Instructor misbehaviors impede students’ cognitive learning: testing the causal assumption

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Instructor misbehaviors impede students’ cognitive learning: testing the causal assumption

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ABSTRACT
Guided by assumptions from the cognitive–affective theory of learning with media, we conducted a teaching experiment to corroborate past correlational research that suggested instructor misbehaviors, in the form of antagonism toward students, impede students’ cognitive learning. Participants were 472 undergraduate students who were randomly assigned to view a recorded teaching condition of a standard lecture on persuasion heuristics (control), or the same lecture content with instructor antagonism manipulated (treatment). Results revealed that students exposed to the treatment lecture with antagonism had lower affect for the course and instructor. Moreover, because they had lower affect for the material, antagonized students scored worse on a test of their learning (mediation) compared with students in the standard lecture. Students who possessed a mastery orientation toward learning, and independently, who were effort-regulated, scored even lower on their tests of learning because antagonistic instruction caused a greater reduction in their affect toward the material being taught (moderated mediation). Overall, results suggested that instructor misbehaviors do cause slight learning deficits for students, especially for students who value their learning opportunities.

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KEYWORDS
instructor misbehaviors; cognitive learning; student affect; conditional process analysis

For over 27 years, communication scholars have studied teacher misbehaviors by researching pedagogical activities “that interfere with instruction and thus, learning” (Kearney, Plax, Hays, & Ivey, 1991, p. 310). To date, this program of research has uncovered numerous behaviors that irritate, demotivate, or otherwise detract from students’ learning experiences. For example, Goodboy and Myers (2015) replicated Kearney et al.’s original scholarship on the topic and identified 42 misbehaviors including deviating from the syllabus, giving boring lectures, grading unfairly, and misusing technology. Factor-analytic approaches to studying instructor misbehaviors have uncovered general misbehavior types that reflect latent commonalities in the ways instructors misbehave: generally speaking, some instructors struggle with their teaching effectiveness (labeled as “incompetence” or “lectures”) whereas other instructors are mean to their students (labeled as “offensiveness,” “antagonism,” or “derisiveness”). Because there is plenty of
scholarship on (in)effective teaching and learning (Cortez, Gayle, & Preiss, 2006), our study focused on the latter type of instructor misbehaviors—those that reflect the interpersonal mistreatment of students by instructors who may communicate in ways that are demeaning and unkind. Goodboy and Myers (2015) labeled these types of misbehaviors as “instructor antagonism,” which includes belittling students and putting them down, telling students that their opinions are wrong, criticizing students’ contributions to class, and singling out certain students while favoring others.

Although research has been conducted to delineate between distinct misbehaviors (e.g., Goodboy & Myers, 2015; Kearney et al., 1991), the data tell a simple and perhaps unsurprising story: some instructors are candidly mean to their students, and as a consequence, their students believe they learn less. The tenets of cognitive affective theory of learning with media (CATLM; Mayer, 2009; Moreno, 2005, 2006) may help explain why. Scholars assert that information processing occurs in a variety of steps that ultimately move instructional details from students’ sensory experiences to their long-term memories. According to proponents of CATLM, if students are to learn instructional material, they must (a) attend to the lesson and select appropriate information to focus upon, (b) organize the incoming information into a coherent mental model, and (c) integrate the new information with their existing base of knowledge. Though this process may seem straightforward, it is not guaranteed to occur. This is because, as Moreno (2006) argued, “motivational factors mediate learning by increasing or decreasing cognitive engagement,” and “individual differences … affect how much is learned” (p. 151). Stated differently, scholars who support the theoretical process of learning outlined above have argued that students’ motivational drive mediates the relationship between instructional behaviors and learning. Thus, instead of the typical product-process approach to learning that permeates much of communication research, CATLM argues that students’ abilities, cognitive styles, and reactions to their instructional experiences play an important role in their learning. In the case of instructor antagonism, this might mean that students who are exposed to antagonistic teaching environments feel less positively about their learning experiences and may therefore be less motivated to engage in the processes necessary for learning.

Though instructor antagonism may seem to occur infrequently in a classroom, instructor putdowns (acting rude, making fun of students, embarrassing students) are noticeable insofar as they are reported to be the most salient misbehaviors for students. More specifically, putdowns are identified by students as the most frequent misbehavior when asked what their instructors say or do to impede learning (Goodboy & Myers, 2015; Kearney et al., 1991). Putdowns are one form in a broader group of antagonizing misbehaviors (Goodboy & Myers, 2015) that have the potential to detract from students’ learning experiences (Kearney et al., 1991). Our study sought to test this learning assumption. More specifically, our study was designed to test whether or not instructor misbehaviors lead to detriments in student learning and, in particular, we wanted to explain why this would be the case and for whom this detriment might be most pronounced.

**Instructor antagonism**

Instructor misbehaviors, by definition, hinder students’ ability to learn, and considering students identify instructor antagonism as a misbehavior, we might assume they will learn less in their college courses when faced with this type of behavior. In fact, there
are several survey studies reporting this to be the case: when instructors are unkind to students in the form of offensiveness or antagonism (we consider these terms to be synonymous from a latent variable perspective), students’ perceived cognitive learning is self-reported at lower levels (e.g., Goodboy, 2011; Goodboy & Bolkan, 2009; Goodboy & Myers, 2015; Sidelinger, Bolen, Frisby, & McMullen, 2011; Vallade & Malachowski, 2015). However, these survey studies rely on students’ subjective self-reports as proxies for learning, and it is important to complement these data by conducting experimental research to demonstrate that misbehaviors really detract from more objective measurements of students’ cognitive learning.

