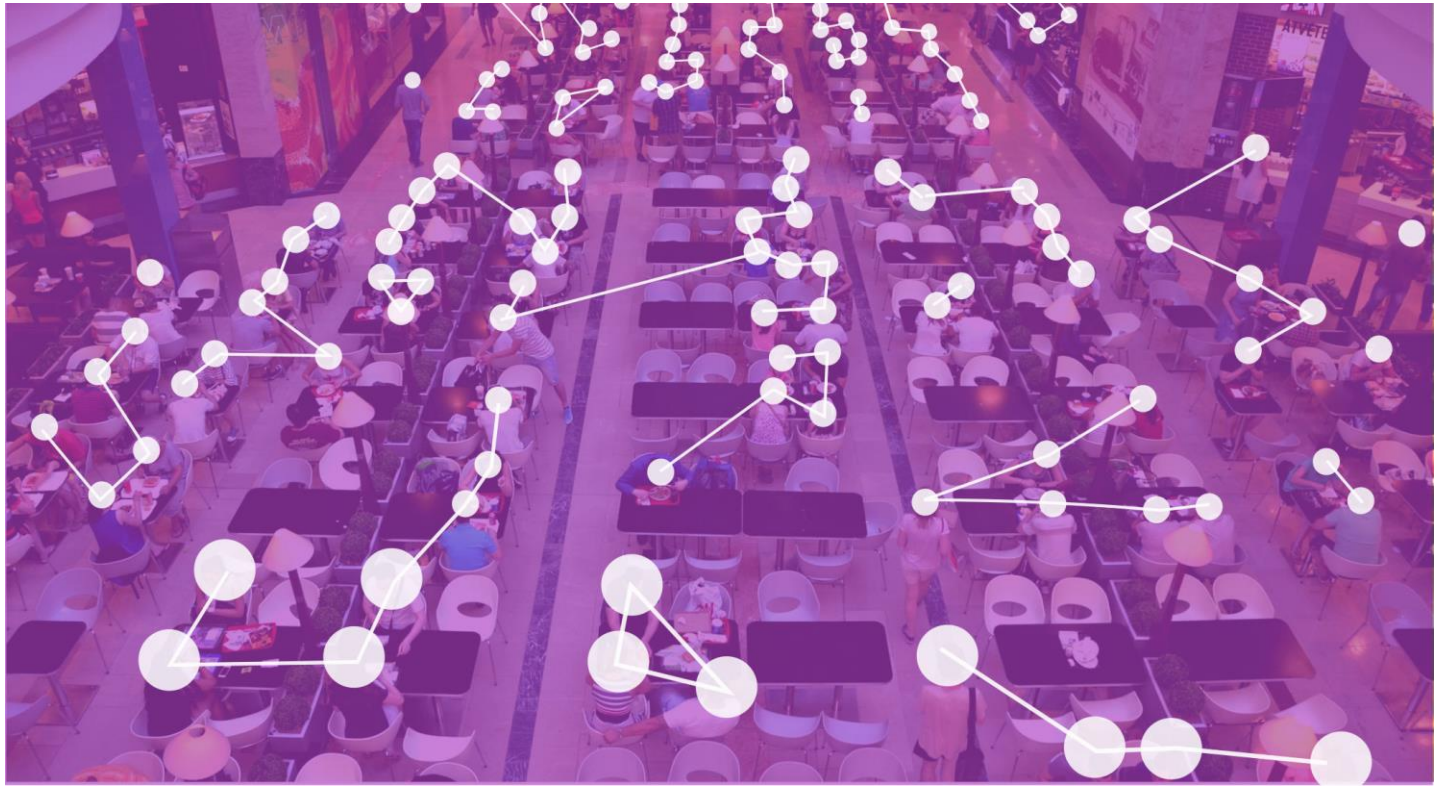
Social network intervention

my movez



Current study

Is there similarity in physical activity among friends?



Similarity in physical activity

Selection

Do youngsters select friends based on physical activity levels?

	T1	T2	T3
Youngster A	Active	Active	Active
Youngster B	Moderate	Moderate	Moderate
Youngster C	Active	Active	Active

friends

non-friends

Influence

Do youngsters select friends based on physical activity levels?

