

Modeling Linguistic Variation and Adaptation: Insights for Environmental Sensitivity Research

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Motivation and RQ

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Research Gap

While environmental sensitivity's impact on emotional outcomes is well-documented, its **influence on language use and communicative adaptation remains under-explored** in contemporary linguistic research.

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Research Question

Do individuals with high versus low HSP levels demonstrate different **linguistic adaptation patterns** when responding to supportive versus dismissive interview contexts?

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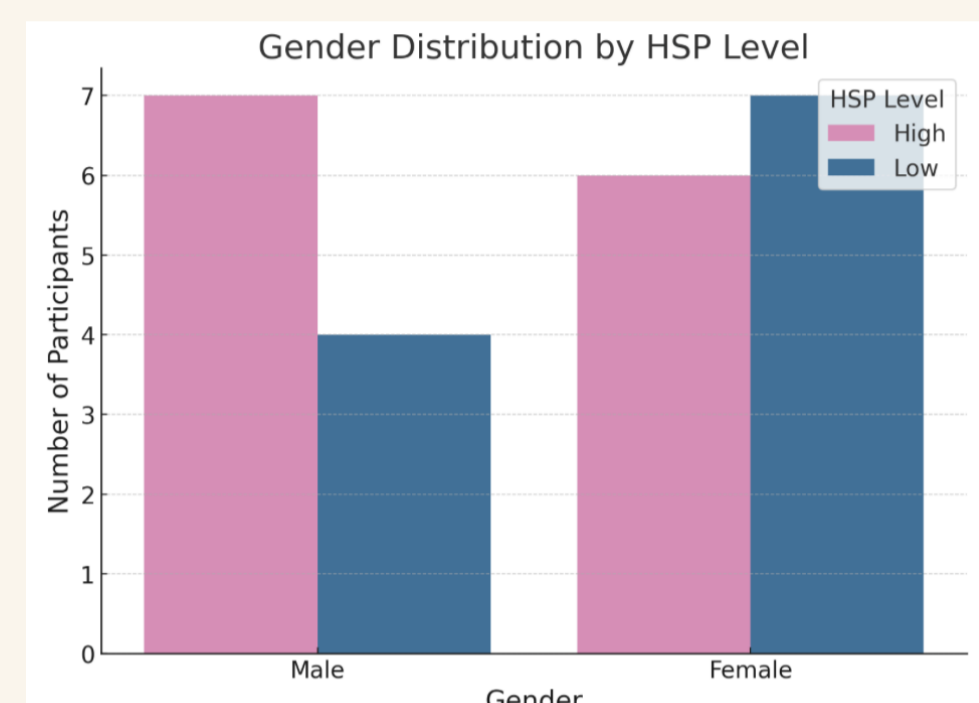
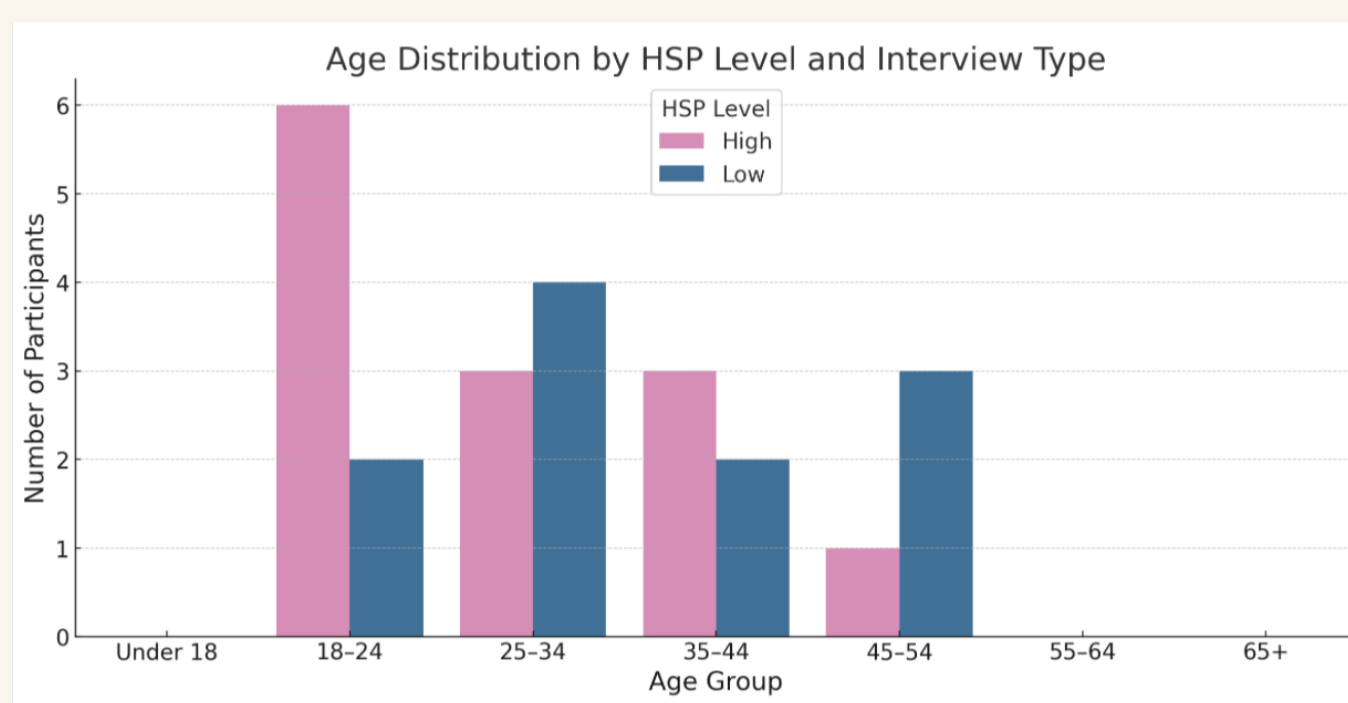
Hypothesis

