

The **Neurodivergent Scale for Interacting with Robots (NSIR)** (Sadownik, 2025) and the **Summary of Robot Gender Manipulation Studies** (Dennler et al., 2025) intersect to explain how specific design choices, such as a robot's gender and voice, affect the psychological safety and social connection felt by neurodivergent users.

The application of the NSIR to Dennler's research involves the following key areas:

1. Validating Identity Modalities (Voice and Appearance)

Dennler et al. (2025) identify that a robot's gender is reliably established through a combination of **voice** (identity/pitch) and **clothing** (appearance).

- **NSIR Application:** The NSIR measures the **Social Comfort, Trust, and Safety** that results from these design choices. For neurodivergent individuals who may be sensitive to sensory inconsistencies, the NSIR evaluates whether the modalities Dennler describes create a coherent, non-threatening identity.
- **Trust as a Metric:** Item 8 of the NSIR (*"I believe that my robot is the same with me as it is with anyone"*) serves as a validation check for whether the gendered persona remains predictable across different interactions, which is essential for neurodivergent social trust.

2. Anthropomorphic Connection and Gender Stereotypes

Dennler's research notes that users tend to imbue robots with human-like characteristics based on gender cues.

- **NSIR Connection:** The **Anthropomorphic Connection/Kinship** subscale of the NSIR (e.g., Item 1: *"The robot is more like me than anyone else I know"*) evaluates how successfully these gendered cues foster a personal bond.
- **Personalization:** Dennler's findings on how pitch modulates gender perception (DP1) allow for the "personalized gender" necessary to achieve the high kinship scores measured by the NSIR. For many neurodivergent users, a robot that "matches" their own gender or a preferred "safe" gender may lead to a greater sense of being "together forever" (NSIR Item 4).

3. Task Performance vs. Emotional Intelligence

Dennler's study highlights how gendered robots affect a user's willingness to undertake **challenging tasks**.

- **Emotional Safety:** While Dennler focuses on performance, the NSIR focuses on the underlying emotional state. NSIR Item 5 (*"My robot can tell what I am feeling"*) applies to Dennler's study by testing if a female-gendered robot—often perceived as "warmer"—is more successful in creating a supportive environment for cognitively demanding tasks than a male-gendered robot.
- **Judgment-Free Zone:** Because the NSIR is designed to measure interaction without the fear of social shame, it can be used to determine if the "gendered" robot designed by

Dennler provides a safer space for neurodivergent individuals to fail or struggle with a task compared to a human partner.

Summary: Relationship Between Frameworks

Goal	Robot Gender Manipulation (Dennler et al., 2025)	NSIR (Sadownik, 2025)
Primary Focus	Technical manipulation of gender cues (voice/clothing).	Psychological impact on neurodivergent social comfort.
Mechanism	Pitch modulation and clothing-task alignment.	Anthropomorphic connection and perceived kinship.
User Outcome	Increased motivation to perform challenging tasks.	Sense of safety and "shared thinking" (Item 3).
Design Rule	Identity must follow function for consistency (DP3).	Identity must be "predictable" to foster radical trust.