

# Exploring Gender Differences in Perceptions of Undergraduate Mathematics Instruction

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Curriculum and instructional modality are not neutral—each reflects individual choices and disciplinary norms that may be experienced differently by students depending on their background and identity (Leyva et al., 2021). The current work is preliminary work exploring ways to measure the influence of students' gendered attributes on their perceptions of their experiences in undergraduate mathematics classes. In particular, we ask: (a) What characteristics of interactions in mathematics classes result in different responses based on the student's binary sex and (b) which gendered attributes of the students relate to students' responses to surveys about mathematics classroom instruction?

## Theoretical Framework

Gender is widely understood to be rooted in socialization, and we use it with this intent. Researchers have been attempting to unpack gendered attributes beyond the binary to understand the socialized tendencies associated with men and women. For example Stets et al. (2023) asked over 900 ethnically diverse undergraduate students about words in response to the phrases “Men usually are” and “Women usually are”. They found that 30% of the descriptors describing men could be categorized as showing agency. In contrast, over half of the attributes found to describe women could be categorized as communal or competent. Taken together, it is evident that the concepts of personality and gender are conflated. This has implications for math experiences as Alcock et al. (2014) found that personality had predictive power above binary sex for math achievement, particularly the characteristics of agreeableness and conscientiousness.

## Methods

A convenience sample of 67 students enrolled in undergraduate mathematics classes were surveyed via an electronically distributed survey link. The survey asked a battery of gender identification items and scales, including measures based on work by Stets et al. (2023). The survey also included slightly truncated versions of the “What Is Happening In the Class?” (WIHIC) questionnaire (Dorman, 2023) and the “Student Postsecondary Instructional Practices Survey in Mathematics (SPIPS-M)” (Apkarian et al., 2019; Creagar et al., 2022).

In order to answer research question 1, we used Kendall's W coefficient of concordance to determine if there are statistical differences in how males and females rate the mathematics class in the 6 subscales of the MCAQ. To answer research question 2, we looked at the correlations between the three gendered attributes and the 6 components of the MCAQ.

## Results and Discussion

A variety of suggestive but small or non-significant relationships were evident that warrant further investigation and which will be elaborated on in the longer poster format. For example, Agency (from one of our gendered attribute scales) had a negative correlation with Teacher-Student-Content Interactions and positive correlations with Student-Student and Student-Student-Content Interactions. Further studies with a larger sample size may result in significance and additional qualitative analyses are also warranted to unpack observed relations.

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