We hypothesized that **high HSP individuals would demonstrate greater communicative flexibility and adaptation**, particularly in challenging (dismissive) environmental contexts that require more nuanced social navigation.

Methodological Approach

Participant Recruitment

Participants (N=24) were recruited via **Prolific** and completed a validated HSP questionnaire. Based on their scores, they were classified into high or low HSP groups using a median split methodology for comparative analysis.



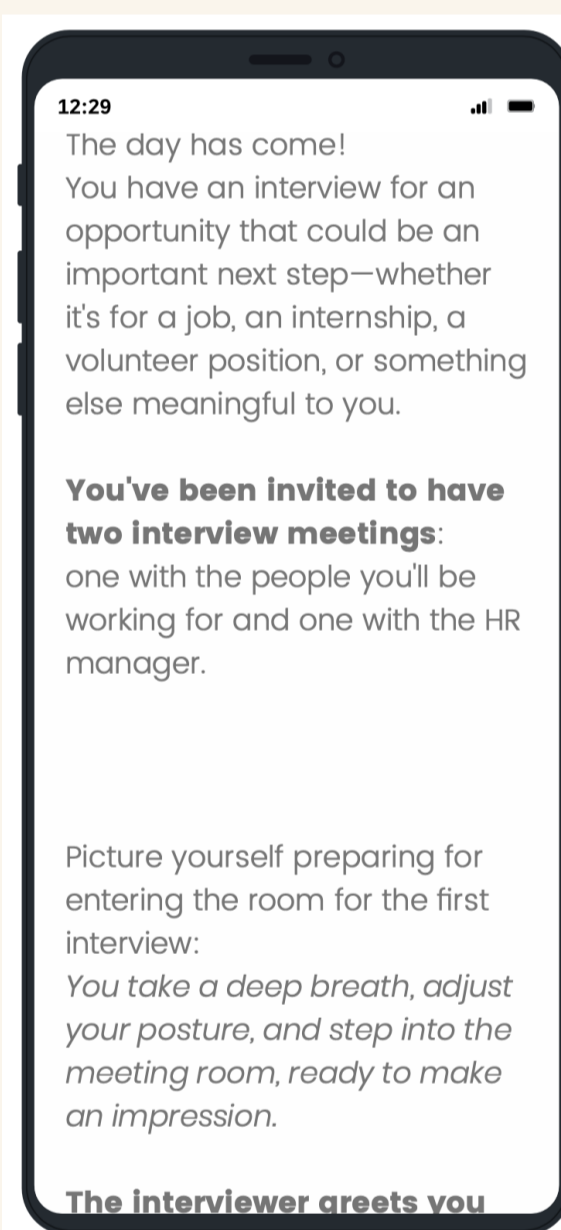
Experimental Design

Participants engaged in a **story completion interview simulation**, responding to open-ended prompts embedded in either **supportive or dismissive contextual environments** (between-subjects design).

