Exploring the Impact of Gender Bias on Pair Programming

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CCS CONCEPTS
• Software and its engineering → Pair programming
• Social and professional topics → Gender
• Applied computing → Collaborative learning

KEYWORDS
Pair programming, Gender bias, CS Education

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Participants will only communicate through text-based chat and a shared code editor. Inspired by Whiting et al. [12], participants will believe that they are paired with two different partners, but they will actually be paired with the same partner twice. Using gendered pseudonyms, pronouns, and avatars, we will deceive one participant to perceive their partner as two different genders across sessions. Between these sessions, participants will work alone in a solo session. Participants will answer survey questions after each session and after completing the study.

Our participants will be categorized into two groups: the “gender-deceived” group that believe they worked with two partners of different genders (Participant B in Figure 1), and the “bystander” group that believe they worked with two partners of the same gender (Participant A in Figure 1).

We will use code editor logs, chat logs, and self-rated survey results to probe different aspects of the pair programming experience. For instance, we can measure if “gender-deceived” participants rated perceived-female partners as less technically competent, causing them to write more code and make fewer uncertainty statements in the chat. We can also see if “bystanders” rate the session as less effective when this occurs.

We will run this study in two phases. The first phase will help us understand the impact and extent of gender bias in this setting; the second will use interventions designed to reduce biased behavior (e.g., explicit “skill level” visualizations), allowing us to measure their effectiveness. Understanding the efficacy of these interventions could create more equitable pair programming environments, helping to close the gender gap in CS.

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REFERENCES
Figure 1: Study design diagram.