Do youngsters influence the amount of physical activity of friends?

	T1	T2	T3
Youngster A	Active	Active	Active
Youngster B	Moderate	Active	Active
Youngster C	Moderate	Inactive	Inactive

friends

non-friends

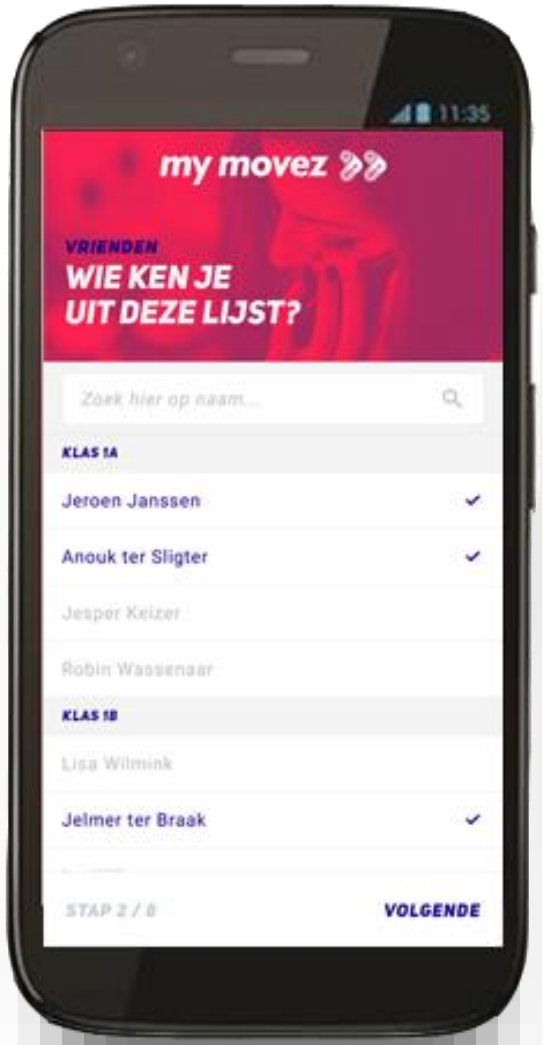
MyMovez Wearable lab

Fitbit Flex

Low	Med Low	Medium	Med High	High
<6346		*M*=9302		>12805

Smartphone - MyMovez app

- Assessment of social network
  Friendship nominations

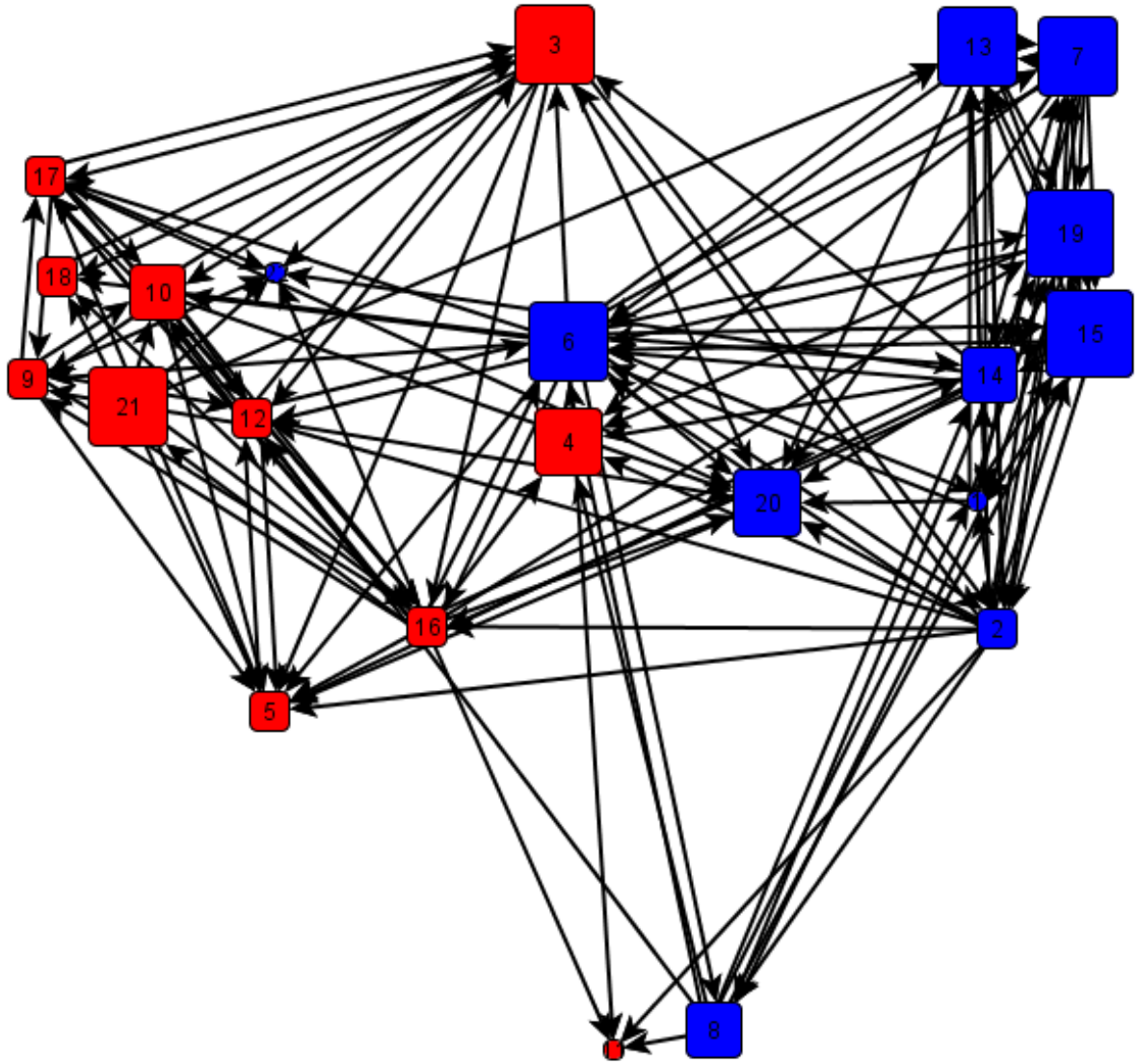


Study sample

- Subset of myMovez project sample
- Participation > 60% of the class for all three waves
- N = 114 (45% Boys, *M* age = 10.31 (*SD* = *1.33*), range = 8-13)
  - 6 classes (4 primary, 2 secondary)