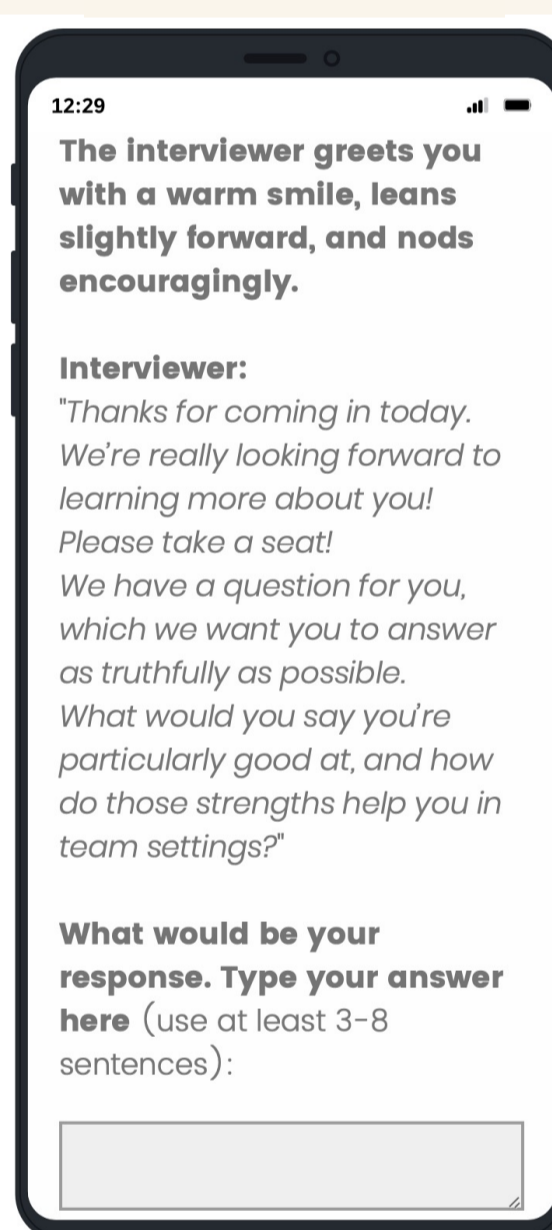
Data Collection

Textual responses were collected across four domains: self-description, advice-giving, conflict resolution, and reflective commentary. These diverse prompts elicited natural language across different communicative functions.

