Women in male-dominated fields report being challenged more frequently than their male peers. In addition to making women feel unwelcome, do these questions also serve to devalue their credibility? In preliminary work, we find that they do: upon observing a student questioning a woman's testimony, adults infer that the student did not believe the woman. Worse, adults inferred that she must have *actually* been ignorant: later on, they did not want to learn from her. Without knowing anything about the student's credibility as a questioner, adults still inferred that the woman he questioned must have lacked knowledge. In set of four experiments, we would like to better understand how adults infer a speaker's credibility in the face of questioning. And in two additional experiments, we would like to investigate the developmental origins of these judgments, revealing whether they are learned over development or deeply ingrained. These results have important implications for women's advancement, particularly in male-dominated fields — and can highlight ways to prevent women's abilities from being unjustly (and sometimes even unknowingly!) devalued.

A professor of mine once mentioned that when she interviewed for faculty jobs 30 years ago, a male professor loudly insisted, "no uteruses in this department!" Thankfully, such blatant sexism is now out of vogue — but less thankfully, its effects still persist in subtler forms. For instance, women in STEM fields are perceived as less competent than men (Moss-Racusin et al., 2012), and consequently, they report being challenged more frequently than their male peers (e.g., Bevan & Learmonth, 2013).

When a person's ability to *know* something is challenged due to stereotypes or biases, philosophers propose that an "epistemic injustice" has occurred (Fricker, 2007). Such subtle epistemic harms can make members of marginalized groups feel unwelcome. But are there other downstream consequences when an agent's ability as a knower is questioned? Specifically, when we see someone being disbelieved, does their credibility take a hit?

In the current project, this is precisely the question we would like to answer. To do so, we will show participants a simple scenario. A character named "Sam" is introduced to a new toy with a green button and a blue button. One person tells him what the green button does, and Sam questions her judgment, asking, "why do you think that?" The other person tells him what the blue button does, and Sam asks a follow-up question, asking, "why does it do that?"

While Sam asked each woman a similar question, the underlying intent was different. He questioned the first woman's claim, but accepted the second's, and even asked her for more information. In a preliminary pilot, we find that adults easily identified Sam's motives. 66.6% of participants (n = 29 of 39) judged that Sam thought the first woman didn't know what she was talking about. This proportion is reliably higher than chance (95% CI: 51.3 – 82). In a second pilot, however, we found something more concerning: given only this minimal interaction, and knowing nothing about Sam's own credibility, 83% (n = 30 of 36) of participants insisted they only wanted to hear more about the toy from the second woman (95% CI: 72.2 – 97.2).

In our next steps, we want to better understand adults' judgments. To do so, in Experiments 1 and 2 we will replicate each pilot with a larger sample (n = 100 per study) to ensure that our results are reliable. Next, we will investigate the circumstances under which disbelief affects an informant's credibility. Because the difference between the two questions was so subtle, we began by directly comparing them to make the contrast most explicit. But is this contrast needed? In Experiments 3 and 4, participants will see Sam question the first woman, but the second woman will be omitted. In Experiment 3, participants will judge how much Sam thinks the speaker knows. In Experiment 4, the speaker will make a subsequent claim about the machine, and participants will judge how confident they are that it is true. Finally, we would also like to understand the developmental origins of these inferences. To do so, Experiments 5 and 6 will adapt this procedure for use with preschoolers. If four-year-olds already make the same judgments adults do, this would suggest that these intuitions are early-developing, and perhaps universal. But if children only respond in an adult-like manner when they are older, this would suggest that our intuitions are learned rather than innate.

In conclusion: women in STEM report being challenged more frequently than their male colleagues (e.g., Bevan & Learmonth, 2013). While these incidents can serve to make women feel unwelcome in male-dominated industries, our preliminary findings suggest that they may also perpetuate a vicious cycle, whereby women are questioned because they are not viewed as stereotypically competent in a field, and observers thus infer that they are *indeed* incompetent. If this is true, this would have important implications for women's advancement in male-dominated fields — and would identify an important avenue for intervention to increase women's representation.

Expense	Cost
Paying adult research participants for final sample of Experiment 1	$1 per participant x 100 participants[1]
Paying adult research participants for final sample of Experiment 2	$1 per participant x 100 participants
Paying adult research participants for pilot sample of Experiment 3	$1 per participant x 50 participants
Paying adult research participants for pilot sample of Experiment 4	$1 per participant x 50 participants
Paying adult research participants for final sample of Experiment 3	$1 per participant x 100 participants
Paying adult research participants for final sample of Experiment 4	$1 per participant x 100 participants
Gift cards for child research participants for final sample of Experiment 5	$5 per participant x 150 participants[2]
Gift cards for child research participants for final sample of Experiment 6	$5 per participant x 150 participants

[1]Cost calculated assuming participants will receive $1 for completing a 5-minute survey, in accordance with Connecticut minimum wage as of September 1st, 2020.
[2]Cost based on the current rate of the Yale Infant and Child Development Group. Because we are interested in testing for age differences, we will need a slightly larger sample than for the adult experiments (we need to include enough children of each age group to identify differences between groups).

Total cost: $2,000.00 USD

Other support:
I do not have any other sources of support for this project. I do not have any other applications for support pending.