	Feb 2016	Apr 2016	Jun 2016
Social network			
Physical activity			

Friendship



Boys

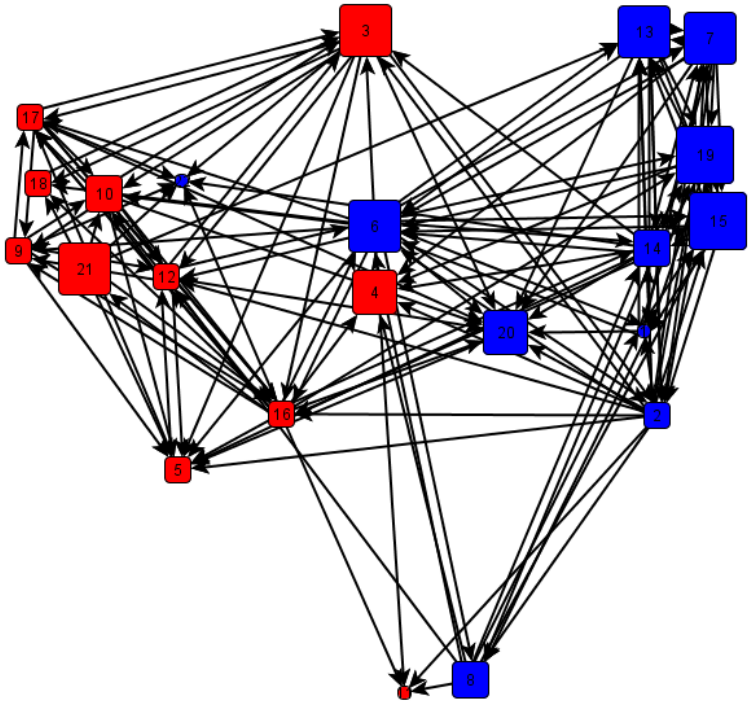
Girls

inactive

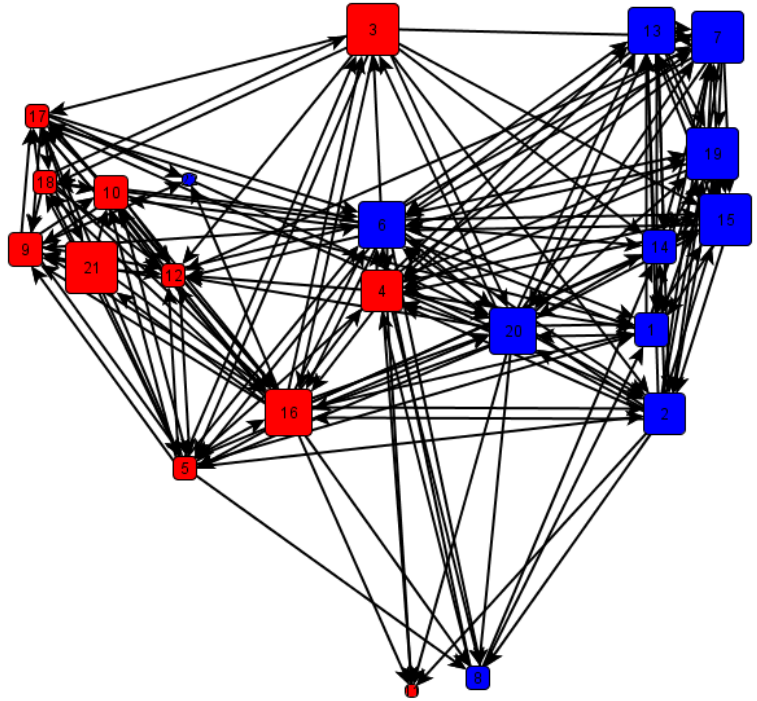