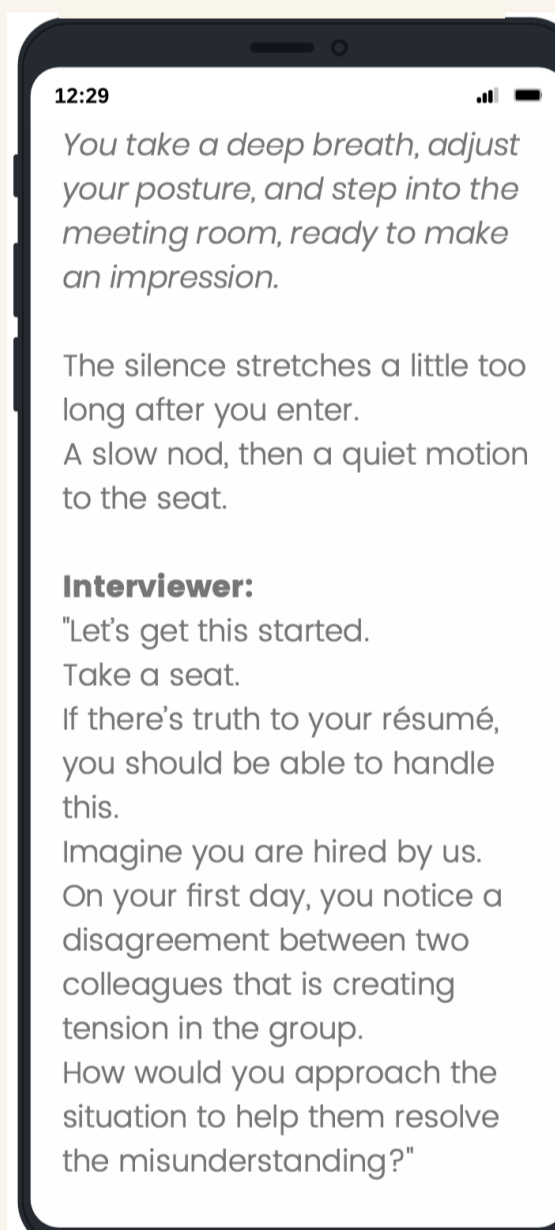
Introduction



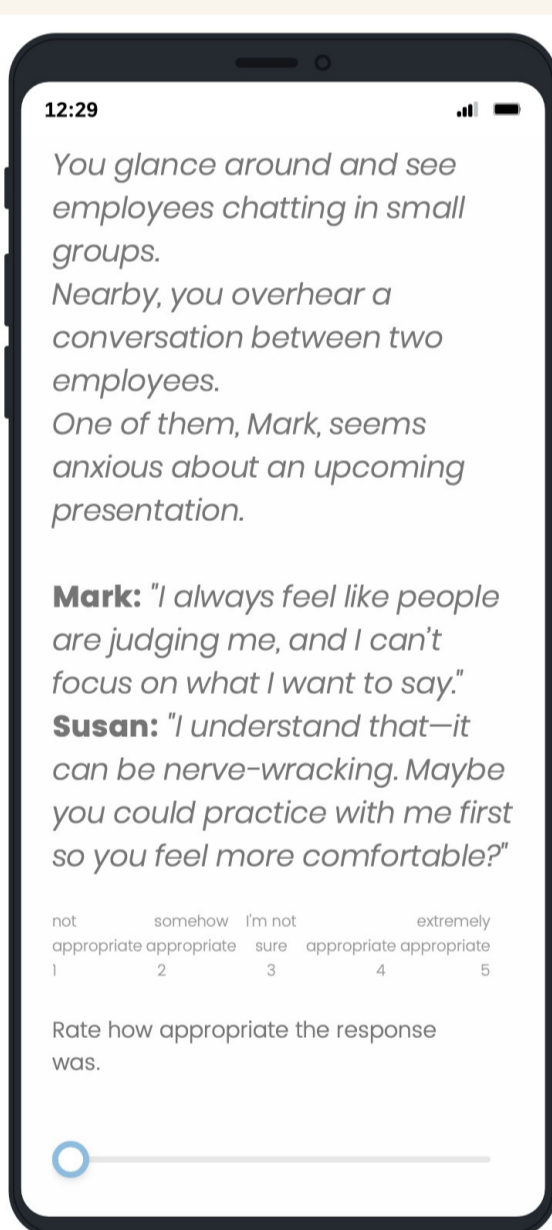
Supportive Interviewer



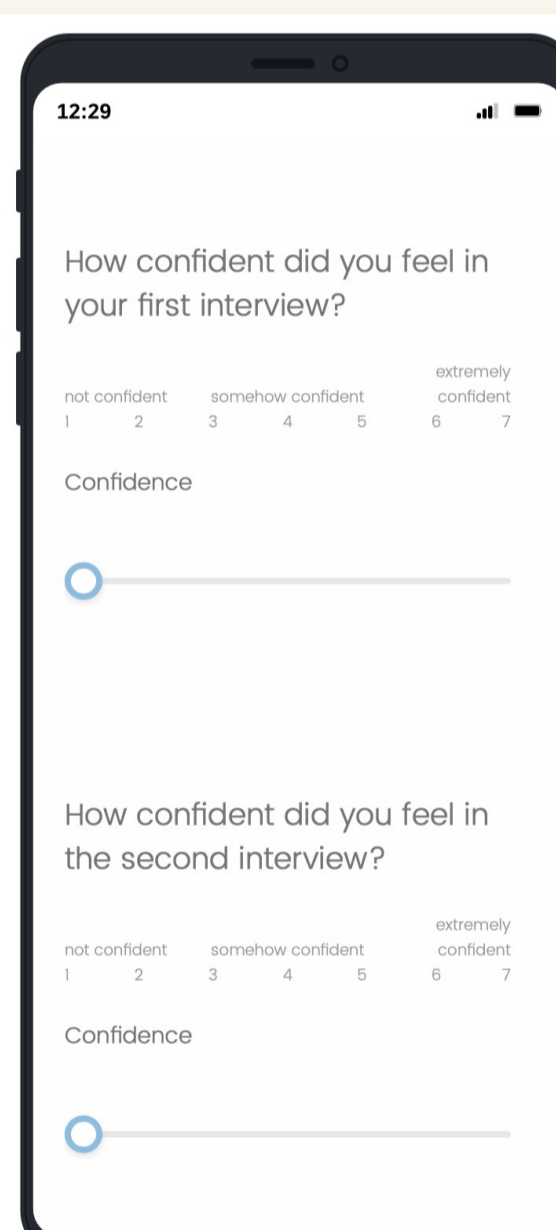
Dismissive Interviewer



Filler



Confidence



Linguistic Feature Extraction



Structural Features

Average sentence length to measure complexity and elaboration

