Relative Encounters: Height Anchoring Effects Across Sequential Robot Encounters

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***Abstract*— As robots become increasingly integrated into everyday environments, people are likely to experience more than a single encounter with one robot. In such contexts, responses to a robot may depend not only on its absolute attributes but also on how it is perceived relative to previously encountered robots. Drawing on anchoring theory from psychology, we examined whether the impact of a robot's height is relational and shaped by prior interactions. We focused on the robot's height, as this attribute has been shown to influence humans' responses to robots, particularly their compliance with a robot's request. We used a modular service-table robot that could be configured as either *Short* or *Tall*. Participants experienced two consecutive interactions. The first *Anchor* robot delivered materials required for the experiment. After participants completed a computerized task without a robot present, another *Target* robot approached them and made a voluntary request to complete a 300-item questionnaire. We measured compliance with the *Target* robot's request as a function of its height (*Short/Tall*) and its relation to the *Anchor* robot (*Same/Different*). Results revealed that compliance was shaped by the relative context rather than by absolute height alone. Participants complied more with a *Short Target* than with a *Tall Target*. Critically, this effect was significantly amplified when the *Target* robot followed a robot of a different height. These findings suggest that height effects in HRI are relational and subject to anchoring effects across sequential encounters, highlighting the need to move beyond single-robot paradigms and consider how the relative perception of design features shapes robots' social influence.**

I. Introduction

The growing integration of robots into everyday contexts, fulfilling a wide range of roles in environments such as services, workplaces, and homes, makes it essential to map their impact on humans sharing these environments [1], [2]. In addition to designing robots that are functional and easily accepted [3], [4], attention should also be given to the social impact robots have on the people who interact with them. Prior work suggests that apart from carefully constructed robotic behaviors, the robot's design may also have a significant impact on its perception and the interaction outcomes [5], [6], [7]. It is already well established that people respond differently to robots that have different colors [5], feminine versus masculine designs [6], and different movement styles [7], [8]. Interestingly, the impact of these design features is often social, mirroring processes observed in human–human interactions (e.g., race and gender biases [9], [5]). Robot height has recently been identified as one such design feature that can shape social outcomes [10]. As in human–human interactions [11], [12], [13], studies evaluating interactions with robots have demonstrated that robot height can lead to insecurity [14], increased compliance [15], [10], and shape trust [16].

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Fig. 1. Interacting with robots of different heights.

While these studies mapped the impact of robot height, they typically treated it as an absolute attribute. However, previous studies from the psychology domain show that height judgments, like other perceptual estimates, can also be biased by relative reference points [17]. Such relative perception is known as the anchoring effect, a well-documented cognitive bias in psychology, describing the tendency for judgments to be shaped by previously encountered information that serves as a point for comparison [18], [19], [20]. Although anchoring has mainly been studied in numerical estimation tasks, such as judging prices or ages, it has also been observed in judgments of physical attributes such as height. These biased estimates can further shape social perceptions, as physical attributes influence how social characteristics such as competence, authority, or status are evaluated [20]. Accordingly, the anchoring effect, which influences the perception of physical attributes, can further shape the attribute's social impact and associated responses [17], [19]. In the specific case of height, psychology studies indicated that it is not judged in absolute terms but rather relative to the heights of those encountered beforehand (i.e., an anchor [18], [17]). The relative perception of height further shapes social outcomes. For example, individuals perceived as taller after encountering a shorter individual were judged as more competent than others [11]. These findings suggest that height is often evaluated through comparison rather than in absolute terms, and that these comparative perceptions can carry social consequences.

With previous indications that human biases are also applied to interactions with robots [9], [5], [6], [7], it is possible that the height of a target robot may be judged relative to the height of similar robots encountered beforehand. Such anchoring effects leading to a relative perception of robot height may carry social consequences. Hence, the social qualities attributed to a robot on the basis of its height may be shaped by its relative perception. As robots become more common, the likelihood of sequential encounters with robots increases [21]. Such cases may present novel robotic influences due to anchoring effects, which may result in different patterns than those observed in a single interaction with a single robot.

