



НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ
УНИВЕРСИТЕТ

Social ties and learning achievements of freshmen: social network analysis

What do we know about learning achievements?

- Some students succeed, others fail
- There is a wide range of explanations why students differ by learning achievements. These three are probably most influential:
 - Socio-economic status
 - Cultural capital
 - **Social capital**



How social capital on a study group level can influence achievements?

- Students who have more connections can benefit from it:
 - they have more options to ask for advice,
 - they have more chances to get all the information regarding studies,
 - they are more likely to discuss studies.
- If you interact with high-achievers you can adopt their practices, that may be related to success in learning (peer effect)



Aim of the study

- The aim of the study is to find out how the position in the network (as proxy for social capital) and learning achievements are interconnected.
- Key questions:
 - How social popularity influence achievements?
 - What features make student popular among peers?
 - Does peer effect take place and how it operates?



What is SNA? [Moolenaar 2010, Carolan 2013]

- We all have social ties, and it's crucial for understanding our behavior;
- Something (information, resources and etc.) is transmitted through this ties;
- Social ties perform as restrictions and as resources for individual action at the same time.



Key findings of SNA research in HE

[Sacerdote 2001, Zimmerman 2003, Maroulis et al. 2008, Calvo-Armengol et al. 2009, Lomi et al. 2011 and etc]

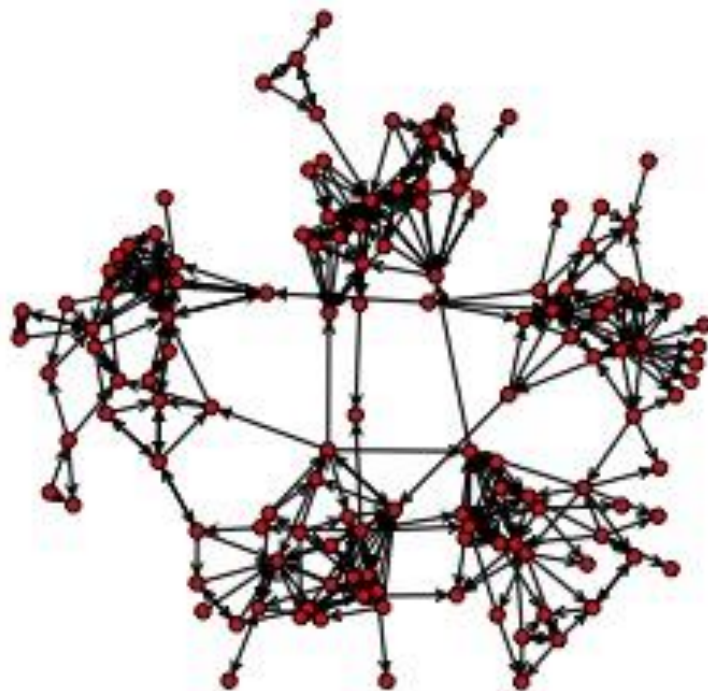
- The achievements of peers who interact with each other tend to assimilate.
- Centrality measures (e.g. social popularity among peers) in some cases are related with learning achievements.
- Students tend to set ties with peers who are similar to them.

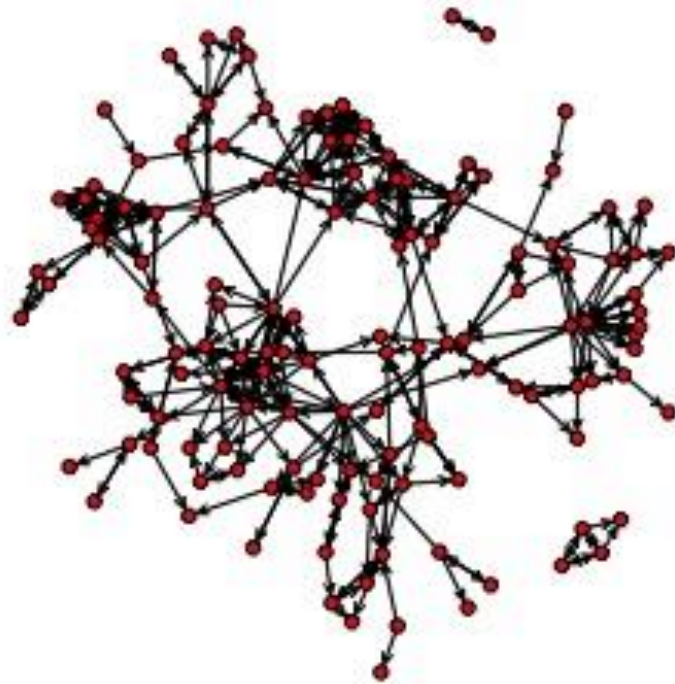


Data description

- Freshmen (first year students) of HSE sociology department divided into 5 study-groups (147 students);
- Two types of social ties:
 - Consultancy network: “To whom you consult for help and support on program-related tasks?”
 - Friendship network: “Indicate the names of peers with whom you interact outside the context of study program”.
- Response rate - 80%.







