

Social Media Analytics

Module 4 Assignment

Paras Ahuja

September 26, 2020

1. Note the appropriate social force next to the explanation for the following statements (choose from social forces: Homophily, Reciprocity, Proximity, Prestige, Social Conformity, Transitivity, and Balance).

- A. Geoff and Ted are friends, but Ted's wife does not like Geoff, so Ted no longer sees Geoff socially.

Balance theory is concerned with how an individual's attitudes or opinions coincide with those of others in a network. If "friends" have the same "attitude" towards a third "friend", there is balance. Therefore, this is a case of **balance**.

- B. Two individuals belong to the same tennis club.

This refers to **homophily** as the statement implies that these people have similar beliefs. Homophily is the tendency of individuals to associate and bond with similar others, as in the proverb "birds of a feather flock together."

- C. A group of five people who work in the same physical office area trust each other.

Proximity seems to classify this statement perfectly.

- D. Joe purchased an iPhone so Bill also purchased an iPhone.

Assuming that Joe, and Bill are related, then conformity is a type of social influence involving a change in belief or behavior in order to fit in with a group. Therefore, this refers to **social conformity**.

- E. Three agents of the same religion spend private time on family outings together.

Per definition in B, this statement refers to **homophily**.

- F. Jake took up golf because the rest of his peers play golf.

Jake is conforming to the group. Therefore, this refers to **social conformity**.

- G. Casey invited Mary to dinner when she took up a new position in the department. Mary returned the invitation and they now share recipes.

Mary is returning is reciprocating in kind. This statement refers to **reciprocity**.

- H. Lance and Fred are both engineers but are situated at different locations. Despite their separate physical locations they frequently use Skype and emails to share knowledge and ask advice.

We note that both Lance, and Fred are engineers. Furthermore, they rely on each other's counsel. Therefore, this refers to **homophily**.

- I. Charles is respected because he has a degree in law and is very knowledgeable about legal matters.

This statement refers to **prestige**.

- J. Gillian met Susan at John's party, then again at a local fund raising event managed by John. They got talking and realized they had common interests.

Transitivity refers to the extent to which the relation that relates two nodes in a network that are connected by an edge is transitive. Therefore, this statement demonstrates **transitivity**.

2. How does proximity drive the formation of social relations?

Proximity plays an important role in our lives, and it has the potential to influence the people we meet and befriend. Proximity also has the potential to form stronger bonds. Consider the study conducted in an isolated Swedish town. The subject of this study were 336 adolescents. At the end of the study, the researchers concluded that social foci responsible for providing regular repeated interaction among the same people yielded a strong effect on friendship formation¹. Since the subject of the study were adolescents, one of the social foci were the schools in the area. However, this can be seen as a larger trend and proximity leading to social relationships, whether it be through work or school.

Lastly, social proximity may also be a net positive for the economy, and society at large. Werker, Ooms, and Caniels write in their paper, "Personal and related kinds of proximity driving collaborations: a multi-case study of Dutch nanotechnology researchers", that different kinds of proximity either enable or hamper collaboration among people. Research looking into proximity and collaboration provides evidence that geographical, organizational, institutional, cognitive and social proximity drive collaborations in various combinations and ways². Werker, Ooms, and Caniels specifically state the following:

"Proximity indirectly and positively shapes collaborative behavior. Partners are socially close if they are subject to the same or similar set of rules. Importantly, social rules do not stem from geographically demarcated groups. Rather, they are derived from membership of groups such as professional or sports associations, knowledge fields, and social communities. These entities connect on the basis of their shared enthusiasm or interests as well as through networks of family and friendship ties".

Essentially, the closer people are socially, the more they trust each other - as we saw in 1C - and the less likely they are to exhibit opportunism in their behavior towards one another. This leads to overall collaboration in workplace, and most likely to transfer to the economy. Limited research exists on direct impact of social proximity on a nation's economy. Further research can be conducted on economic impact of social proximity answering the question: *Are nations that exhibit strong social proximity economically better?*.

¹Preciado, P., Snijders, T., Burk, W.J., Stattin, H., Kerr, M. (2011). Does proximity matter? Distance dependence of adolescent friendships. *Social Networks*, 34, 18-31.

