# University peer selection and influences of social support

Phase 1 – Peer selection and influence of perceived social support of university students: do connections matter?

Background

Perceived social support has been shown to be an important predictor of psychological disturbance where individuals are exposed to distressing stimuli such as earthquakes (Xu et al, 2013) and war (Besser & Neira, 2012). Additionally, perceived social support has also been shown to an important predictor in school environments for academic achievement (Song et al, 2014), and other problematic behaviour indicators such as low self-esteem, adaptive skills and teacher reported social skills (Demaray & Maleki, 2002) which are linked to educational advancement. Other studies have observed the origins of perceived social support for particular populations being an important factor. Chavajay (2013) found that international students felt great levels of social support came from fellow international students, and Zagenczyk et al (2010) found perceived organisational support (POS) of employees would be more like the nearest person they found to be influential. perceived social support is complex in nature, it's links with human growth and prevention of psychological disturbance, but also how and where the sense of perceived social support transcends to and from can depend on the similarities of the people around them.

Social network analysis considers the human in relation to others within the network, and it is shows the nature of their relationships that give rise to social phenomena found within the analysis of networks. This could be via structural effects such as reciprocity, centrality in the network and

popularity, or it could be actor driven such as the tendency to behave in a certain manner, such as the case for friendships being linked to smoking behaviour (Mercken et al. 2012) or it could be levels of psychological phenomena (which are also characterised as behaviour) (Snjiders et al, 2010), or more commonly aspects of the self such as cultural indicators such as nationality, gender, race, sexuality and so on. Psychological research could develop into a new branch of social network analysis, the longitudinal actor-driven stochastic models (actor-driven stochastic model) as developed by Snijders et al. (2010) which can be used to validate social network phenomena variance with psychological phenomena, such as perceived social support, by observing it longitudinally and use that information to model expectations on actor and network development while utilising Markov chain process to model the networks evolving structure.

Rationale

The rationale for exploring perceived social support with actor-driven stochastic model metholology can be found via a synthesis of some recent research in perceived social support. Besser & Neira (2010), made inferences based on means that can no understand the individual in relation to their situation within a network. They discounted medium effect size change of attachment style across the length of their study, perhaps as a result of an inability to look at socialising factors, such as covariates of reciprocity and the tendencyofhomophily between dyads. When consideringZagenczyk et al. (2010) in conjunction with Besser & Neira, they show that peer influence on perceived support options in an environment might be important, and therefore it is plausible to hypothesise that similar phenomena could change

attachment style behaviours that Besser & Neira observed. Zagenczyk and colleagues work was cross-sectional and used social network measures in a 2 step multivariate analysis, and therefore is unable to infer causality (a common criticism of social network analysis (Borgatti and colleagues)), although it shows that social network phenomena correlated with beliefs it does not show how these beliefs became over the life-cycle. When considering the origins of perceived social support within the university context Chavajay (2013) focused his attention on international students, in essence he focused his attention on a population with situational similarities and found that higher levels of perceived social support were reciprocated between these similar groups. Chavajay suggested that this may have been a result from a greater need to experience social support when entering a new culture, and this collective need amongst international students engenders greater levels of the perceived social support phenomena, but these inferences are subjective and have not been clarified with a qualitative investigation. Chavajay's research describes the tendency for homophily where by similar populations naturally evolve denser and become more homogenous networks (Steglich et al. 2010) while Zagenczyk and colleagues research suggests structural factors such as centrality (as inferred by the importance advice ties which have a strong relationship with friendship ties and ties of structural equivalence) of certain individuals within proximate networks in organisations is indicative POS as POS emanate from advice ties of structural equivalence. If perceived social support or POS can be related to self-ordering phenomena as well as hierarchical network effects then research into this field can describe behavioural change via two distinct psycho-social roots.

Psychology can utilise the actor-driven stochastic model to discover the relationships of perceived social support within categorical groups as well as through common mechanisms of friendship formation lime, reciprocity, homophily and transitive closure, i. e. researchers can combine agency and structure while modelling behaviour (perceived social support). The psychologist can analyse multiple data sets and generate a wide variety or multivariate and bivariate statistics, and to a degree infer time sequentiality when seeking causality. Research can combine active theory development through generating and comparing findings, and then control for alternative explanations while assessing uncertainties in inference Snijders et al. (2010).

However, the model is assumption-intensive – the actor-driven stochastic model uses two functions to predict network evolution via microsteps. Firstly, rate function which depends on observation period, actor cocariates and network position, which combine to consider the speed and opportunity for change within the network, and secondly, the objective function which evaluates the actor decision to change a tie based on short-term goals following preferences, opportunities and constraints. These functions require network and behaviour parameter estimates to be used in order for the model to estimate network evolution, therefore good data and awareness of group context is important when carefully developing theory (Steglich et al. 2010).

Investigations of human psychology, can benefit from interpersonal methodology such as the actor-driven stochastic model as the individual can be noticed within the context of their immediate relationships. Although, limitations to the model include traditional problems associated with effects

that are distil in nature (Bronfenbrenner, 2005) – it can not explain the disappearance of a tie as a result of exo-system decisions in the wider environment, however as is traditional in the empirical method mechanisms are in place to resolve sample problems.