Centrality measures

- Indegree - the number of head endpoints adjacent to a node.
- Outdegree - the number of tail endpoints adjacent to a node.
- Betweenness - the number of shortest paths from all nodes to all others that pass through a certain node.



(Pearson correlation coefficient)

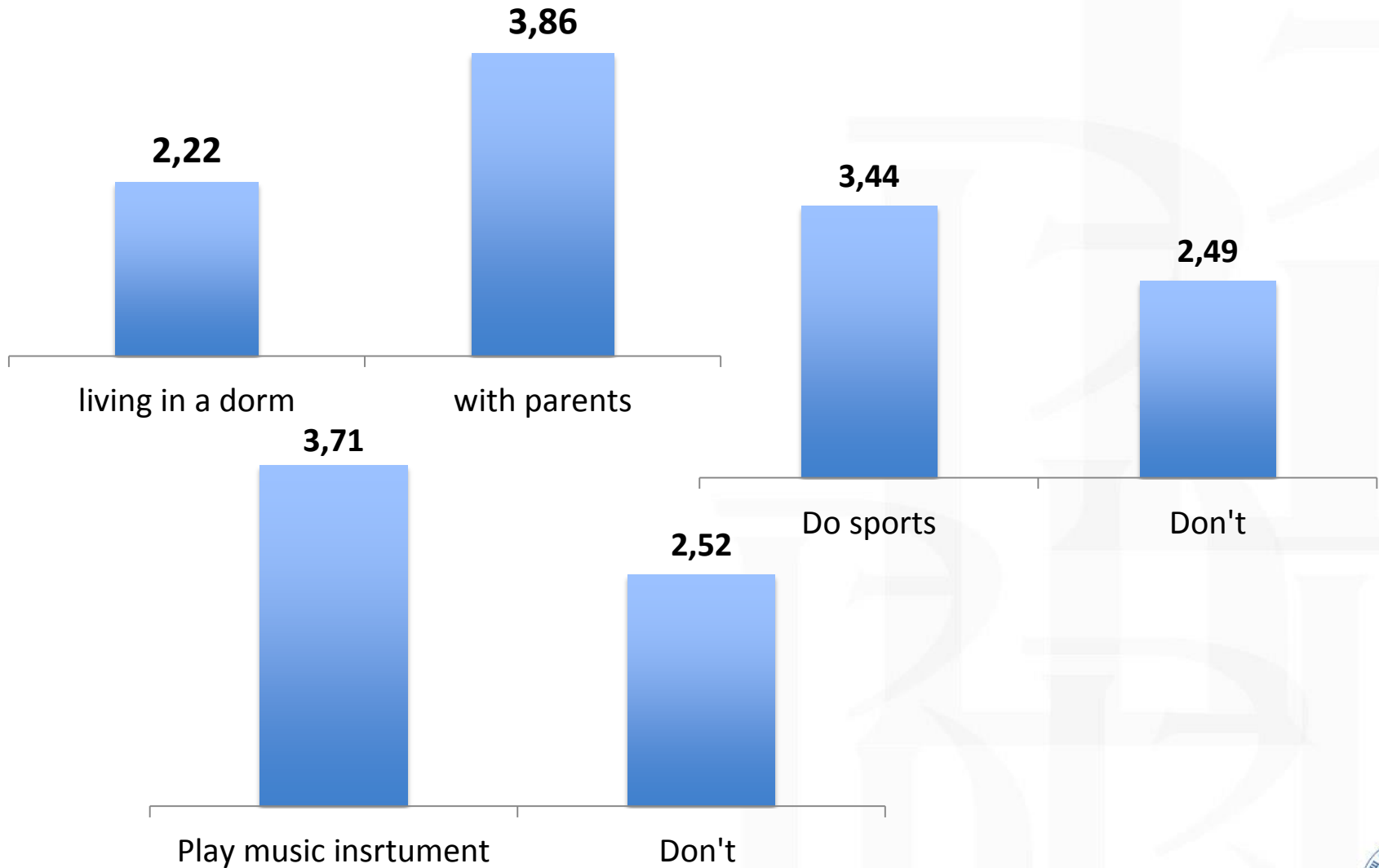
	Friend indegree	Friend outdegree	Friend betweenness	Consult indegree	Consult outdegree	Consult betweenness
Avg.Mark	,059	-,102	,033	,407**	-,124	,173
State exam (math)	,097	-,096	-,066	,244**	,093	,068
State exam (russian language)	-,009	-,215*	-,031	,205**	-,186*	-,032

