Disentangling the Impact of Instructor Mindset and Demeanor on Student Experiences

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Students are more motivated and have better college experiences with instructors who express that ability can grow and improve (a growth mindset), compared with instructors who express that ability is fixed and unchangeable (a fixed mindset). Students also have better experiences with warm and friendly instructors, compared to cold and unfriendly instructors. Instructor mindset beliefs (i.e., what information instructors express to students about the nature of ability) and instructor demeanor (i.e., how that information is expressed) have been confounded in previous research. Although these two factors are conceptually distinct, there is often an overlap between them, such that it is unclear if students are responding to an instructor’s apparent mindset beliefs, or the warm demeanor with which the instructor conveys those beliefs. In this study, we manipulated instructor mindset and demeanor using a fully-crossed 2 (Warm vs. Cold) × 2 (Growth vs. Fixed) Design. We found that while students respond best to a combination of a warm demeanor and a growth mindset, a growth mindset is always preferable to a fixed mindset, for warm instructors and cold instructors alike. This means that the positive effects of an instructors’ growth mindset are not entirely driven by being warm and friendly, as some may have assumed, given how confounded these constructs are in the field. Instead, the growth mindset message had a persistent positive effect on students, even when the delivery was cold.

Keywords: instructor mindset beliefs, instructor warmth, demeanor, belonging, evaluative concerns

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An instructor’s expressed beliefs about the nature of ability can have a powerful influence on the experiences and performance of their students (Canning et al., 2019; Hecht et al., 2023; Muenks et al., 2020). According to mindset theory, most people fall somewhere on a continuum from endorsing a fixed mindset (i.e., believing ability is stable and unchangeable) to endorsing a growth mindset (i.e., believing ability is malleable with effort, strategy, and help-seeking) (Dweck, 1999, 2006; Yeager & Dweck, 2020). When instructors endorse a growth (vs. fixed) mindset about ability, students feel a greater sense of psychological safety, such as feeling more like they belong in class, less concerned about being judged, and less like an imposter (Canning et al., 2019; Muenks et al., 2020). These experiences promote behaviors that lead to academic success, such as improved motivation, increased challenge-seeking, greater class attendance, greater engagement, and improved academic performance (Canning et al., 2019; Hecht et al., 2023; LaCosse et al., 2021; Muenks et al., 2020).

Another important factor in the classroom environment is an instructor’s demeanor (i.e., their general outward behavior, body language, and facial expressions). Students rate instructors who behave more warmly (e.g., have a warm tone and smile often) as more likable and trustworthy (Guerrero & Miller, 1998). Including warm language in a syllabus (e.g., statements expressing enthusiasm and compassion), increases students’ willingness to reach out for help (Gurung & Galardi, 2021). In one study, students reported more belonging in class with instructors who were enthusiastic and friendly, encouraged questions, and were open to other viewpoints, compared to instructors who were less warm and open (Freeman et al., 2007).

The Overlap of Instructor Mindset and Demeanor

Instructor mindset beliefs (i.e., what information instructors express to students about the nature of ability) and instructor demeanor (i.e., how that information is expressed) have been confounded in previous research. While conceptually instructor mindset beliefs and instructor demeanor are distinct (e.g., warm instructors can endorse fixed beliefs and cold instructors can endorse growth beliefs), in practice, they are often conflated. For example, students consistently rate instructors who convey growth mindset messages as warmer and friendlier than instructors who convey fixed messages (Kroeper et al., 2022; LaCosse et al., 2021; Muenks et al., 2020).

Most studies on instructor mindset beliefs have addressed this confound by either pretesting their experimental materials for instructor warmth or controlling for students’ perceptions of instructor warmth. For example, LaCosse et al. (2021) and Muenks et al. (2020) pretested videos of an instructor expressing fixed or growth beliefs and found that students perceived the instructor endorsing growth beliefs to be significantly warmer and friendlier than the instructor endorsing fixed beliefs.