Average word length for lexical sophistication



Lexical Features

Type-Token Ratio (TTR) for lexical diversity.

Lexical Density and Function vs Content words for lexical complexity

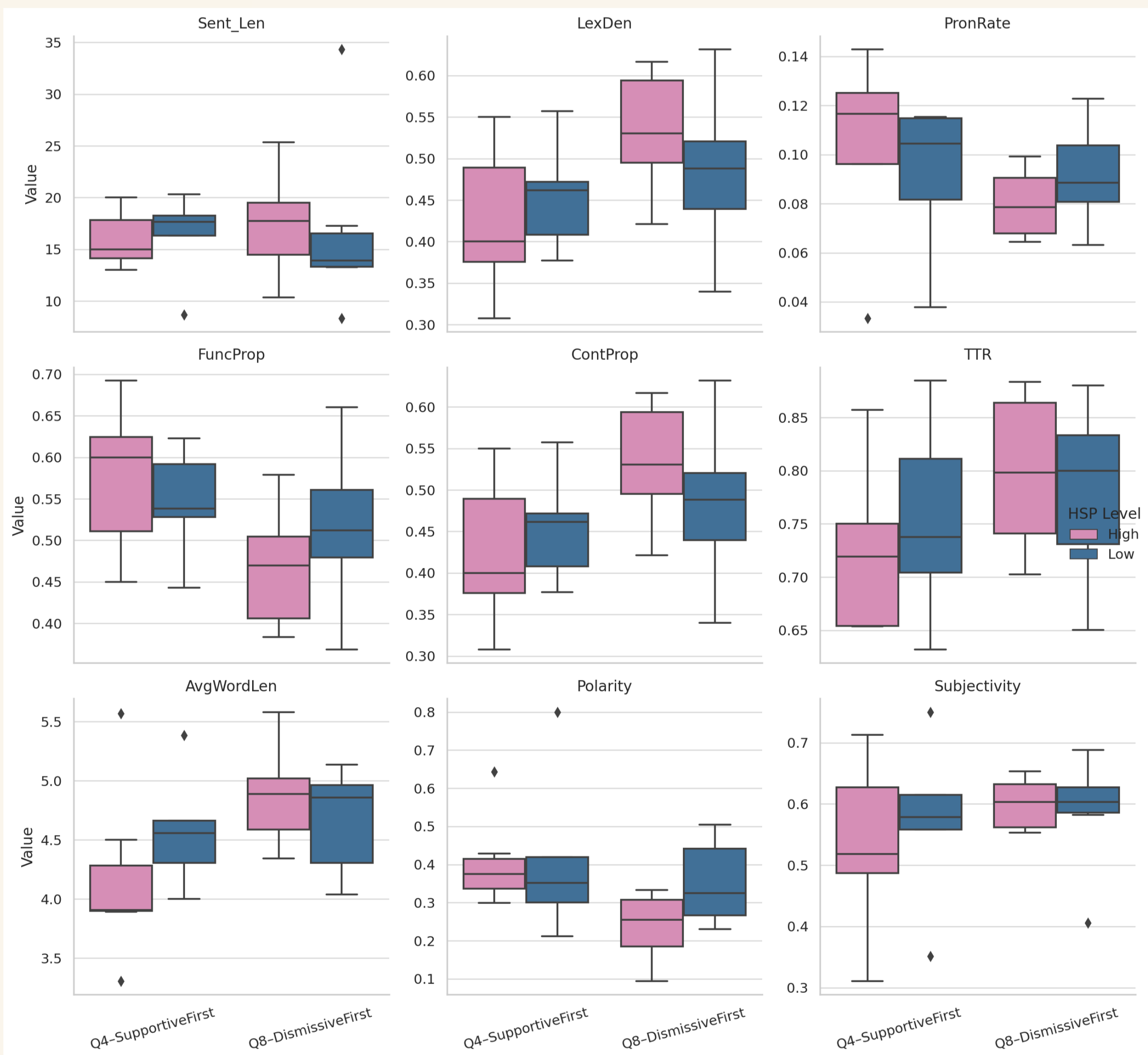
First-person pronoun ratio assessed self-referential tendencies and perspective-taking capacity



