A THEORETICAL FRAMEWORK FOR GENDERED MATHEMATICAL IDENTITY

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[Introduction]

- Japanese girls are less confident than boys in mathematics (OECD, 2015).
- However, there is little research to comprehend the phenomena from gender perspectives in Japan.
- This poster focuses on the climates of mathematics classrooms in which a student's identity as a mathematics learner is developed, which I refer to as ***mathematical identity***.

[Purpose] This poster aims to construct a theoretical framework for mathematical identity from gender perspectives.

[Literature Review & Theoretical Framework]

- The concept of mathematical identity has been defined operationally (Graven & Heyd-Metzuyanim, 2019).
- Some researchers argue that students' mathematical identities are negotiated dynamically (e.g., Hall, et al., 2018).
- The girls' beliefs and attitudes toward mathematics are found to be gendered as a male domain (e.g., Mendick, 2005).
- In a classroom, there are implied sex roles, and stereotyped expectation-response relationships within others**.** These "others" is resources to constructs one's gendered identity (Radovic, et al., 2017).
- This poster follow the model of Radovic, et al. (2017).
- To do so, I also pay attention to teacher' influences on students' identities through the instruction.
- Students' mathematical identities considerably depend on not only peer's relationships, but also student-teacher's relationship (Boaler, 2002).
- Students also have figured themselves, a teacher and peers in classroom, and mathematics from gender perspective (Radovic, et al., 2017; Mendick, 2005).

[Results & Discussion]

- I argue that ***gendered mathematical identity*** is supposed to have three elements; **'self', 'others (a teacher and peers)',** and **'mathematics',** which are gendered. Then, girls get conflicts between doing "math as a male domain" (= masculinity) and acting "me as a woman" (= femininity).
- These are all interacting with each other complementarily, even each of them are emerged respectively (Fig. 1.).

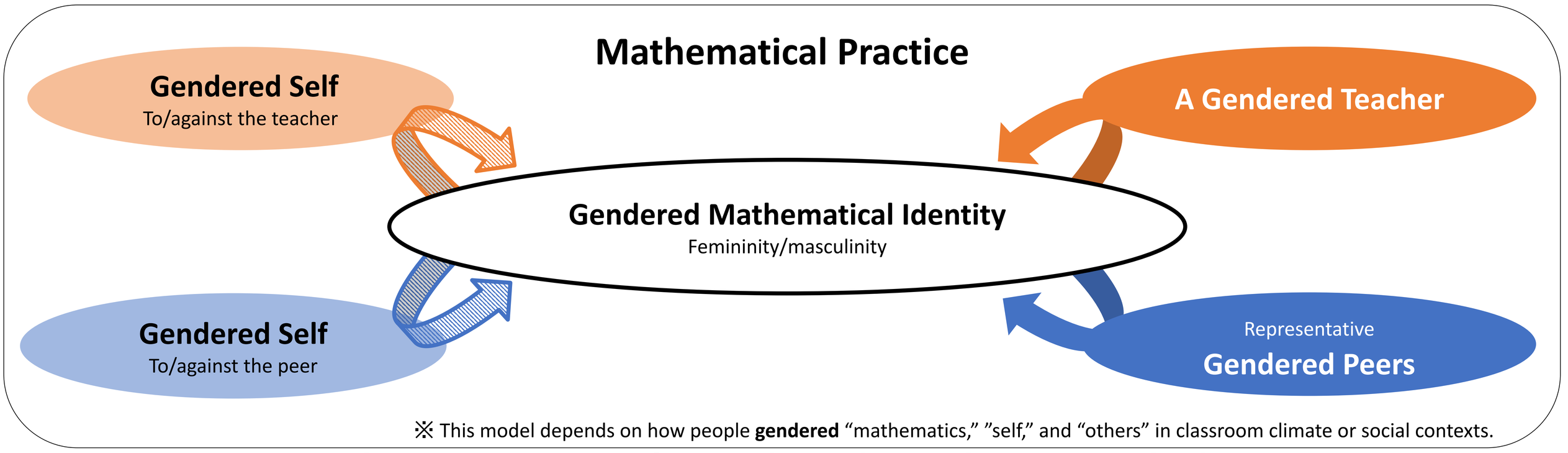

Fig. 1. The Structure of Gendered Mathematical Identities

- **To consider the nature of math gendered (e.g., *doing math is doing masculinity*) through the relationships in mathematics classroom.**
- **To categorize a curtain person in mathematical practice, what kinds of gendered character s/he has.**
  - *S/he* [Teacher] *is* ***a fe/male math teacher who has strong authority.*** (masculinity)
  - *S/he* [Peers] *is* ***a talented girl/boy at math.*** (masculinity)
- **To categorize own self in mathematical practice, what kinds of gendered character I have.**
  - *I am* ***a well-behaved leaner***. (femininity)
  - *I have* ***good skills*** *to solve problems fast.* (masculinity)
- **To recognize what the person think of me relating to gendered math.**
  - *S/he* [Teacher] *may expect* ***me as a compliant math learner***. (femininity)
  - *S/he* [Peers] *may recognize* ***me as a math competitor***. (masculinity)
- **To recognize what actually I think myself relating to gendered math to/against others.**
  - [To/Against Teacher] *I* ***follow her/his procedure to solve, but*** *I can do it* ***speedy and logically as men do***. (femininity ⇄ masculinity)
  - [To/Against Peers] *I need to* ***understand them deeply with my friends because not as talented as her/him***. (femininity ⇄ masculinity)

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