Regression results

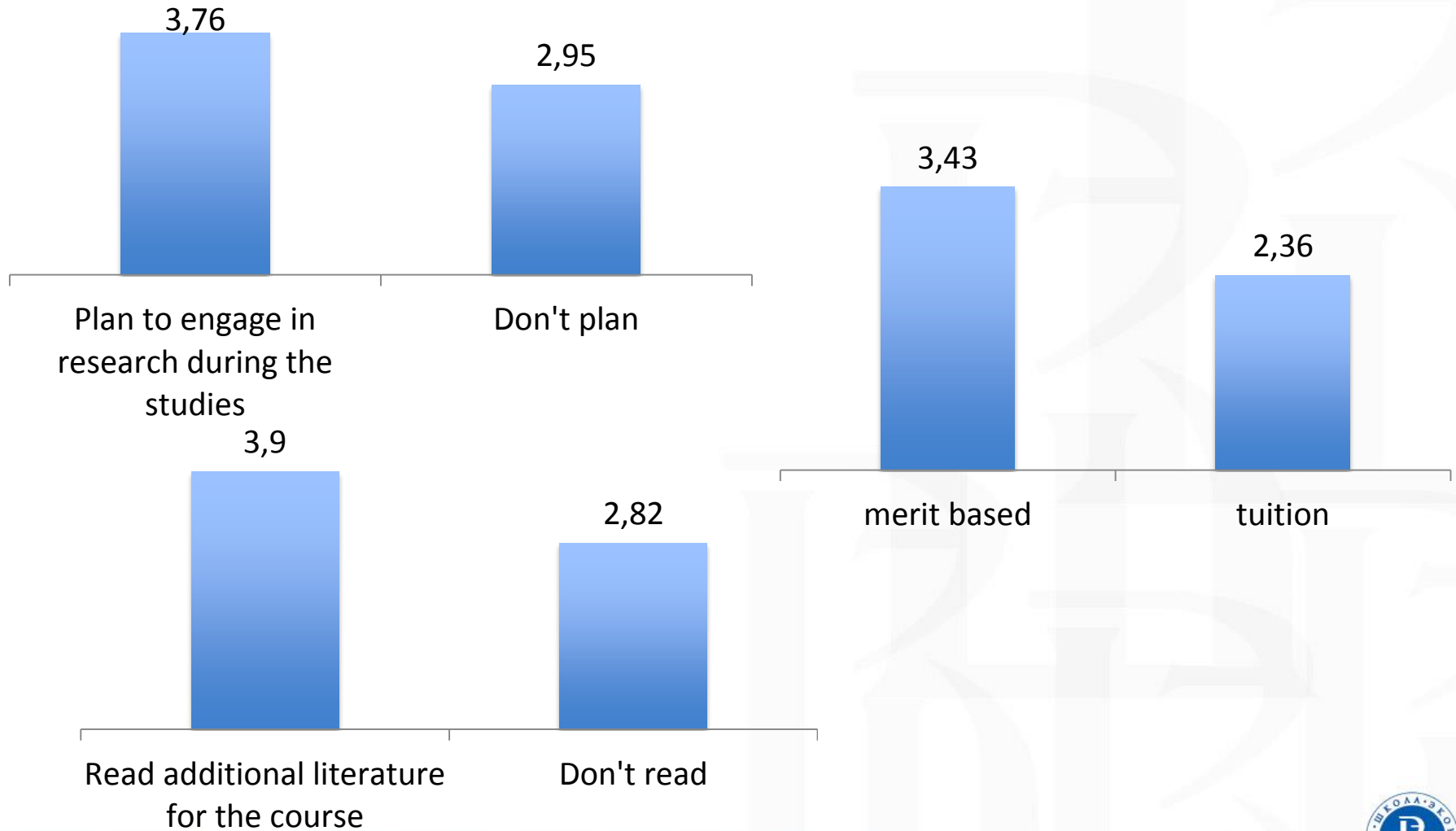
	estimate	Std.Error	t value	Pr(> t)
Consult. indegree	0.086126	0.020545	4.192	5.68e-05 ***
State exam (math)	0.009379	0.006732	1.393	0.16640
State exam (russian language)	0.022503	0.006854	3.283	0.00138 **
Multiple R-squared: 0.2643			p-value: 2.788e-07	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*'				



Who has more friends?



Who is popular in consultancy network?



Discussion

- Relations between study groups start from friendship ties.
- Popularity in friendship network has no relation with achievements. But there is a relation for indegree in consultancy network. Thus interactions on study issues are more important for understanding differentials in outcomes.
- Those who have hobbies tend to have more friends.
- Students who are more likely to engage in research are more popular in consultancy network



Thank you for your attention!

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