We therefore evaluated whether sequential interactions with robots of different heights would influence social interaction outcomes. We hypothesized that such interactions would intensify the social impact typically associated with the robot's height. Specifically, we predicted that participants' tendency to comply more with a *Short* robot's request in comparison to a *Tall* robot's request [10] would be intensified if participants had previously interacted with a robot of a different height. By manipulating the robot's height and whether it was similar to or different from the height of a previously encountered robot, we examined whether the sequential experiences would shape social responses. We used (with permission [10]) a modular robotic service table that allowed us to manipulate its height while keeping all other aspects of appearance and behavior consistent (see Figure 1). The platform was composed of stackable units, allowing it to be configured as either a *Short* or *Tall* robot. To examine height anchoring effects, participants engaged in two consecutive interactions. In the first encounter, the *Anchor* robot (*Short* or *Tall*) requested completion of questionnaires required for the experiment. In the second encounter, the *Target* robot (either the *Same* or *Different* height as the *Anchor* robot) presented a voluntary request to complete a 300-item questionnaire. We compared compliance across conditions to examine whether a robot's relative height influences social interaction outcomes, with compliance measured as participants' willingness to engage with the *Target* robot's request.

II. Related Work

Relevant studies in HRI have examined the impact of a robot's height, compliance with robots' requests, and the impact of consecutive interactions with robots.

A. Influence of robot height

Previous HRI studies have produced mixed findings on how robot height shapes perception and interaction outcomes [15], [14], [22], [23], [24], [25]. Some work has reported effects consistent with human–human dynamics, where greater height is associated with authority and competence [15], [22]. For example, Rae et al. (2013), who studied compliance with requests presented by operators of telepresence robots, found that taller robots enhanced the operator's perceived persuasiveness, while shorter robots reduced it [15]. Similarly, Walters et al. (2009) showed that taller humanoid robots were attributed more positive traits such as conscientiousness, whereas shorter robots were perceived as less reliable and more neurotic [23]. Other research has pointed to the opposite effect, indicating that people may prefer shorter robots. Hiroi and Ito (2016) found that participants favored conversations with robots that did not reach their eye level [22]. Likewise, Joosse et al. (2021) reported that shorter robots were perceived as safer and more comfortable to interact with [24]. Similarly, Faber et al. (2025) showed that participants exhibited higher compliance with requests from a short (rather than tall) non-humanoid robot, which they described in more positive terms such as ”cute” and ”likable” [10]. Taken together, these findings suggest that in HRI, height has a social impact that may diverge from human–human interactions, with people often preferring short over tall robots. Notably, these studies did not consider the relative perception of a robot's height and its possible impact.

B. Compliance with robots' requests

The conditions under which people comply with robots' requests have been examined in prior research [26], [27], [28], [29]. Features such as the robot's emotional expressions [30], [31], its adherence to social norms [32], the social role it holds [33], the persuasive strategy it applies [34], and its physical appearance [35], [10] have all been shown to influence compliance [32], [36], [37]. For example, Moshkina (2012) demonstrated that affective cues such as nervousness or fear increased compliance with evacuation instructions by prompting faster responses [38]. Similarly, Wills et al. (2016) reported higher compliance with donation requests when delivered by a robot exhibiting responsive gaze and facial expressions, compared to a robot that did not respond socially [39]. The robot's social framing has also been shown to matter. Saunderson and Nejat (2021) found that participants were more willing to follow a peer-like robot's requests than those of a robot framed as an authority figure [33]. Together, these studies indicate that compliance with robots depends on behavioral, social, and design features. However, most of this work has examined single-robot interactions, leaving open how such effects unfold across multiple interactions, where people may form relative perceptions of robots' attributes.

