Black PhD Students' Social & Academic Networks:
Their influence on Attrition, Adjustment and Achievement emotions

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BACKGROUND

Reinforcement cycle for underrepresented minorities

Effective recruitment and retention of minorities in the research pipeline

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Representation of minorities groups in research oriented positions

Disparities among racial composition of research and policy generating institutions
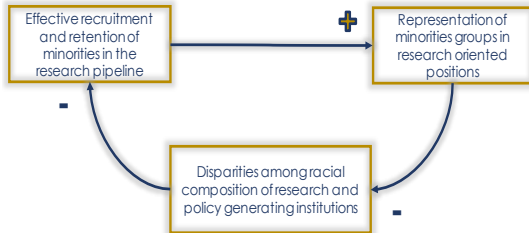
Based on Rogers & Molina, 2006

- Previous research shows academic support and social relationships are related to productivity, satisfaction and attrition among Black PhD students.
- Students of color face differential socialization experiences when compared to other ethnic groups in the United States. Black students in PhD programs, perceive higher rates of discrimination than any other racial/ethnic group

METHODOLOGICAL APPROACH

Data collection pipeline

- Recruitment process targeted the all Black PhD students attending a urban southeastern institution in the United States.
- Face to face surveys with qualitative and quantitative data
- Social Networks Data was collected using fixed name generator method

Scales:

- Academic achievement emotions
- Academic adjustment
- Perceived group inclusion

Mixed Methods:

- Multi-Layer Social Network Analysis
- Qualitative content Analysis for open ended questions

Health Disparities & Cultural Identities Research Lab
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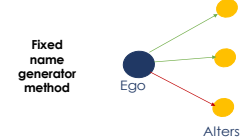
Academic Positive Layer:

- Likelihood of discussing important academic matters
- Weighted by trust
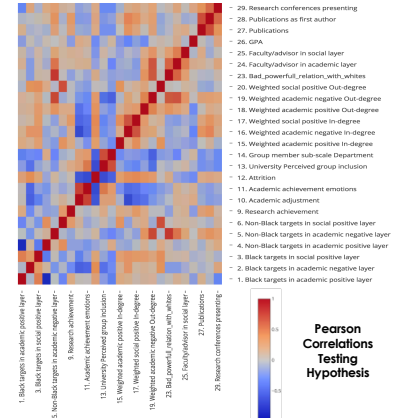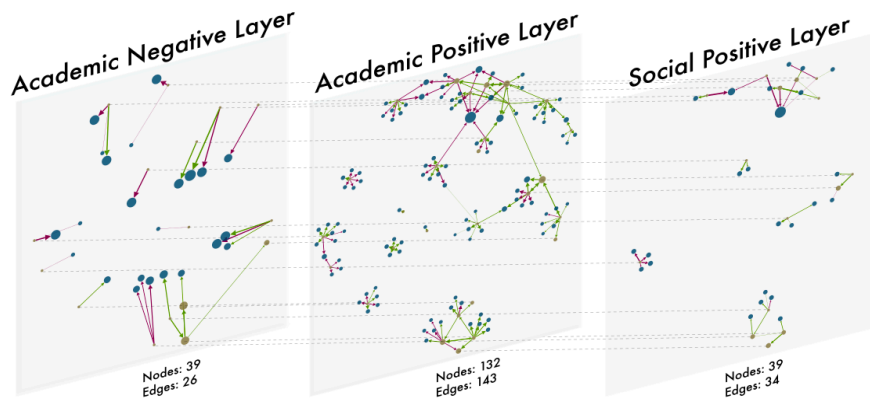
Academic negative Layer:

- Difficult episodes that affect their academic performance
- Weighted by frequency & advisor attribute

Social Layer:

- Meeting outside campus for something different from academic matters
- Weighted by: likelihood to discuss personal matters

Fixed name generator method

Ego

Alters

RESULTS

Academic Negative Layer

Nodes: 39
Edges: 26

Academic Positive Layer

Nodes: 132
Edges: 143

Social Positive Layer

Nodes: 39
Edges: 34

29. Research conferences presenting
28. Publications as first author
27. Publications
26. GPA
25. Faculty/advisor in social layer
24. Faculty/advisor in academic layer
23. Bad_powerful, relation_with_whites
20. Weighted social positive Out-degree
19. Weighted academic negative Out-degree
18. Weighted academic positive Out-degree
17. Weighted social positive In-degree
16. Weighted academic negative In-degree
15. Weighted academic positive In-degree
14. Group member sub-scale Department
13. University Perceived group inclusion
12. Attrition
11. Academic achievement emotions
10. Academic adjustment
9. Research achievement
6. Non-Black targets in social positive layer
5. Non-Black targets in academic negative layer
4. Non-Black targets in academic positive layer
3. Black targets in social positive layer
2. Black targets in academic negative layer
1. Black targets in academic positive layer

Pearson Correlations Testing Hypothesis

Multilayer Social Network

The networks include three types of relationships among the black PhD students. Each layer represents one relation: Academic Negative, Academic Positive and Social Positive relations. Directed ties represent nominations, reed ones represents powerful relations with faculty/advisor. The green edges represent non-powerful relations. The inter-layer ties represent the connection between two nodes referring to the same student. The node color represents the egos and alters: the gold nodes represent Black PhD students and the blue ones the others. Node size represents the weighted in-degree.

Heat map –Correlation Matrix

This correlation matrix explores relationships between network structure and node attributes with perceived inclusion, academic adjustment, permanence and achievement among black PhD students and how these factors relate to their social and academic ties.

DISCUSSION & SIGNIFICANCE

Socialization is a core variable for improving Black PhD. students' experiences and sense of inclusion. Socio-academic experiences impacts their productivity, satisfaction and attrition.

- Diversity in research & policy oriented institutions influences the populations they serve. To intervene the social system it is necessary to design interventions that take into account the 'facilitator' roles that promote diversity in the university setting: positive central relationships were not peers or positions of power, but coordinators of diversity programs.
- Advisors' social and academic support influences attrition and performance.
- Academic adjustment is associated with: achievement emotions, academic layer centrality metrics and types of relationships.
- The intersection between power and ethnicity seems to be relevant in shaping Black PhD students experiences, particularly when it comes to attrition and academic emotions

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