

For	:	Msc The Network Society / Innovation in Networks and Alliance Management
Course	:	Assignment 2
Title	:	“Ego-Centered Network Characteristics and Collaboration between Universities and Companies”
Date	:	10-Nov-2009

According to the economist Porter (2001) in his *innovation lecture* Dutch universities are strong, the quality of science and technology is high, and the amount of money the government spends is substantial. Nevertheless, Porter claims that in The Netherlands there are too many barriers standing in the way of a fruitful contribution of universities to society in the current structure. Two notable barriers are the *shortage of linkages between industry and universities* and the (hindering) attitudes of universities towards collaboration with the industry. Dutch universities consider the application of knowledge of lesser importance, they think commercialization of science threatens the independence of universities, and universities do not recognize the need to establish relationships with industry and fail to see the opportunity to learn from the private sector.

The allegations of Porter have led to (political) debates about the role and the attitudes of universities, and some additional remarks are in order here. We know firms and universities work together in a variety of ways. Relationships between universities and industry usually encompass four major inter-related components (Santoro & Chakrabarti, 2002): research support, cooperative research, knowledge transfer, and technology transfer. It seems Porter only focuses on technology transfer (he compares patenting behavior) and does not consider the other three. Nevertheless, it makes sense to take up Porter's criticism seriously *and analyze relationships between universities and industry* in more detail, which is what we will do in this case. In particular, we focus on industry-university relationships in the North-East Brabant region. *We analyze what are the barriers hindering collaboration between university researchers and companies from being successful?*

You have to answer the following question:

What makes it more likely that a collaboration between a university researcher and a company is successful?

Your task is to provide answers to the question from the point of view of social network analysis. More precisely, you should focus on *characteristics of the ego-centered network of the university researcher*. Even more precisely, you should include ideas of the *theory of structural holes* (Burt 1992) and/or of the closure theory (Coleman 1988).

We have prepared a SPSS data file called “collaboration_2005.sav”. It consists of information about university-company-collaboration of 151 researchers at Twente University who recently collaborated with a commercial company. (Actually: Because of missing values there are only 150 cases for you available.) The data set contains information about the researcher, his/her university position, his/her faculty, his/her ego-centered network, and characteristics of the collaboration. For this assignment you only have to conduct data analyses with SPSS, and NOT with UCINET. However, you definitely have to transform the given data set, for example by creating new variables with the “compute” command within SPSS. So a considerable amount of work consists of data recoding and data transformation to compute the appropriate network characteristics that you think are important. The variables that you should use for the construction

of your indicator of success are the variables “v56, v57, v58, v59a, v59b”. Of course, you have to think about how to use (a selection of) the variables – depending on your theory.

The report

The report should be structured like a scientific article: it should contain a short introduction, then a theory and hypotheses section, a methods section, a results section, and a conclusion/discussion section. Total size of the report should be somewhere between 6-8 pages (12 points Times Roman, normal line spacing). If you refer to other material, such as course papers or other sources, be sure to mention the source in a list of references.

Introduction (max 1 page)

Briefly discuss the subject: emergence or success of university-company-collaboration and why social networks might play a role in explaining them.

Theory and hypotheses (1-3 pages)

Present a theoretical framework and derive two hypotheses concerning the effect of two appropriate ego-centered network characteristics on the emergence or success of university-company-collaboration. Do not be too casual in this part; make use of the theories that were presented earlier in the course to deduce hypotheses, and to decide which of the network measures you choose to calculate. Carefully explain *why* you think that the network measure of your choice has an impact. Where appropriate, refer to the right scientific papers (e.g., by Burt, Coleman, or others).

Method (1-2 pages)

In the *method* section the used data and the method to analyse the data are presented. Describe the network measures that you use, and the statistical method that you use to study the relation between the network measures and the emergence or success of university-company-collaboration. Describe in detail how you transform the variables and *why* you do what you do.

Results (1-2 pages)

Here you present and explain the results of the statistical analysis. a) descriptive part: How do the networks look like (e.g., size, density, etc). Do different types of researchers have different (better/worse?) networks? b) explanatory part: Test your hypotheses. Most often this is done by means of a table and/or a picture, and a ‘verbal presentation’ of the results. Are your hypotheses confirmed or rejected by these results?

Conclusion and discussion (1 page)

Present the conclusion. What do the results say about your theory? Would it make sense to run other analyses (explain which ones and why)? How could one improve upon this analysis in future analyses? How valid do you think the results are? How reliable are the results? Can the results be generalized beyond this specific research, for example to other universities or countries? Explain your answers. Finally, explain what the reader can/should learn from your paper.

Logistics

Papers can be written in duo’s, but if you prefer to do it by yourself this is allowed as well. Obviously, papers handed in should be original, not a copy of someone else’s. There is no mercy for those plagiarizing.

Deadline: Tuesday, December 1, 16:00. Deliver it as a word-attachment ("paper") in the email box of Uwe Matzat (umatzat@gmail.com) and Chris Snijders (c.c.p.snijders@gmail.com). If – for some *good* reason – you are unable to meet the deadline, make sure to mention this by email to one of the course leaders *before* the deadline expires. If you have any questions on the assignment, Uwe Matzat is available at IPO 1.32 or via email. .