However, since the researcher requires high levels of contextual understanding when using actor-driven stochastic model to understand phenomena, descriptive phenomenological investigation would be welcomed to help identify spurious relationships in quantitative data.

In cases such as small pilot studies, when sample sizes are inadequate and where the aim is the learning of a new methodology Trafimow (2014) may argue that this links with the goals of qualitative inquiry. A researcher considering human intelligence of an alien culture is less likely to make valid measurements of intelligence if he basis them on personal experience. So when embarking on an exploratory phase of a research project Trafimow (2014) recommends using qualitative methods to find out the variables that matter and then to use empirical methods to quantify how much they matter.

Another point to consider before implementing actor-driven stochastic model is it's complexity. Not only must the researcher understand it's core concepts and assumptions of the stochastic social network analysis, they also have to aquire the skills and knowledge to produce social-network panel data that fits the stochastic model. Additionally, the researcher must then be able to navigate and use RSiena, the program which runs inferential

statistics and generates predicted network models in accordance with the statistics related to the actor-driven stochastic model (Snijders et al, 2010).

With the level of complexity within such a psychological methodology, correctly measuring and validating perceived social support within the group context while correctly estimating parameters for ongoing theory development and model validation requires a 2 phase approach.

Aims

Phase 1 (MSc)

- To understand contemporary issues surrounding perceived social support
- Understand the ways social networks are analysed
- Understand perceived social support within the group context
- Develop valid panel data gathering forms for pilot study
- To understand practical psychological applications of actor-driven stochastic model
- To understand the relationship of peer selection and perceived social support

Objectives

- Systematic Review of Literature: perceived social support & perceived social support Measures & Social Network Analysis & actor-driven stochastic model
- Design Focus Group with Open Ended Questions on perceived social support

- Survey Focus Group on how they understand perceived social support

- Analyse and Evaluate Findings From Focus Group

- Compare Focus Group Findings with validated perceived social support questionnaires

- Build Panel Data Gathering Form

- Conduct Pilot Study using actor-driven stochastic model using RSiena

Method

This study is exploratory in nature and will be divided up into two parts. The first part will be qualitative and the second quantitative.

Part 1:

*Participants*

For an exploratory qualitative exercise 8 – 15 will suffice to inform the evaluation of perceived social support. The group will be taken from a selected population university students that take part in a society and see each other on a regular basis.

*Prodecure*

Participants will be informed that they their information will be kept in strict confidentiality and that the session will be recorded for analysis. Participants will then be asked to complete a consent form before the focus group will begin.

*Focus group with open-ended questions*

The focus group will be structured around open-ended questions regarding the nature of perceived social support and how they understand it. An example could be " I wonder what comes to mind when you consider the support around you?" this would illicit the participants perceptions toward support and what kind of resources they see as available.

*Analysis*

This information will then be analysed using a content analysis method proposed by Berg (2007) and then used to validate existing self-report questionnaires such as Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988) or the The 18-item Index of Sojourner Social Support Scale (Ong & Ward, 2005), both of which were used on populations of university students. The validated survey questions will then be used as part of the panel data gathering form used in the quantitative analysis.

Part 2:

*Participants*

The specification for the participants is that they will be in a reasonably dense network structure and therefore see each other on a regular basis and reciprocate within the group. Although the minimum amount of participants for the method for reliable results is $n > 25$ (Snijders et al, 2010) 8 – 15 participants will suffice to form the basis of a RSiena pilot study.

Prodecure

Participants will be informed that they their information will be kept in strict confidentiality and that the session will be recorded for analysis. Participants will then be asked to complete a consent form before the focus group will begin.

*Measures*

For the study to produce meaningful parameter estimates for modelling the data will be captured in 3 waves of fortnightly assessments. The participants will complete a self-report questionnaires providing panel data

Friendship network. Students will be asked to identify up to 5 close friends within the group. Only friendships in which nominations are shown to reciprocate will be retained for analysis.

Homophily. Students will be asked four indicators of homophily on socio-demographic characteristics: gender, race, university year and age.

Perceived Social Support. Students will be asked a chosen number of indicators which reflect their perceived social support and make up a scale where internal consistency will be tested. The scores will then be divided up into meaningful ranges where by the participants can be catergorised.

*Analysis*

The analysis of the data will be consistent with the longigtudinal actor-based stochastic method as described by Snijders et al (2010). The analyses will be implemented with the Simulation Investigation for Empirical Network Analysis software program (Snijders et al. 2007).

All changes in friendship ties and perceived social support scores observed between the final 2 measurements are modelled as the most probabilistic sequence of events that explain the total amount of observed changes. In this scenario there are two dependent variables, one describes perceived social support and one describes changes in friendship ties, and are modelled simultaneously with each other as dependent variables with each other. Within subjects effects can be measured with ANOVA where appropriate and parameter estimates for the actor-based model deemed to be statistically significant with a t-ratio obtained by dividing the unstandardised estimate by the standard error.