

Classroom Physiology: The Mechanics of Student Interaction in the Honors Classroom

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Introduction

- Prior research related to learning spaces has emphasized the static aspects (e.g., furniture, temperature, and lighting) as opposed to the dynamic aspects (e.g., interaction, collaboration, and engagement).
- By building on Koehler and Mishra's Technological Pedagogical Content Knowledge Framework (TPACK) with the notion of space, educational practitioners are able to gain further insight into teaching and learning.
- In order to visually represent interactions between and among students, in relation to space, a tool called social network analysis has emerged.
- Other educational researchers have begun to use social network analysis, but the topic remains in its early stages.

Purpose of the Study

- The purpose of the research study was to analyze the interactions that occur, in relation to space, among and between students in high-performing environments, such as an Honors classroom?

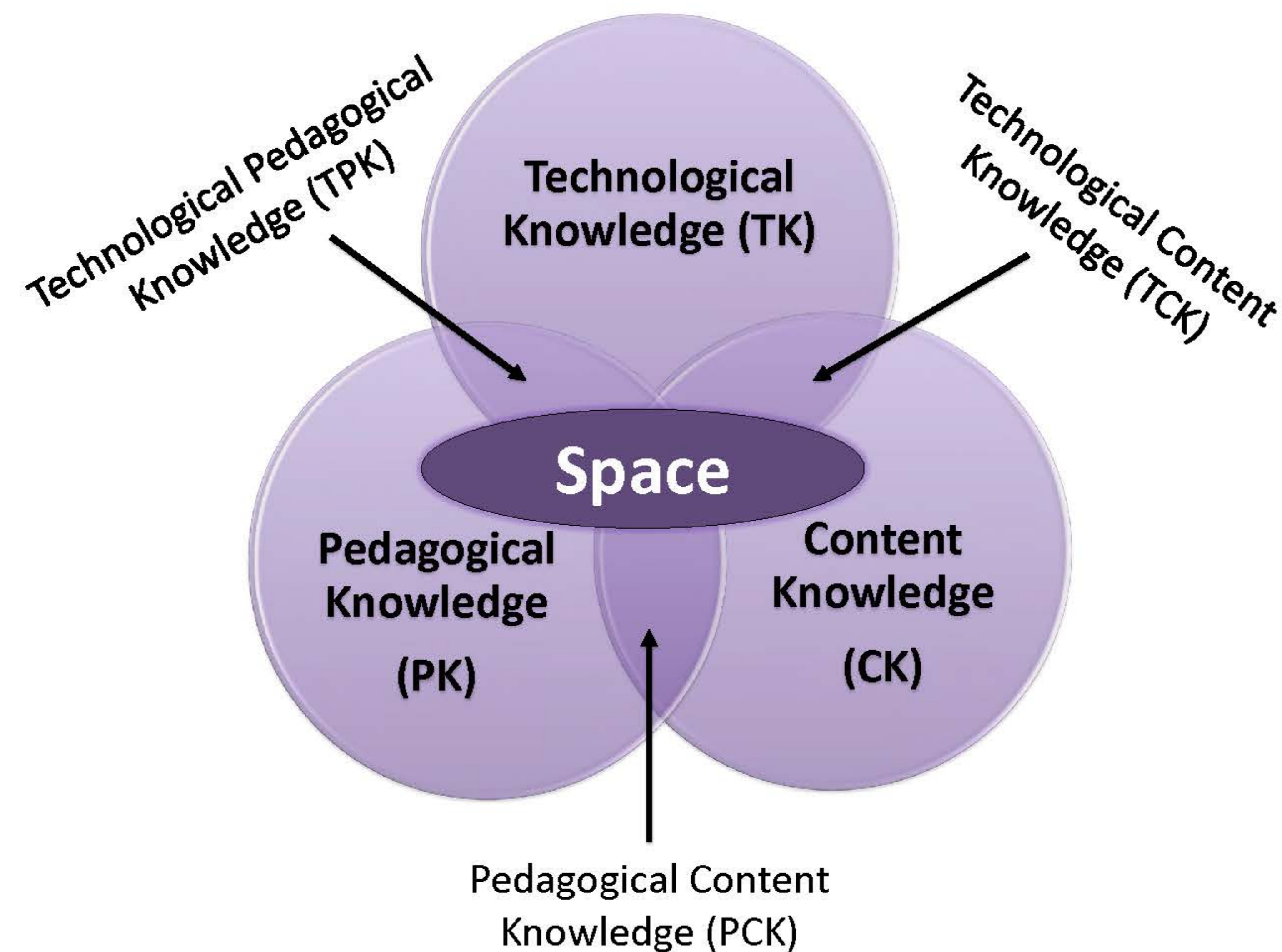
Research Question

- What is the role of space in student-to-student interactions in high-performing environments, such as an Honors classroom?