C. The impact of consecutive interactions with robots

While HRI research has examined how general experience with robots shapes perception [40], [41], sequential encounters occurring within the same context have received less attention. The few studies addressing such scenarios mainly focused on “person transfer” cases, in which participants interact with one robot and are then directed to another [42], [43], [44], [21]. For example, Tan et al. (2019) examined how transitions between robots influence users' perceptions during a handover. In their study, a stationary robot summoned and introduced a mobile robot that continued the interaction with the participant. The authors found that the manner in which the first robot introduced the second influenced how the latter was perceived, with socially mediated introductions leading to higher ratings of the robot's warmth and likability. In a later field study, Tan et al. (2024) investigated sequential interactions between two robots in real-world service settings. Participants initially interacted with one robot, which then directed them to continue the interaction with another. The study showed that expectations and trust formed during the first encounter influenced responses to the second robot, indicating carryover effects across sequential interactions. While these studies highlight perceptual carryover effects across robots, the role of relative judgments has not yet been directly examined.

III. METHOD

To examine the effect of consecutive interactions with robots of different heights on compliance, we designed an experiment involving two encounters with robots. Participants were instructed to perform a computerized task. Before receiving the task, they interacted with a robot that brought the experiment's demographics questionnaire. This interaction introduced the *Anchor* robot, which was *Short* or *Tall*. It was clarified that this part of the experiment was mandatory and that the robot was providing materials as part of the experiment's procedure. This encounter established the reference point for the subsequent interaction. Participants then performed the computerized task, and as they completed it, the experimenter informed them he would briefly step out to collect their participation credit. It was clarified that the experimental procedure had been completed successfully and that there were no further requirements. During this interval, the second *Target* robot (*Same* or *Different* height as the *Anchor* robot) entered the room and invited participants to voluntarily complete a 300-item questionnaire. We compared compliance across the different conditions to assess whether a prior encounter with a robot of a different height could mediate the effect of the *Target* robot's height.

A. *The modular robotic platform and behavior design*

The study used (with permission) a modular robotic table configured at two heights (see Figure 1). The *Short* configuration consisted of a base, a single body module, and a top unit, reaching 95 cm, whereas the *Tall* configuration included an additional body module, reaching 132 cm. Both versions shared the same neutral design: a black base, white modules, a cubic form with rounded corners, and a tray-like top carrying a tablet. We chose this robot as previous work indicated that its height impacts compliance [10]. This allowed us to examine how this effect may be influenced by sequential encounters and relative height. In addition, using a highly non-humanoid robot can inform the HRI community about the phenomenon's scope. While anchoring bias may be expected in interactions with humanoid robots, its social impact may be overlooked with non-humanoid ones. The robot was operated using a Wizard-of-Oz setup with a Sony PlayStation 4 controller. In all interactions, the robot entered the room, paused briefly as if scanning for people, and then, after "spotting" the participant, moved forward to stop approximately 110 cm away. Its exit routine included backing up slightly, turning, and then moving toward the room's exit.

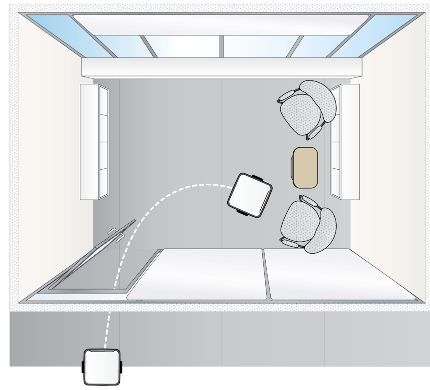

Fig. 2. The experiment room settings and the robots' route.

B. *Participants*

Eighty undergraduate students participated in the experiment (60 female, 20 male; M = 23.6 years, SD = 2.9, range = 18–31). Participants were recruited from the university's Communication, Psychology, and Computer Science departments. All provided informed consent before participation. As compensation, they received either additional course credit or a shopping voucher.