Affective Features

Sentiment polarity (scored from -1 to +1) for emotional valence, **Sentiment subjectivity** (scored 0 to 1) for degree of opinion expression in participants' responses.

Results



A **linear mixed-effects model** with random intercepts for participants, testing fixed effects of context (Q4 vs Q8), HSP sensitivity, and their interaction.

Feature	Effect Q8 (High HSP)	p-value	Interaction (Q8 x Low HSP)	p-value	Interpretation
Lexical Density	+0.106	0.009	-0.078	0.22	High HSPs adapt more lexically
Function Word %	-0.106	0.003	+0.078	0.051	High HSPs drop function words; Low don't
Pronoun Rate	-0.025	0.000	+0.026	0.19	High HSPs depersonalize in Q8
Content Word %	+0.106	0.009	-0.078	0.22	Mirrors lexical density pattern



Supportive Interviewer (first)

Thank you for the opportunity to interview with you. I am a good team player and I am always eager to learn. I always look at every day as a chance to learn something new. I enjoy working with others and contributing to the overall success of a team I am in.



Dismissive Interviewer (second)

I would first ask each of them what has transpired separately. After learning each side of the story, I would request that we have a sit-down with them and tell them what I understand about the situation. I would then suggest each of them to compromise and settle on a middle ground. If this doesn't work, I would settle the issue by referring to the company's employee handbook.

Dismissive Interviewer (first)

Thank you for the question. If I noticed a disagreement between two colleagues creating tension in the group, I would first ensure try to approach the situation with calmness and neutrality. My first step would be to speak privately with each colleague and listen to their perspectives so that I can understand the root of the disagreement.

After gathering both sides, I would create a conversation between the two. I will make sure the conversation is open and respectful. I'd focus on finding common ground and helping them understand each other's viewpoints. If necessary, I would also involve a supervisor or HR to provide further guidance and ensure the situation is addressed professionally. Ultimately, my goal would be to help the team move forward by restoring trust and improving communication among the colleagues.

Supportive Interviewer (second)

Thank you for the question. One of my strengths is my ability to listen actively and communicate clearly. In team settings, this helps me understand the needs and perspectives of my members. This also ensures that everyone feels heard and valued. I'm also good at problem-solving, which allows me to contribute to finding creative solutions when challenges arise. I like to offer new new approaches to different situations and I also like collaborating to refine an idea. I enjoy bringing a constructive mindset to the table. My ability to stay calm under pressure also helps keep the team focused during stressful situations. Overall, I believe my strengths help create a positive, open environment where everyone can work together effectively.

Supportive Interviewer (first)

I am very good at connecting with people and adapting my communications to be efficient in every interaction I have. I know exactly how to talk to people to accomplish whatever the goal may be. I am a professional people person and this strengthens me in team settings because I am always able to connect with everyone present on some level.

Dismissive Interviewer (second)

I would approach them and, after discerning what the disagreement is about, offer to help in any way I can. If it was a misunderstanding, I would suggest that they both calmly take turns repeating what they meant to say and see if they can find some common ground there. I would try to remind them that it is better if we all try to resolve our conflicts and work together because otherwise it can lead to grudges being held and make all of our jobs a lot harder.

Dismissive Interviewer (first)

I'll try to calm the situation by stopping them from arguing. I'll then let them explain their problem one by one. Then I'll settle their disagreement by ensuring everybody is contented.

Supportive Interviewer (second)

Thank you for the opportunity. I'm a good team player. I always listen to other people's opinions as well as giving out my own opinions. Also I've done business managerial and by this I'm very competent leader and a good role model I can handle pressure or arguments from my colleagues with ease.