active

Social network of a class over time

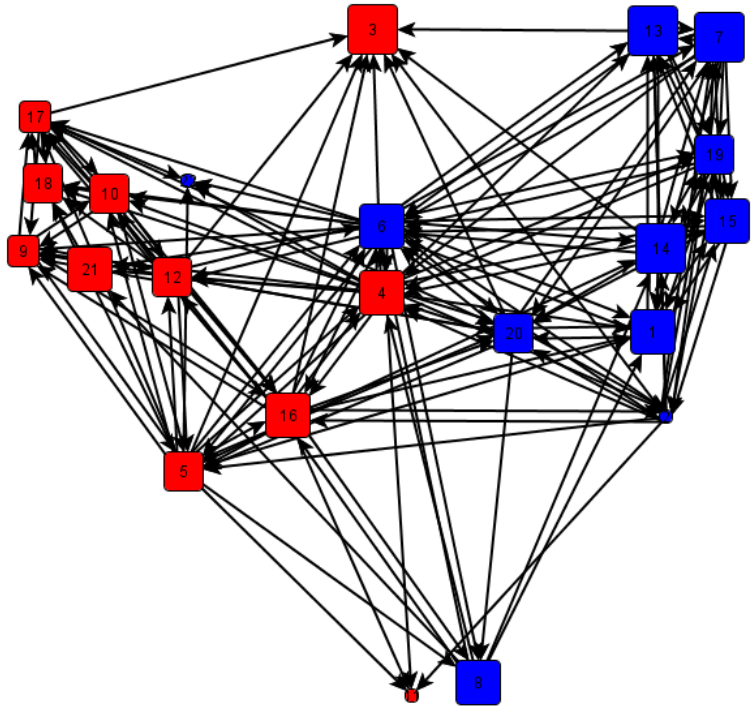
Wave 1



Wave 2

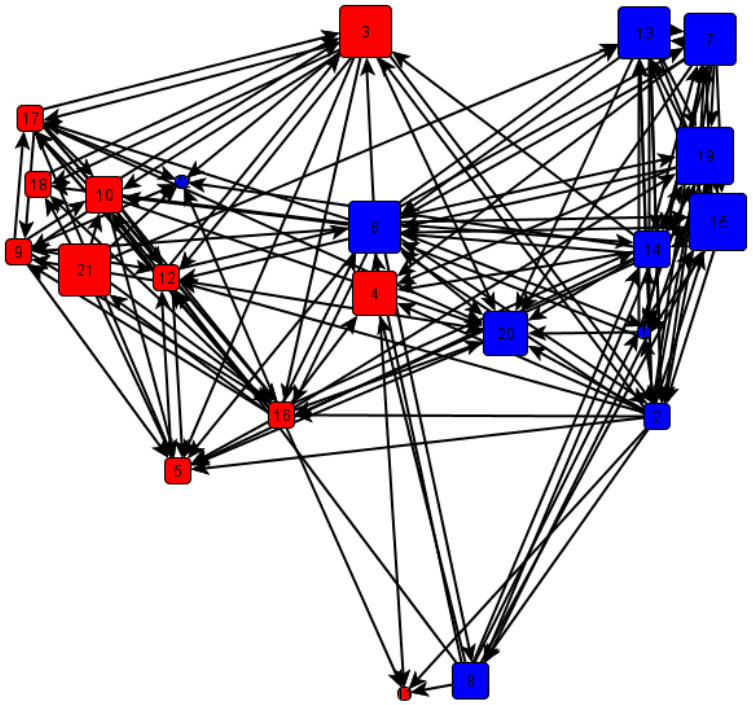


Wave 3