C. *Experimental settings*

The experiment was conducted in a dedicated lab room furnished with two armchairs (seat height of 42 cm) and a small side table beside the participant's seat (see Figure 2). Participants remained seated throughout the experiment to minimize height-related variance, control the interaction context, and verify that, when seated, the *Tall* robot was taller than all participants. This also ensured that in both the *Tall* and *Short* robot conditions, the tablet was in the participant's direct visual field. During the task phase, a laptop was brought into the room and positioned on the small side table for participants to complete a cognitive task. After finishing the task, participants were instructed to return the table to its original side position (ensuring the robot could approach unobstructed). A camera at the far end of the room allowed the researcher to operate the robot remotely using the Wizard-of-Oz setup.

D. *Experimental design*

The study employed a 2 × 2 between-participants design with two factors: (1) the height of the *Target* robot (*Short* or *Tall*); and (2) whether this height matched or differed from the preceding *Anchor* robot's height (*Same* or *Different*). This resulted in four experimental conditions in which participants were asked by either a *Short* or *Tall* robot to voluntarily complete a 300-item questionnaire after a previous encounter with a robot of either the *Same* or a *Different* height (see Figure 3). Notably, condition labels reflect the *Target* robot's height and its relation (*Same* or *Different*) to the *Anchor* robot's height. Thus, the *Tall-Different* condition represents an interaction with a *Tall Target* robot, preceded by an interaction with a *Short Anchor* robot (see Figure 4). To avoid

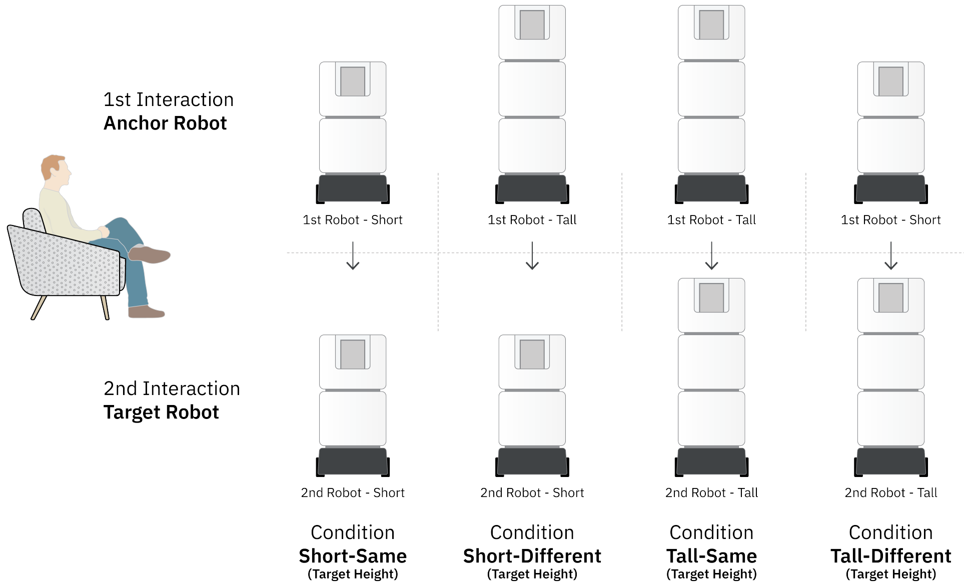

Fig. 3. Experimental design

pre-existing group differences, participants were randomly assigned to the four conditions using a matching procedure balancing height, gender, tendency for agreeableness [45], and Negative Attitudes Toward Robots (NARS) [46].

E. Measures

We used quantitative and qualitative measures to assess the impact of the consecutive encounters.

1) Compliance: To measure participants' compliance with the *Target* robot's request, we counted the number of questions participants agreed to answer (providing participants with the option to quit and submit their answers after every 25 questions or continue to the next page).

2) The Robotic Social Attributes Scale (RoSAS): After the experiment, participants completed the RoSAS questionnaire for both the *Anchor* and the *Target* robots, assessing their perceptions of each. The questionnaire is a 9-point Likert scale, ranging from 1 (”low”) to 9 (”high”), and comprises three subscales: warmth, competence, and discomfort [47].

