

Week 8 Video 2

Discovery with Models:
Case Study

Case Study

- Dawson, S., Macfadyen, L., Lockyer, L., & Mazzochi-Jones, D. (2011). Using social network metrics to assess the effectiveness of broad-based admission practices. *Australasian Journal of Educational Technology*, 27(1), 16-27.



An Example of DWM in Relationship Mining



Goal



- Try to understand which attributes of a medical school candidate, at the time of application to medical school
- Are predictive of successful participation in the emerging community of practice during medical school
- Towards evaluating medical school applicants for modern medicine where communication and community participation are key

How to measure?

- Not entirely clear how to measure participation in community
- Idea
 - ▣ Multiple measures of student participation in discussion forums within medical school LMS

Several measures (and their hypothesized meaning)

- Nodal degree – number of relationships to other students
- Closeness – distance in communication to all other students
- Betweenness – students that connect other students
- Eigenvector centrality – an individual student's contribution to the community

Data about students at time of admission

- Prior course grades (GPA)
- Standardized exam score (GAMSAT)
- Portfolio
- Interview
 - ▣ Set of rigorous mini-interviews with standardized questions
 - ▣ Questions assess critical thinking, decision making, communication skills, leadership, knowledge of health care

Results

- Social Network Measures and GPA
 - ▣ No significant correlations
- Social Network Measures and GAMSAT
 - ▣ No significant correlations
- Social Network Measures and Portfolio
 - ▣ No significant correlations, except in 1 of 4 subpopulations

Results

- Social Network Measures and Interviews
 - Closeness: $r = 0.311$
 - Eigenvector: $r = 0.152$

More Results: Admissions Criteria and Class Grades during Medical School

- Prior GPA: $r = 0.172$
- GAMSAT: $r = 0.188$
- Interviews: $r = 0.253$

Conclusion

- Interviews are better predictor of both grades and participation in medical school social network than other measures
- Keep interviews in the medical school admissions process

Interesting Point

- Using measures that can be distilled from data quickly
- Research questions can be answered that were never considered by the original developers of those measures
- Discovery with Models at its bests

Next lecture

- Text Mining