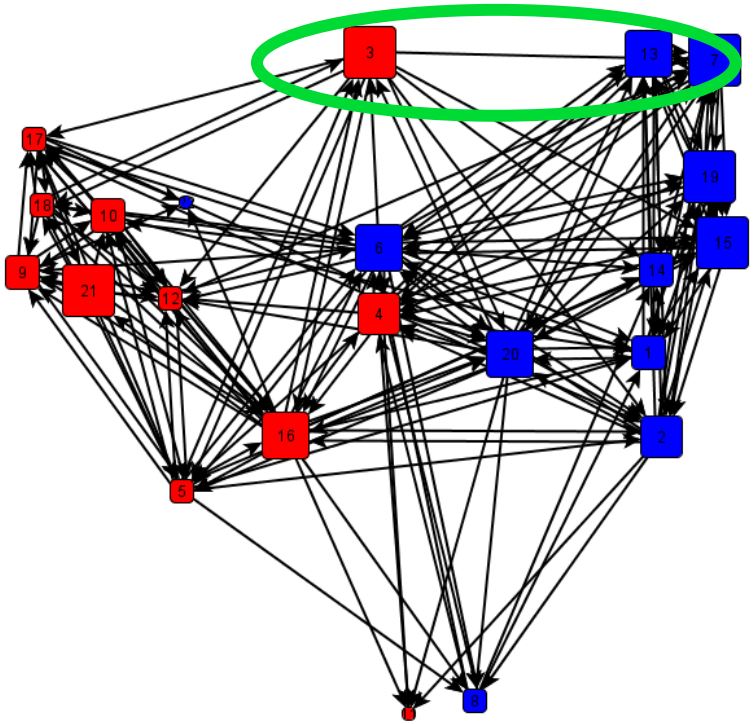


Social network of a class over time

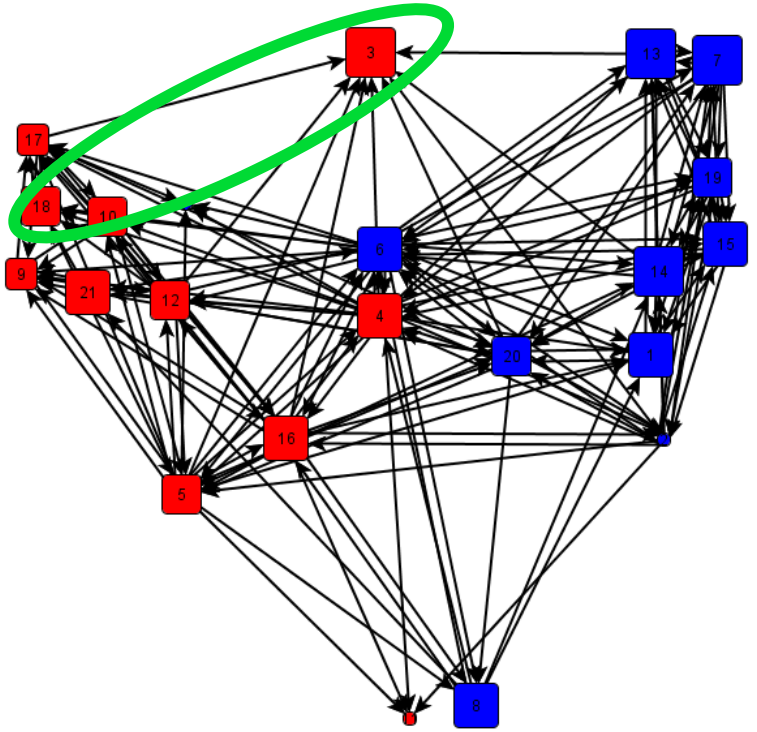
Wave 1



Wave 2



Wave 3



Social network of a class over time