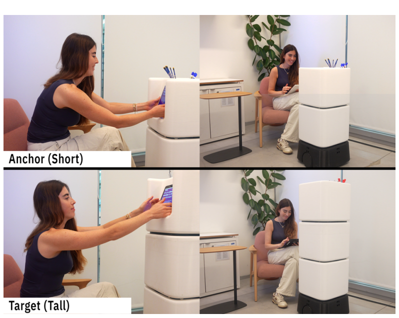

Fig. 4. *Tall–Different* condition: *Short Anchor* robot followed by *Tall Target* robot.

3) Semi-structured interviews: At the end of the experiment, participants completed a semi-structured interview designed to capture their thoughts and attitudes [48]. Questions focused on their experience with both robots and their preferences (e.g., ”Describe your experience.”; ”Some people preferred the robot they met at the first encounter, some preferred the robot in the second, and some had no preference. What are your thoughts?”).

Notably, to maintain ecological validity and avoid priming effects, we intentionally omitted a direct assessment of the subjective perception of height. We reasoned that explicitly probing participants about the robot's height would draw undue attention to the experimental manipulation and potentially influence their behavioral responses. Since our objective was to evaluate how relative height influences the natural tendency to comply with a robot's request, we measured compliance directly. This approach more accurately reflects potential daily situations where individuals would encounter robots of varying heights sequentially without being prompted to consciously evaluate physical dimensions.

F. Procedure

Several days before the experiment, participants received pre-test questionnaires by email (Agreeableness and NARS). When they arrived at the lab and before entering the experiment room, participants were told that because this was a research lab, they might be approached and asked to voluntarily complete questionnaires. They were explicitly informed that volunteering was optional and not part of the experiment. After sitting in the assigned armchair in the experiment room, participants were told a robot would soon enter carrying a tablet with a short questionnaire. It was

Fig. 5. The *Target* robot's invitation to voluntarily complete a questionnaire.

emphasized that this questionnaire was part of the experiment and they were required to complete it. They were also told that the researcher would bring a laptop they would use to complete the main task. The researcher then left the room to bring the laptop, and the *Anchor* robot entered with the demographics questionnaire. After the participant returned the tablet to the robot's top module, the robot exited. The researcher returned with the laptop and asked the participant to move the side table closer for comfort. The laptop was placed on the side table, and the participant was asked to complete a Stroop task. The task lasted about 8–10 minutes and involved naming the ink color of color words. The Stroop task was presented as the main task of the experiment to create a clear sense that once completed, the experimental requirements were fulfilled. This framing allowed the next interaction with a robot to be perceived as outside the experiment's formal requirements and therefore voluntary and unnecessary. After the Stroop task, the researcher collected the laptop, asked the participant to return the table to its original position, and explained that the experimental task was completed. The researcher added that participation credits were in another room and left to retrieve them. At that point, the *Target* robot entered carrying a tablet displaying a request to voluntarily complete a 300-item questionnaire (see Figure 5). If the participant picked up the tablet, the robot stayed in place until it was returned. At the end of the interaction, the robot moved backward and exited. The robot used no communication cues other than its movement and the text shown on the tablet screen. The time between the *Anchor* and *Target* robot interactions was approximately 13 minutes. After the robot exited, the researcher returned and asked participants to complete the RoSAS questionnaire, which was followed by a semi-structured interview. Finally, participants were debriefed and thanked, ensuring they left on a positive note.