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To our knowledge, only one study has tried to experimentally separate these constructs. Hecht et al. (2023) examined instructor demeanor as an alternate explanation for their finding that students’ personal growth mindsets best predicted their challenge-seeking behavior when their instructor endorsed a growth (vs. fixed) mindset. They asked students to report their personal mindsets, then read a transcript of an interview with an instructor who presented fixed-mindset beliefs with a firm demeanor or a warm demeanor. Students reported if they would prefer to complete an easy or challenging assignment given by the instructor. Results revealed that, unlike mindset, demeanor did not moderate the relationship between students’ mindsets and challenge-seeking—that is, the difference in instructor demeanor did not significantly improve how well students’ mindsets predicted their challenge-seeking. A warm demeanor did not offset the negative impact of the instructor’s fixed mindset on students’ challenge-seeking. This study provides some preliminary evidence that instructor mindset and demeanor can be empirically separated. To fully understand how these constructs interact, it is necessary to manipulate demeanor with growth messaging as well as fixed messaging, and to examine other student outcomes beyond challenge-seeking, such as students’ psychological experiences, effort, and performance.

In the present study, we examine the interaction between mindset and demeanor to investigate how the delivery of mindset messages impacts college students’ anticipated experiences, anticipated effort, and anticipated performance. To do so, we conducted a fully-crossed 2 × 2 experimental design comparing an instructor who communicated a growth (vs. fixed) message with a warm (vs. cold) demeanor. This design allows us to add to the literature in the following ways: (a) We examine the impact of instructor demeanor on both growth and fixed-mindset messaging, (b) We examine outcomes such as students’ sense of belonging, concerns about being judged, and impostor feelings in order to further describe how instructor demeanor and mindset influence students, and (c) We identify which combination of instructor mindset and demeanor is most beneficial. Replicating previous research, our first hypothesis is that there will be a main effect of mindset and a main effect of demeanor across conditions. Students will expect better outcomes with an instructor communicating a growth mindset (vs. fixed) with a warm (vs. cold) demeanor. Our second hypothesis is that there will be a significant interaction between mindset and demeanor; an instructor’s growth mindset messaging will be most effective when combined with a warm (vs. cold) demeanor, indicating that these constructs contribute to outcomes uniquely and in tandem.

### Method

#### Participants

Three hundred and seventy-five undergraduates were recruited from a large research university in the Pacific Northwest, and participated in exchange for course credit. Twenty-five participants were excluded due to failing an attention check, leaving 332 valid responses. Participants were mostly White (69.3% White, 9.6% Asian, 8.4% Hispanic or Latino, 6.3% Black or African American, 0.9% other, 0.6% Native American, and 0.6% Pacific Islander) and mostly female (81.6% female and 18.4% male). Data were collected for one semester. See the online supplemental materials for a sensitivity analysis of the sample size.

#### Procedure

Institutional Review Board approval was obtained prior to data collection. Participants were randomly assigned to read one of four vignettes depicting a one-on-one interaction with a statistics professor during office hours, before answering questions about how they might feel as a student in that instructor’s class. To develop these vignettes, we (a) conducted a focus group of seven undergraduates who generated examples of instructor mindset-related behaviors from their own experiences and (b) adapted previously published manipulations of instructor mindset behaviors (LaCosse et al., 2021; Muenks et al., 2020). Each vignette depicted an instructor demonstrating a growth (or fixed) mindset and a warm (or cold) demeanor. For example, in the “warm” conditions, the description read: “Your professor offers you a warm smile as you walk in. You know from class that your professor is not very warm and friendly and this puts you at ease” whereas in the cold condition, the description read: “Your professor staresblankly at you as you walk in. You know from class that your professor is not very warm and friendly