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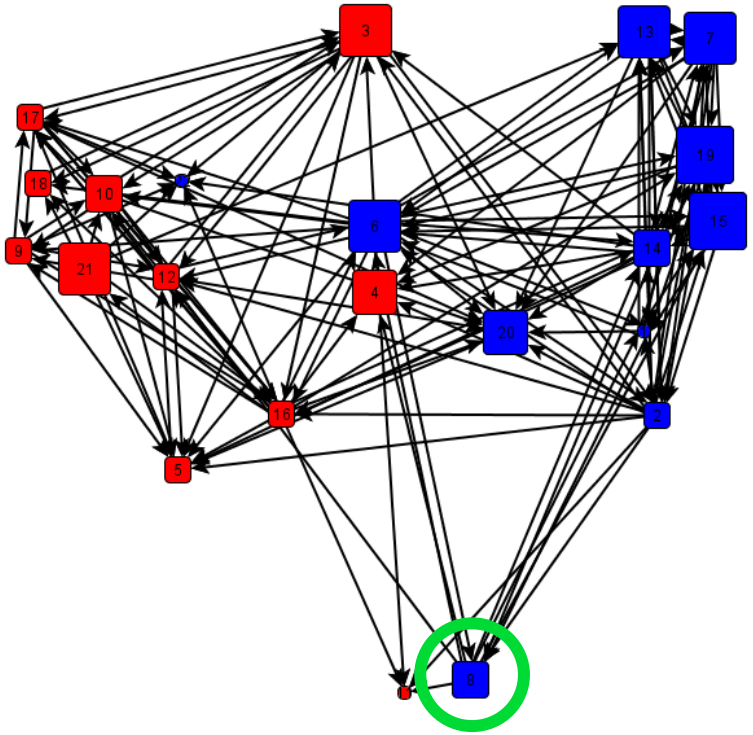
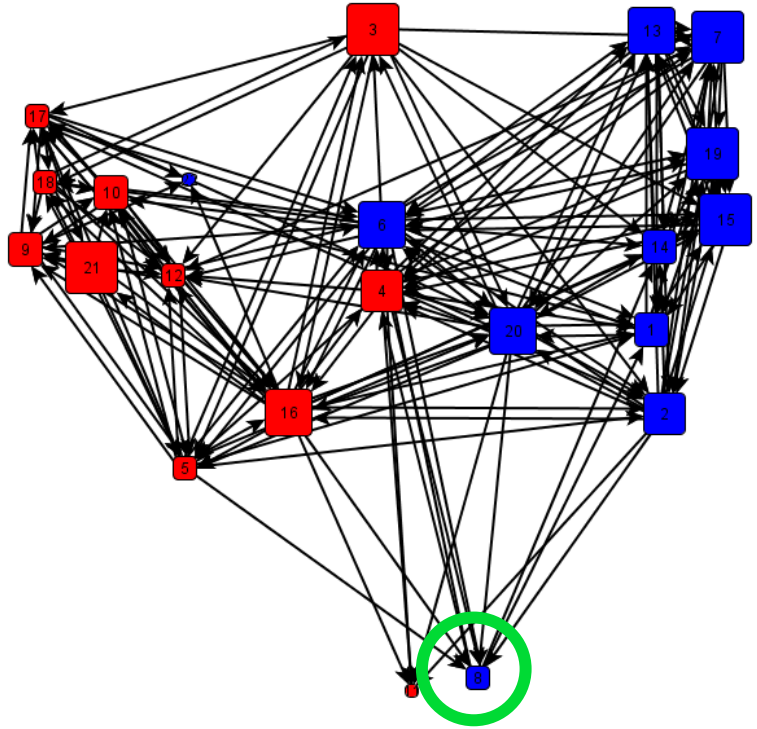
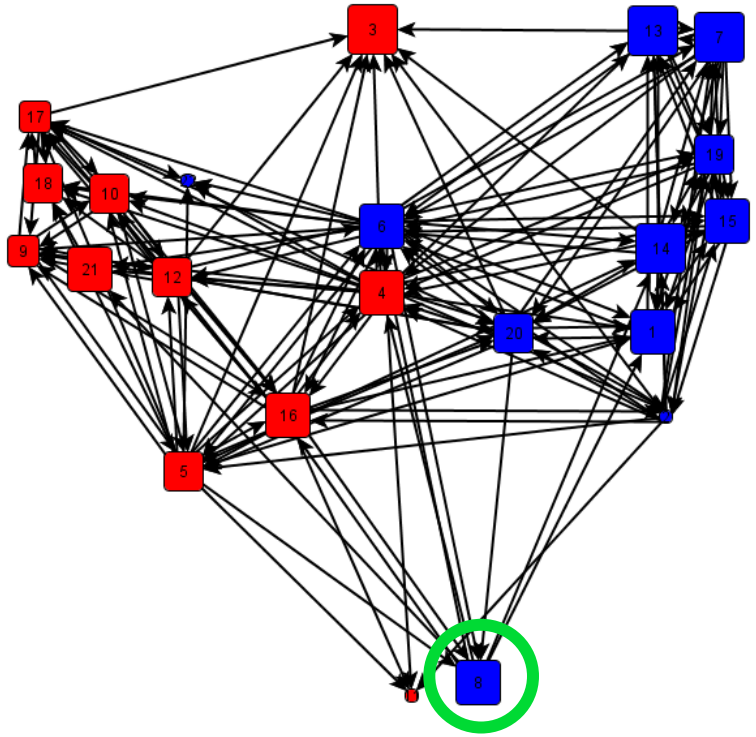


