Thesis Proposal:

Belongingness in at-risk adolescents: A social network approach

**Proposed committee:**

1. Mentor: Kim Henry
2. In program: Alyssa may only serve as an outside… Dan Graham?
3. Out of program: Bailey Fosdick

**Research Questions:**

1. ~~What is the relationship between an adolescent mentee feeling belongingness and their social network within a program centered around mentorship? As the Campus Connections semester continues, and an individual’s network, friendships and closeness with others changes, how does this relate to a mentees sense of belongingness?~~
2. ~~Which aspects of relationships matter most when measuring a mentees sense of belonging to the Campus Connections program? In other words, how do we define embeddedness in the program? Is the overall number of relationships a good understanding? is it the closeness of these relationships? Is there an ideal relationship count?~~
3. ~~Does the type of relationship matter? For example, in a program aimed at providing mentorship and allowing for social interactions with other youth – is the bonding experience with the mentor the most important aspect? Or is forming positive friendships with other youth have more of an impact?~~
4. ~~Because measuring the social network serves as a complex and burdensome task, is belongingness a good indicator of a mentees embeddedness in the network?~~
5. In what ways can social network methodology be applied to an adolescent population within a mentorship program?
6. How do the measures of social network compare to measures that we would expect to be associated with one’s friendship network? How do we establish if this a valid measure.
7. What methods can be used to validate social network analysis as a proper methodology for measuring friendships in an adolescent population?
8. How define embeddedness in network? Specifically, within an adolescent mentorship program. What aspects of a relationship are the most important? What network behavior dynamics contribute the most to adolescent measures of thei relationship with the program?
9. Is this approach worth it? It is a long and tedious task, however, social epidemiologic studies how found the benefits of incorporating it into population-based health research. (El-sayed et al., 2012).
10. What is the overall convergent validity of the social network data with some of our measures?
11. Can we take the aspects measurement and incorporate into friendships networks within the program.
12. Do other aspects, i.e density, within a night at as whole aspect

Look if research on adolescents

Bailey:

What methods do we have to validate social network measures? We want to be sure that the social network data works

How can we be sure that the sn data from adolescents?

Use same terminology that we use measurement.

I am interested in taking the principles of social networks and incorporating them into social networks

Do you need to be concerned about network dynamics when your not worried about tie formation.

She’s worked on a adolescent network study.

Do kids likely choose the more popular kids?

Look with valentes work on interventions research.

Methods papers associated:

How can we for the correct measurements.

Is there an analog measure

**Outline:**

* 1. Explain the importance of studying at-risk adolescence
     1. The changing, influential and plastic adolescent brain (Many references in steinberg book; Costa-Robles, Caspi)
        1. Highest risk for risky health behaviors (drugs, unprotected sex, pregnancy, etc.)
     2. Adolescent behaviors serve as a good indicator of adult behaviors.
        1. Therefore, intervention is key (Dubois)
        2. Theory of life course persistence (Moffit)
     3. Importance of positive influence in adolescence (Erdem)
        1. Mentorship is a strategy to provide positive influences (Rhodes, DuBois)
        2. Rhodes Model of Youth mentorship (Rhodes, Dubois, et al.)
     4. Theories regarding adolescent research
  2. Social Network Analyses
     1. A general description
        1. Key terms: Density, inbound relationships, outward bound, reciprocity
     2. It’s usefulness in social science research
        1. Group influences have been studied in past research (Peer contagion, Latene’s social impact theory)
     3. It’s usefulness in health research and an indicator of health outcomes (Valente)
        1. Importance from a public health perspective
     4. The complexity of gathering data and analyzing
     5. Veenstra (2013) that the combo of incoming and outgoing ties is a sign of social status.
  3. Adolescents and their network
     1. Adolescent peers’ behaviors are a good indicator of their own behaviors (Dishion, Tipsord)
     2. The evolution of adolescent networks is not widely understood.
        1. Most studies take a cross sectional approach to understanding the network (Dubois)
        2. However, there are studies out there that support it being an applicable methodology: RSIENA models (snijders, valente, Veenstra)
     3. Peer contagion, deviancy training (Dishion)
  4. Understanding belongingness
     1. Define belongingness
     2. Indicate the extent to which belonging matters
     3. Wilms belongingness study
        1. Sense of belonging is affected by students’ experiences in community and school experience
        2. 1 in 4 students in developed countries have a low belongingness in school. Which in turn is shown to affect participation.
  5. Campus Connections
     1. Provide description of program
        1. Mentor family mentorship style
        2. Schedule and dosage of exposure to program
        3. Importance to the Fort Collins communities (and other communities is serves)
        4. Evidence-based approaches
     2. Past research (Henry, Haddock, Weiler)
        1. Benefits towards mentors, staff & youth (Weiler, Haddock)
     3. Unique, structured platform to perform research
     4. Description of the social network
        1. Longitudinal data
           1. Which is a huge benefit to this thesis
     5. Veenstra articles to describe how peer networks have been observed in adolescent populations.
  6. Dissect social network analysis as a field
     1. Selection vs influence
     2. Network analyses in epidemiologic research
     3. It’s gaining popularity and stochastic modeling
     4. “A social network is seen as the relationships among a collection of individuals, with overall structural properties (e.g., the density of relationships among all individuals in the network) and structural properties of individuals located in the network (e.g., if individuals are popular or isolated). These properties can change over time.”
     5. “until the recent development of statistical models to examine coevolving network and behavior processes, four primary limitations restricted the ability to make firm statements about the underlying processes responsible for similarity among friends” (Steglich, Snijders, & Pearson, 2010).
     6. Explain assumptions (Veenstra and snijders have papers on this)
  7. Research Questions
     1. Explain methods to answer them
     2. Data, and variables that will be incorporated
     3. Hypotheses associated with research questions
     4. Proposed analytical methods
        1. Multi-level model approach
           1. Random effects: Semester, night, condition, room
        2. 2 models
           1. Modeling the growth of network connections across the course of the program
           2. Modeling the growth of belongingness across the course of the program
           3. Compare models, explain similarities and differences.
           4. Limitations and strength of each model.

Notes with Bailey:

Verifying this network measure:

* Imagine that you put someone to observe CC
  + Observed friendships
* Imagine you given the mentors to ask who the mentees have a relationship.
* IS this a tool that can be reliably?
  + What percentage seems to be wrong?
* Give out a survey in which they try to describe their mentees
* What happens if a mentee
* Create confidence measures
  + MIT social evolution dataset
* Rephrase question:
  + What other data died we collect that is repetitive of the SN data.
  + What does the this data have in commo with these measures.
  + What network does this
* Consider just expanding the first question.
  + Looking at the connections over time. Flagging students at certain weeks.
* How many ways can we get at validity
* Put it into different parts
  + How can we identify problem adolescents
  + Can we identify survey fatigue?
  + What are the types of survey misuse.
  + Look at reciprocated relationships
* Keeping this as the primary goal of thesis
  + “Give suggestions to from a policy asking questions about things that are associated with the sn”
* If they don’t form relationships… do they not show up?

Creating ranks for the weights scores and creating a similarity score.

Look up a similarity index for weights

Get validity for networks

Do these different validity methods all coincide with eachother.

***DSSG: Data science for social good.***