### Table 1

**Means and Standard Deviations of Variables of Interest**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Demeanor</th>
<th>Growth mindset condition</th>
<th>Fixed mindset condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
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<tr>
<td>Perceived professor mindset</td>
<td>Warm</td>
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<tr>
<td></td>
<td>Cold</td>
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<tr>
<td>Perceived professor warmth</td>
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<td></td>
<td>Cold</td>
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<td>Belonging</td>
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</tr>
<tr>
<td></td>
<td>Cold</td>
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<tr>
<td>Evaluative concerns</td>
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</tr>
<tr>
<td></td>
<td>Cold</td>
<td>4.57</td>
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<tr>
<td>Impostor feelings</td>
<td>Warm</td>
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</tr>
<tr>
<td></td>
<td>Cold</td>
<td>3.17</td>
<td>1.02</td>
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<td>Effort</td>
<td>Warm</td>
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<tr>
<td></td>
<td>Cold</td>
<td>4.11</td>
<td>0.88</td>
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<tr>
<td>Anticipated course performance</td>
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<td>0.76</td>
</tr>
<tr>
<td></td>
<td>Cold</td>
<td>3.90</td>
<td>1.06</td>
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</table>
and this makes you nervous.” To manipulate mindset, the growth mindset professor says to their student, “Any student can learn the material in this course with the right amount of hard work and persistence. It takes trying out different learning strategies, learning from your mistakes, and seeking help when you need it. Remember, learning is a process and takes time.” The fixed-mindset professor says to their student, “Some students have a natural gift in statistics and other students really struggle with the material. If you’re not a ‘stats person,’ you might want to consider another course that is a better fit with your abilities, so that your GPA doesn’t suffer. Remember, statistics isn’t for everyone.” All manipulations and measures are included in the online supplemental materials.

Measures

Perceptions of professor mindset were assessed using five items adapted from Dweck (1999) (α = .95). Perceptions of professor warmth were assessed using three items adapted from Fiske et al. (2007) (α = .95). Belonging was measured with five items adapted from Murphy and Zirkel (2015) (α = .93). Evaluative concerns were measured with five items adapted from Wout et al. (2010) (α = .93). Imposter feelings were measured with four items adapted from Leary et al. (2000) (α = .87). Anticipated effort was measured with three items adapted from Muenks et al. (2020) (α = .75). Anticipated course performance, or grade, was assessed via two items adapted from Muenks et al. (2020) (α = .91). Personal mindsets were measured using four items adapted from Dweck (1999) (α = .88).

Data Analysis

We conducted two-way analyses of covariance (ANCOVAs) to assess the effect of professor mindset (growth vs. fixed) and professor demeanor (warm vs. cold) on our five outcomes: belonging, evaluative concerns, imposter feelings, anticipated effort, and anticipated course performance. Students’ personal mindset was included as a covariate in all analyses. This study was not preregistered.
therefore, when the interaction between mindset and demeanor was significant, we conducted a test of the simple effects using the Bonferroni correction for multiple comparisons. Table 1 includes means and standard deviations for all factors.

Results

Manipulation checks revealed that participants perceived the growth mindset professor to endorse more growth mindset beliefs than the fixed-mindset professor (Figure 1; see Table 2 for model results). Participants also perceived the warm professor as significantly warmer than the cold professor. Consistent with previous research, participants perceived the growth professor as warmer than the fixed professor, and the warm professor as having more of a growth mindset than the cold professor. However, our mindset manipulation had a much larger effect on perceived mindset ($\eta^2_p = .67$) than on perceived warmth ($\eta^2_p = .03$), and our warmth manipulation affected perceived warmth ($\eta^2_p = .63$) more than twice as much as it affected mindset ($\eta^2_p = .23$). Thus, although we were unable to fully separate mindset and demeanor, the difference in the effect sizes of our manipulations allow them to function as intended.

For all five outcomes there was a significant main effect of mindset. When the instructor communicated a growth (vs. fixed) mindset, students felt more belonging, less evaluative concerns, less imposter feelings, expected to put in more effort, and expected higher course performance. For all five outcomes there was also a significant main effect of demeanor. When the instructor demonstrated a warm (vs. cold) demeanor, students felt more belonging, less evaluative concerns, less imposter feelings, expected to put in more effort, and expected higher course performance (see Figures 2 and 3).