IV. Analysis

While our primary analyses employed standard ANCOVA procedures, we utilized Bayesian ANOVA (simple Cauchy prior) analyses for the pre-tests (NARS and Agreeableness) and participants' height to verify no initial differences between groups. This approach was selected because it enabled us to derive statistical support for the absence of an effect rather than merely failing to reject the null hypothesis, as is the case with traditional ANCOVA. Our main analyses evaluated the impact of two factors: (1) the *Target* robot's height; and (2) its similarity to the height of the robot in a previous encounter (*Anchor* robot). Using a two-way ANCOVA, we tested the influence of the two factors on two dependent measures: (1) compliance, indicated by the number of questions participants voluntarily answered out of the 300-item scale; and (2) RoSAS. We used the participants' height as a covariate in all analyses. The interviews were analyzed using thematic coding [48]. Three researchers transcribed and reviewed all interviews, independently identified recurring themes, and discussed inconsistencies until reaching agreement on a coding scheme. To establish and verify inter-rater reliability, the researchers then analyzed a subset of the interviews (Kappa = 81%). The remaining data were subsequently coded.

V. Findings

The Bayesian analysis indicated no early differences between conditions (NARS: $BF_{10} = 0.21$; Agreeableness: $BF_{10} = 0.27$; Participant height: $BF_{10} = 0.1$). Our main analyses indicated an anchoring effect, which enhanced the impact of height on compliance.

A. Compliance

The two-way ANCOVA analysis revealed a significant interaction between the *Target* robot's height and its similarity to the *Anchor* robot's height, $F_{(1,75)} = 4.08$, $p = 0.05$. Planned post-hoc contrasts showed that under the *Same* height condition, participants agreed to answer more questions when the *Target* robot was *Short* compared to *Tall* ($p_{contrast} = 0.05$). This height impact was also observed in the *Different* height condition ($p_{contrast} < 0.005$); however, under this condition, it was significantly larger ($p_{contrast} < 0.001$) (see Figure 6). The main effect of the *Target* robot's height was also significant, $F_{(1,75)} = 12.73$, $p < 0.001$. The

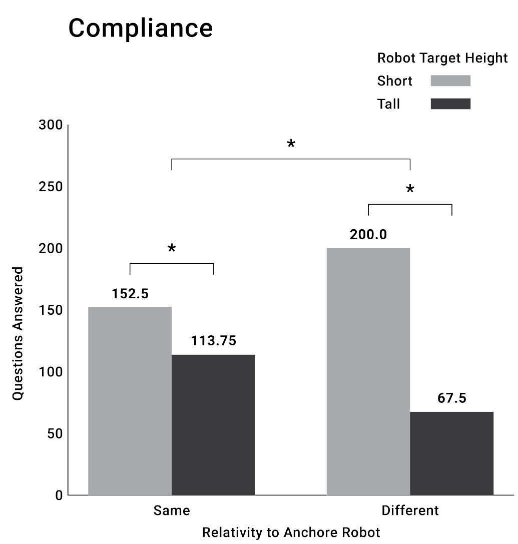

Fig. 6. Mean number of questions answered across conditions.

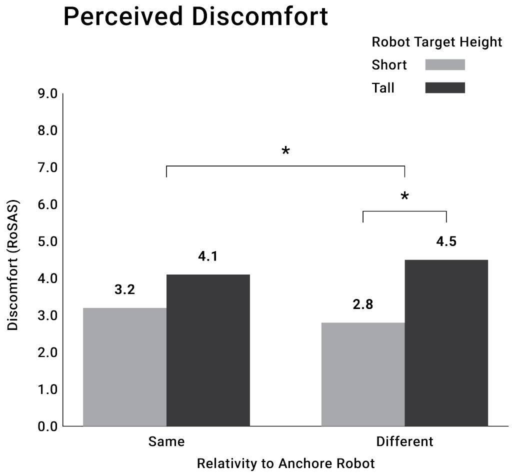

Fig. 7. Mean discomfort ratings across conditions.

similarity to the *Anchor* robot's height revealed no significant differences ($F_{(1,75)} = 0.94$, $p = 0.83$).