Methods

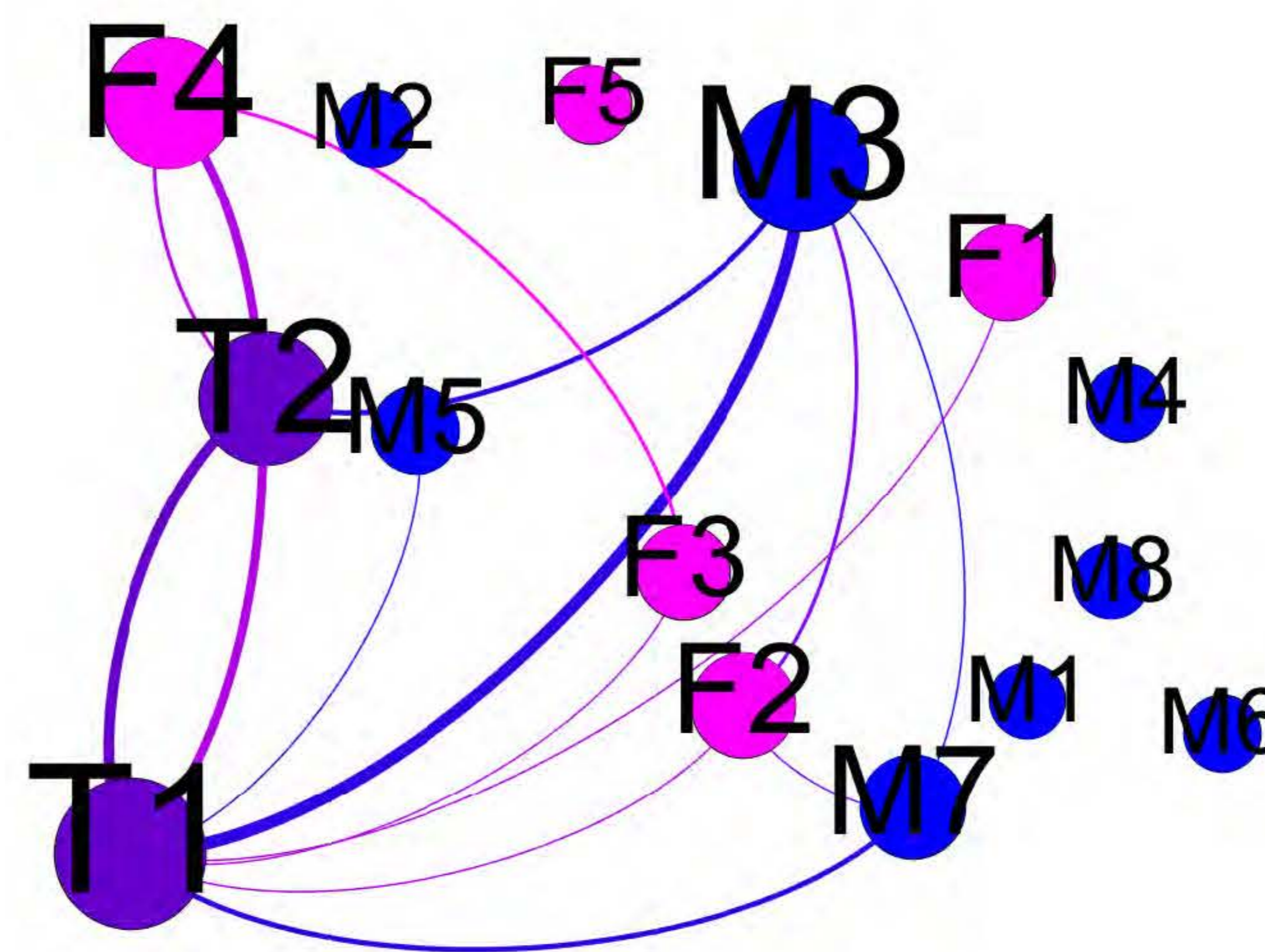
- The investigators used an observational approach by entering the classroom and viewing the interactions between and among the participants.
- The participants were Honors College students (n=14) from various majors at Tennessee Tech University. They were all either juniors or seniors. There were 8 male subjects and 6 female subjects. The age range of the subjects is 18-22.
- Each participant was given a code based on gender (M1, M2 . . . F1, F2).
- The investigators manually charted every interaction using the codes and a grid.
- Following the observation, the investigators inputted the interactions into a digital application called *Gephi* in order to perform a social network analysis.