Wave 2



Wave 3



Network effects			*SE*	t	*p*
- outdegree (density)		-1.6205	(0.3644)	-4.4470	<.001
- reciprocity		0.9664	(0.1112)	8.6906	<.001
- transitive triplets		0.1900	(0.0187)	10.1604	<.001
- 3-cycles		-0.0670	(0.0333)	-2.0120	.044
- indegree - popularity (sqrt)		-0.2351	(0.0929)	-2.5307	.011
- outdegree - activity (sqrt)		0.3655	(0.1195)	3.0585	.002
- out-out degree^(1/2) assortativity		-0.1169	(0.0435)	-2,6874	<.001
- Alter		-0.0112	(0.0465)	.2409	.809
- Ego		-0.1303	(0.0451)	2.8891	.004
- Similarity	[Selection effect!]	0.7313	(0.3519)	2.0261	.042
- Same sex		0.7365	(0.0964)	7.6400	<.001
Behavior effects					
- Linear shape		0.1634	(0.0746)	2.1903	.029
- Quadratic shape		-0.0424	(0.0677)	-.6263	.53
- Total similarity	[Influence effect!]	0.0302	(0.1348)	.2240	.82
- Effect from sex		-0.2420	(0.1391)	1.7398	.08

Conclusion

- Pupils select new friends on the basis of physical activity
- Pupils do not influence the physical activity of their friends
- A social network intervention seem not worthwhile

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- Pupils do not influence the physical activity of their friends
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Discussion

- Relatively a small sub-sample, difference with total sample
- Convergence of the network models
- Loss of accuracy by changing continuous physical activity measure to 5 categories

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