B. The Robotic Social Attributes Scale (RoSAS)

A similar pattern was observed in the Discomfort subscale of the RoSAS questionnaire. The two-way ANCOVA analysis revealed a significant interaction between the *Target* robot's height and its similarity to the *Anchor* robot's height, $F_{(1,75)} = 5.54$, $p = 0.02$. Planned post-hoc contrasts showed that participants reported higher discomfort after interacting with a *Tall Target* robot compared to a *Short Target* robot, but only in the *Different* height condition ($p_{contrast} = 0.004$) (see Figure 7). A significant main effect of the *Target* robot's height was also found, $F_{(1,75)} = 6.74$, $p = 0.001$. The analysis of the similarity to the *Anchor* robot's height revealed no significant differences, $F_{(1,75)} = 1.54$, $p = 0.61$. The Warmth and Competence subscales revealed no significant interactions (Warmth: $F_{(1,75)} = 1.04$, $p = 0.77$; Competence $F_{(1,75)} = 2.01$, $p = 0.4$) or main effects (Warmth-Height: $F_{(1,75)} = 1.15$, $p = 0.67$; Warmth-Similarity: $F_{(1,75)} = 1.95$, $p = 0.37$; Competence-Height $F_{(1,75)} = 1.31$, $p = 0.72$; Competence-Similarity $F_{(1,75)} = 2.11$, $p = 0.4$).

C. Qualitative analysis – Semi-structured interviews

The thematic analysis revealed two main themes: (1) robot perception; and (2) preference for one of the robots.

Theme 1 – Robot perception Participants' descriptions of the robots were distributed across positive, negative, and neutral responses, with no major differences between conditions. *Short* robots were often described in positive terms (*Short–Same* 14/20; *Short–Different* 13/20) such as approachable, pleasant, or "cute": *"The short robot felt kind of cute to me. I found myself smiling at it because it was small"* (P.82, F); or *"Because he's smaller. He's cuter"* (P.29, F). Others expressing indifference *"I didn't have much connection or feeling for it"* (P.53, M).

Tall robots received a similar distribution of comments. Many participants described them in a positive way (*Tall–Same* 12/20; *Tall–Different* 14/20), often pointing to their presence or capability: *"It seems useful. It drove, navigated, and even went through the door without getting stuck"* (P.62, M). Others expressed neutral views (*Tall–Same* 6/20; *Tall–Different* 6/20): *"The interaction with the robot was very normal"* (P.24, M). Negative descriptions were also present (*Tall–Same* 2/20; *Tall–Different* 0/20): *"It towers over you; it's stressful and intimidating."* (P.63, F) and *"It's like a very large machine that I wouldn't like"* (P.81, F).

Theme 2 – A preference for one of the robots When the two robots were of the same height, participants almost uniformly reported no preference. In the *Short–Same* condition (20/20), they stated: *"I don't really have a specific preference"* (P.52, M). Similarly, in the *Tall–Same* condition (20/20), they said: *"I have no preference."* (P.15, F).

When the robots differed in height, many participants had explicit preference. In the *Short–Different* condition, preferences were divided, with more participants favoring the *Short Target* robot (9/20) over the *Tall Anchor* robot (6/20), while 5/20 expressed no preference. Those who preferred the *Short Target* robot often described it as more approachable and friendly: *"The short one was nicer, less intimidating."* (P.35, F), while those who preferred the *Tall Anchor* robot emphasized its presence or perceived utility: *"Well, it's bigger. Bigger is better, I guess."* (P.42, M).

In the *Tall–Different* condition, participants more frequently favored the *Short Anchor* robot (11/20), often describing it as positive and approachable: *"It was more pleasant, cuter, and compact."* (P.22, F), whereas fewer participants preferred the *Tall Target* robot (4/20). Comments made toward the *Tall Target* robot more often highlighted negative rather than positive qualities: *"It [the Tall robot] felt intimidating; the shorter was better, people like to feel above it."* (P.64, F). The remaining participants (6/20) had no preference: *"their performance was similar"* (P.80, F).

Taken together, the findings suggest that relative comparisons shaped preferences, with *Short* robots generally favored, particularly when contrasted with a *Tall* robot.