Figure 1: Technological Pedagogical Content Knowledge (TPACK)



Results

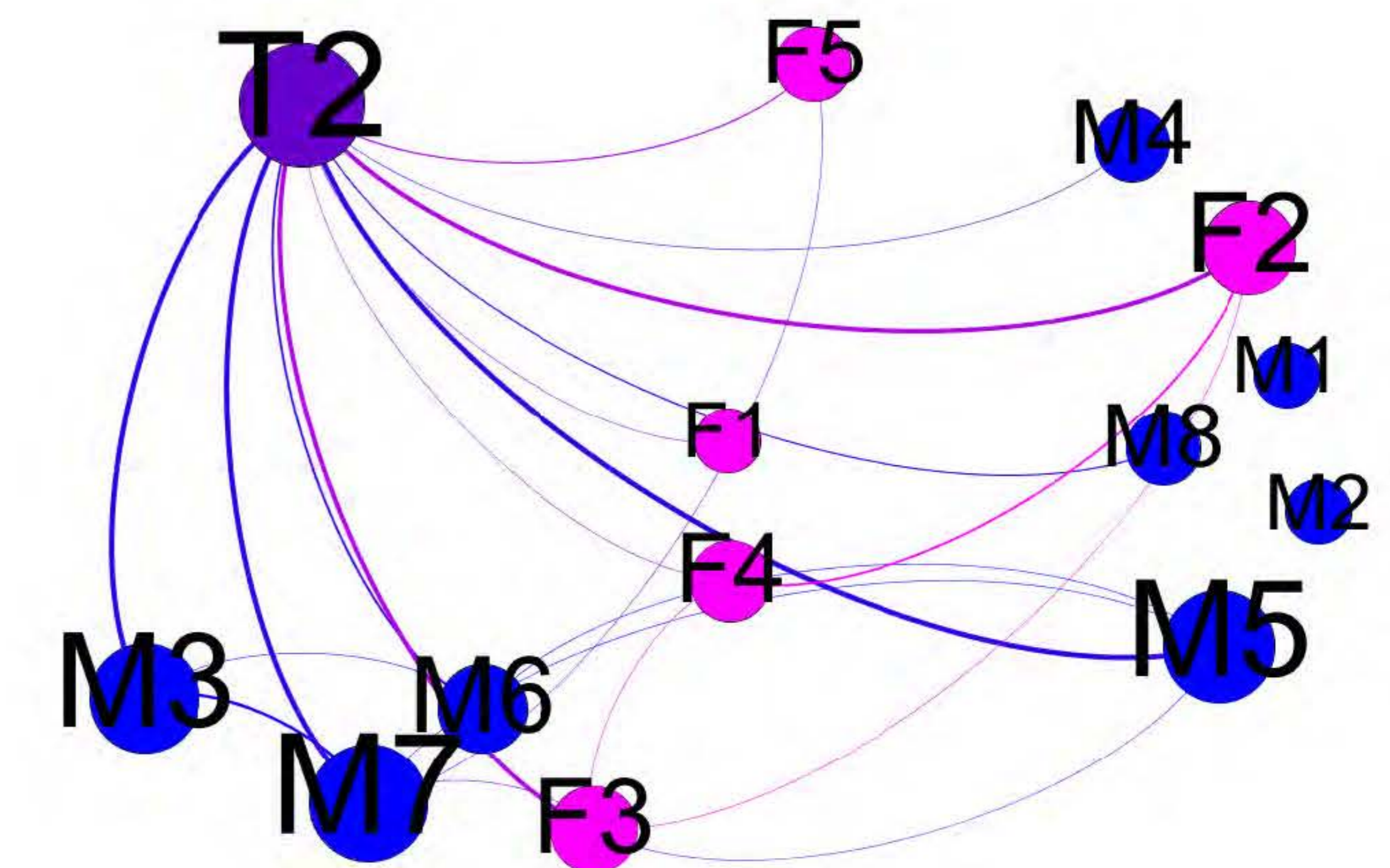
Figure 2: Social Network Analysis (First Half of Class)



Acknowledgements:

- A special thanks to the participants in the project. Each one contributed not only to the knowledge gained through the project but also to future ideas for research.
- Much appreciation and admiration is also directed toward Dr. Laura Cruz, who was the faculty advisor for the project.

Figure 3: Social Network Analysis (Second Half of Class)



Discussion, Conclusions, and Recommendations

- During the first half of the class, several participants (nodes) emerged as interacting the most: T1, T2, F4, M3, and M7.
- Among these participants, M3 is especially noteworthy due to the interactions with participants beyond the instructor.
- During the second half of the class, several participants (nodes) emerged as interacting the most: T2, M7, and M5.
- Among these participants, M5 is especially noteworthy due to the interactions with participants beyond the instructor.
- From the project, it can be concluded that social network analysis has the potential to serve as a viable tool for analyzing interactions in the classroom. It enables for educational practitioners to reflect on their practice in order to foster more collaboration and inquiry within learning spaces.
- For future studies involving learning spaces and social network analysis, several recommendations can be made: (1) increase the sample size, (2) spend more time observing, (3) expand beyond the Honors College, (4) compare learning spaces, and (5) compare instructional strategies.

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