

The effects of co-supervision and lab rotations on social networks in a graduate biology program

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Abstract:

This study investigates the effect of co-supervision and lab-rotation, components of the Working on Walls project (WOW), a graduate biology degree program that seeks to increase students' professional networks to encourage broader career choices after degree completion. The entire project includes eight faculty members, three post-doc fellows, and eight graduate students. To enhance the collaboration and communication among the laboratory groups each of the graduate students and post-doc fellows are assigned a supervisor and a co-supervisor, and all graduate students are required to complete at least two rounds of lab-rotations prior to graduation. In addition, monthly meetings are held regularly in order for the WOW members to learn from each other's research progress.

In this study, a mixed method approach is used: data were collected via electronic surveys and interviews (i.e. with individuals and in focus groups). The survey data were visualized using UCINET (a social network analysis software package, Borgatti, Everett, & Freeman, 2002). Since the samples were not selected through a random process, significant tests were conducted based on the permutation re-sampling technique (cf. Moore, McCabe, Duckworth, & Sclove, 2003).

The results show that a summed affiliation matrix that includes supervisory, co-supervisory, and lab-rotation relationships is correlated significantly higher ($z = 1.94$, $p < .05$, one-tailed) than an affiliation matrix that denotes only supervisory relationships ($r = .45$ and $.26$ respectively, both $ps < .001$). While the analyses of the qualitative data and visualized social maps herald the possible effect of lab affiliation and power distance between two social nodes, a further regression analysis reveals these two factors in combination with the aggregated sociability of two social nodes are all relevant factors (all ps for predictors are less than $.001$) to predict the existence of a tie.

Keywords: social network analysis, higher education, collaborative learning, project evaluation, permutation technique

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