There was also a significant interaction between mindset and demeanor for all five outcomes. Simple effects tests using Bonferroni adjusted $p$ values revealed that when the instructor presented a warm demeanor, endorsing a growth (vs. fixed) mindset resulted in better scores on all five student outcomes: more belonging, $F(1, 327) = 143.97, p < .001$, less evaluative concerns, $F(1, 327) = 163.54, p < .001$, less imposter feelings, $F(1, 327) = 99.87, p < .001$, more anticipated effort, $F(1, 327) = 38.67, p < .001$, and higher anticipated performance, $F(1, 327) = 82.75, p < .001$. Similarly, when the instructor presented a cold demeanor, endorsing a growth (vs. fixed) mindset still resulted in better scores on all five student outcomes: more belonging, $F(1, 327) = 52.99, p < .001$, less evaluative concerns, $F(1, 327) = 35.36, p < .001$, less imposter feelings, $F(1, 327) = 23.82, p < .001$, more anticipated effort, $F(1, 327) = 7.24, p = .03$, and higher anticipated performance, $F(1, 327) = 13.71, p = .001$. When the instructor endorsed a growth mindset, a warm demeanor resulted in better scores than a cold demeanor for all five outcomes: more belonging, $F(1, 327) = 76.43, p < .001$, less evaluative concerns, $F(1, 327) = 65.76, p < .001$, less imposter feelings, $F(1, 327) = 22.78, p < .001$, more anticipated effort, $F(1, 327) = 32.96, p < .001$, and higher anticipated performance, $F(1, 327) = 24.4, p < .001$. When the instructor endorsed a fixed mindset, a warm (vs. cold) demeanor resulted in more belonging, $F(1, 327) = 19.45, p < .001$, but did not result in significant differences in evaluative concerns, $F(1, 327) = 2.66, p = .41$, imposter feelings, $F(1, 327) = 0.003, p = 1.00$, anticipated effort $F(1, 327) = 5.74, p = .07$, or anticipated performance, $F(1, 327) = 0.05, p = 1.00$.

Discussion

Instructor mindset beliefs and instructor demeanor have consistently been confounded in previous research. Instructors who communicate a growth mindset tend to be warmer than instructors who communicate a fixed mindset (Kroeper et al., 2022; LaCosse et al., 2021; Muenks et al., 2020). In the current study, we manipulated these constructs and examined their interaction in a fully-crossed experimental design to identify how they influenced students’ anticipated experiences separately and in combination. Consistent with our first hypothesis, we found a main effect of mindset and a main effect of demeanor across our five outcomes. When the instructor communicated a growth (vs. fixed) mindset message or communicated their message with a warm (vs. cold) demeanor, students expected to feel more like they belonged, less concerned about being evaluated, less like an imposter, more willing to put in effort, and to earn a higher grade in the class. These results replicate previous research demonstrating that growth mindset instructor messages and instructors with warm demeanors have positive effects on
student outcomes (Canning et al., 2019; Freeman et al., 2007; Guerrero & Miller, 1998; Muenks et al., 2020). Consistent with our second hypothesis, what the instructor communicated (i.e., growth mindset message) and how they communicated it (i.e., with a warm demeanor) had an interactive effect on students’ experiences. Students expected to have the best experiences, put in the most effort, and earn the highest grades when the instructor communicated a growth mindset with a warm demeanor. Indeed, instructor mindset and demeanor had an additive effect, in that the best combination for students was to appear warm and friendly and communicate that ability is something that can improve.

To understand the unique effects of these constructs, we examined the simple effects of the interactions. We found that when the message was growth, a warm delivery improved all outcome expectations, but when the message was fixed, a warm delivery only improved belonging expectations. This suggests that a warm demeanor did not entirely offset the negative effects of a fixed mindset, consistent with Hecht et al. (2023). In contrast, we found that a growth (vs. fixed) message always improved student experiences, whether it was delivered with a warm demeanor or a cold demeanor. This means that the positive effects of a growth mindset are not entirely driven by being warm and friendly, as some may have assumed, given how confounded these constructs are in the field. Instead, the growth mindset message had a persistent positive effect on students, even when the delivery was cold.

This single study was limited by the hypothetical nature of the vignettes, only one operationalization of mindset and warmth, and the small overlap between mindset and demeanor in our manipulations. Despite these limitations, this study provides proof of concept of the interactive effect of mindset and demeanor on student experiences. Future research should examine the interactive nature of instructor mindset and demeanor in real courses to understand student experiences.

References

Canning, E. A., Muenks, K., Green, D. J., & Murphy, M. C. (2019). STEM Faculty who believe ability is fixed have larger racial achievement gaps and inspire less student motivation in their classes. Science Advances, 5(2), Article eaa4734. https://doi.org/10.1126/sciadv.aaw4734


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