Academic performance and behavioral patterns

Identifying the factors that influence academic performance is an essential part of educational research. Previous studies have documented the importance of personality traits, class attendance, and social network structure. Because most of these analyses were based on a single behavioral aspect and/or small sample sizes, there is currently no quantification of the interplay of these factors. Here, we study the academic performance among a cohort of 538 undergraduate students forming a single, densely connected social network. Our work is based on data collected using smartphones, which the students used as their primary phones for two years. The availability of multi-channel data from a single population allows us to directly compare the explanatory power of individual and social characteristics. We find that the most informative indicators of performance are based on social ties and that network indicators result in better model performance than individual characteristics (including both personality and class attendance). We confirm earlier findings that class attendance is the most important predictor among individual characteristics. Finally, our results suggest the presence of strong homophily and/or peer effects among university students.

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