²Werker, C., Ooms, W. & Caniels, M.C.J. Personal and related kinds of proximity driving collaborations: a multi-case study of Dutch nanotechnology researchers. *SpringerPlus* 5, 1751

3. How can a common employee lounge area in an office increase collaboration?

Interaction in employee lounge area will lead to increased level of collaboration because people in this area are likely to discuss work, and other hobbies. Overtime these employees will form a tighter bonds due to proximity. They may even discuss solutions to the problem with people not from the same department. This may also be the area where people discover common interests they have with others (transitivity). This will inadvertently lead to higher level of interaction and collaboration amongst people. Note that once people discover common interests, the situation change to homophily, which will further increase collaboration.

4. If you were a manager of a knowledge intensive organization, what kind of policies and practices would you implement to increase social interaction?

Research shows that proximity increases collaboration, and therefore it will be warranted to have areas where employees are free to associate. Furthermore, other common and usual activities like training sessions, and team outings are also helpful. When people associate in this manner, transitivity is also likely to occur. Transitivity is most likely a harder policy to implement but it can be facilitated through the aforementioned activities. In addition, have a culture of reciprocity so no employee feels marginalized by the actions of another individual. Therefore, I will ensure that policies encourage proximity, and practices/culture encourage reciprocity, balance, and transitivity, and homophily.

5. How can social media improve collaboration within a knowledge intensive organization?

As mentioned earlier, this will likely facilitate homophily since people will be able find common interests, and interact accordingly. Furthermore, people who have at least one interest that they do not share with people whom they associate most closely with, are likely to be a part of another network as well. Transitivity can then take place. Overall this will lead more connections and networks within the company.

6. How can social media disrupt collaboration within a knowledge intensive organization?

Firstly there might be some concerns in regards to balance. This is detrimental to collaboration because two people have stopped their association with the third person, and are no longer accepting their input. Furthermore, homophily in regards to balance has to be kept in check because it may cause clusters, and if there is no common link between two networks of people, it can possibly erode creativity by not taking into consideration a different point of view. Conformity is another big concern. For instance, if vast majority of people in the organization fall prey to fake news, then other members may give in to peer pressure, which will erode independent thinking.

7. What strategies can an individual employ to increase their prestige within a social group?

An individual could specialize in a certain area, and become the go-to person of the group. Individual could also take on a task that vast majority of the people in their group agree upon, but no one else is willing to do it. This way an individual can demonstrate their leadership skills.

8. What strategies might an individual employ to increase their prestige on social media? How are those strategies similar or different for offline networks?

An individual could first understand the group of people with whom they most closely associate. After understanding this, they could then present their viewpoint in a meaningful

way that collectively represents the feelings of the group. This could involve making videos on YouTube that a niche might be interested in; Twitter, and Facebook posts. Regular communication with the group they represent is important to ensure that an individual is not diverting from the view point of the group. This is most likely to demonstrate prestige through leadership. If an individual specializes in a field, they could regularly post about the field, which will allow them to garner support from people within their field, as well new interested supporters.

These strategies are similar in that the key idea behind them is similar to what one would do in an offline network. However, a big difference is proximity. Normally in an offline network a person is bound by their geographic and social proximity. In an online network this is not the case.

9. What does a scale-free network topology tell you about influence and social interaction in a social media network?

We say that a network is scale-free network if the characteristics of the network are independent of the size of the network. This means that as the network grows in size, the underlying structure remains the same. We can find out the following key information:

- i. Say we have a network graph, and we zoom in on a particular node, the number of edges a node has determines the degree of that node. Degree can allow us to determine the potential of a node to influence people in a network.
- ii. We can also calculate betweenness centrality. This metric captures how much a given node is in-between others. By finding out betweenness centrality, we are essentially finding out the gatekeepers of information flow. Or the points that the information must filter through before reaching its target.
- iii. Closeness centrality indicates how close a node is to all other nodes in the network. This will allow us to understand how quickly a user gets information after initial user has received the information. Furthermore, it could also inform us, how quickly a user acts on this newly gained information.
- iv. We can calculate eigenvector centrality to measure the influence of a node in a network. This will allow us to understand how influential a person is in a network. Google uses a variation of eigenvector centrality for their PageRank.