VI. Discussion

Our findings show that compliance with a robot's request was not determined solely by absolute height but was influenced by the relative context of a previously encountered robot's height. Consistent with previous work [10], interaction with a *Short Target* robot led to higher compliance compared to a *Tall Target* robot. However, this effect became much stronger when the *Target* robot followed an earlier interaction with a robot of the opposite height, either a *Short Anchor* or *Tall Anchor* robot. A similar pattern emerged in discomfort ratings. Participants reported higher discomfort when interacting with a *Tall Target* robot, but only when they had previously encountered a *Short Anchor* robot. These results suggest that the effect of robot height in single-robot interactions may intensify in sequential interactions.

Our findings extend previous work indicating human biases in HRI [9], [5]. Specifically, we show that anchoring is an additional bias that should be considered in interactions with robots. The human tendency to judge others comparatively, rather than through an absolute and unbiased evaluation, was reflected in the intensified responses observed in our study. The same interaction with a robot was directly influenced by a previous encounter with a different robot. The prior interaction strengthened the social impact of the attribute examined, which in our case was height. Since psychology research suggests that anchoring effects are not limited to height, our findings highlight the need to further examine anchoring related to other robotic attributes.

This study also contributes to the understanding of the social impact of robot height. First, we replicate previous findings showing that shorter robots lead to higher compliance. In addition to the increase in questions participants agreed to answer, the preference for the *Short* robot was clearly expressed in the interviews where participants described it as cute and pleasant and associated their compliance with these positive attributes. Interestingly, positive attitudes toward the *Short* robot were even more evident when it followed an earlier interaction with a *Tall* robot, further supporting the anchoring effect. Together, the compliance data and interview findings show that the preference for the *Short* robot and its social impact are not absolute but relational. This suggests that the effect of height in HRI cannot be fully understood without considering previous interactions with other robots.

More generally, our findings highlight the unique dynamics that can emerge in consecutive interactions within environments that involve different robots. In such settings, the effect of one robot is shaped by previous interactions with others. This means that the same robot may lead to different social outcomes, ranging from cooperation to resistance, depending on the features of robots encountered earlier. This extends previous work on social influence in multi-robot contexts [49], [29], [50], [51] by showing that even basic design features such as height are influenced by sequential comparison effects, emphasizing the importance of considering prior interactions and reference points when evaluating how robot design features shape human behavior.

Taken together, our findings indicate that design features in HRI operate within a relational layer, in which a robot's influence depends on previous encounters and prior information. For example, consider a warehouse where robots of different heights interact with human workers and may ask for help. It is not enough to consider only a robot's height and its direct effect on compliance. Designers should consider the full workflow and the expected sequence of interactions with robots in the environment. This approach can help designers use robot height strategically to increase compliance when encouraging workers to assist the robot. More broadly, we suggest that environments involving more than a single interaction with robots should be carefully mapped and studied, as their effects may differ from those found in single-robot interactions.

VII. Limitations

This study has several limitations. While we used a specific non-humanoid robotic platform, future research should examine different robotic morphologies and interaction styles. Future work should also examine standing and moving interactions, different robot-participant and robot-robot height relations, and a *No-Anchor* condition to further isolate relative height effects. Potential mediating factors, including questionnaire length, psychological factors (e.g., dominance and authority), cultural perceptions of height, and tablet screen position, should also be explored. Additionally, longer, more naturalistic interactions and requests requiring different effort levels may yield different effects. Finally, the qualitative findings may have been influenced by the Good Subject Effect, although we followed a strict protocol and emphasized that all responses were valuable.

VIII. Conclusion

Our study shows that relative context in consecutive interactions can shape robots' social effects. Specifically, a previous encounter with a robot of a different height influenced participants' compliance tendencies. Higher compliance with a *Short Target* compared to a *Tall Target* robot was significantly enhanced when the earlier interaction involved a robot of a different height. These findings indicate that robots' impact may be shaped by previous encounters serving as anchors for comparison. Designers should therefore consider not only the features of a robot but also the relational dynamics created by earlier interactions with other robots.

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