Admittedly, there are several quasi-experimental studies that manipulate instructor misbehaviors, but these designs rely on written hypothetical scenarios that describe how an instructor might misbehave in an imaginary course (e.g., “imagine you are taking a class with an instructor who misbehaves by …”) and ask students to report on how they perceive this hypothetical instructor (e.g., Banfield, Richmond, & McCroskey, 2006; Berkos, Allen, Kearney, & Plax, 2001; MacArthur & Villagran, 2015; Semlak & Pearson, 2008; Teven, 2007; Thweatt & McCroskey, 1998). Although these studies show that students prefer instructors who do not misbehave, by design, they cannot offer insights into students’ learning.

Twenty-seven years of scholarship assumes that instructor misbehaviors impede student learning, but we can only claim this to be the case because students say so in their qualitative accounts (Goodboy & Myers, 2015; Kearney et al., 1991). Moreover, with a few exceptions (e.g., Kelsey, Kearney, Plax, Allen, & Ritter, 2004), instructor misbehavior scholarship has been mostly atheoretical. Because of the lack of experimental and theoretical work in this arena, researchers cannot be sure that instructor misbehaviors cause students to learn less, why this might be the case, or for whom these misbehaviors might pose the most problems. Guided by two assumptions of CATLM (Mayer, 2009; Moreno, 2005, 2006), our study was designed to empirically test these questions.

**Affective processes**

Central to CATLM is the assumption of affective mediation (assumption 7) that argues students learn less when they become disengaged in class by negative affective experiences. Similar to what might be predicted by CATLM, we argue that if instructor misbehaviors impede learning, one mechanism through which this process might occur is by exacerbating students’ negative affective experiences in the classroom. Indeed, previous correlational research suggests that instructor misbehaviors are associated negatively with student affect toward the instructor and the course material (Goodboy, 2011; Goodboy & Bolkan, 2009; Sidelinger & Bolen, 2015; Sidelinger et al., 2011; Wanzer & McCroskey, 1998). These studies clearly demonstrate that students dislike what they are learning and who they are learning from if misbehaviors are reported. This reduction in affect is important because CATLM situates student affect as a causal mediator between teaching and learning. As we argued above, the assumption of affective mediation predicts that student learning will be hindered to the extent that students lack the motivational drive to pay attention to their lectures when they experience negative affect. As a result, instructor misbehaviors that reduce student affect (e.g., antagonistic delivery) should result in less motivation to
In line with arguments made in CATLM, we hypothesize that when students have positive affect toward the information they are learning, they retain more knowledge of the content taught. This is a claim of affective mediation, arguing that the process through which instructor antagonism interferes with students’ cognitive learning is by creating an aversion to the material being learned. Put simply, we predict that students will learn less if they dislike what they are learning. In particular, we expected that instructor misbehaviors would reduce student affect toward the course content, and in turn, cause students to perform worse on a test of cognitive learning. We offer the first and second hypotheses to test these predictions:

**H1:** Students exposed to a lecture where the instructor is antagonizing (compared with students who attend the same lecture without antagonism) will experience reduced affect toward the (a) content, (b) instructor, (c) behaviors recommended in the course, and (d) likelihood of enrolling in a future course.

**H2:** Students exposed to a lecture where the instructor is antagonizing (compared with students who attend the same lecture without antagonism) will experience reduced affect toward the content they are learning, and consequently, will score lower on a quiz covering the content being taught.

**Individual differences**

As noted, a dominant view of the teaching–learning link has been perpetuated by the process-product paradigm, which assumes that effective teaching impacts students without considering “whether student responses play an important or modest role in determining teaching effectiveness” (Cortez et al., 2006, p. 269). CATLM takes into account how individual differences in students’ self-regulation moderate their learning, and that (in)effective teaching does not have the same impact on all types of students. CATLM proposes that students who are able to regulate their own learning benefit from direct instruction, or, as Moreno (2005) put it, “when students are aware of the strengths and limitations of their knowledge, strategies, and motivation, they are better able to regulate their own learning by planning and monitoring the cognitive processes needed for understanding” (pp. 5–6).

In accord with CATLM, Goodboy (2017) urged scholars to statistically model student learning as a conditional process (i.e., moderated mediation). First, he emphasized the process of learning is captured through statistical mediation by stating that “learning is always the result of some process at work in the mind of the student learner; there is not direct absorption or transfer of knowledge taught by a teacher” (p. 476). Second, he focused on the boundary conditions for learners and advocated for statistical moderation by noting that students in the same course will have different learning experiences depending on their individual characteristics. Because the assumptions of CATLM suggest that learning is a conditional process, we believe that students will react differently to their experiences of instructor misbehaviors and that some students may suffer more from antagonism compared with others.

Though there are a variety of student characteristics to consider as individual differences (Bolkan, Goodboy, & Myers, 2017), we predicted that students who regulate their
learning experiences more than others would suffer larger learning detriments from instructor antagonism compared with their less-regulated peers. Indeed, our prediction of moderated mediation has support from CATLM’s theoretical assumption of “individual differences,” which predicts that students’ traits and cognitive abilities affect the teaching–learning process (Moreno, 2006).

Specifically, in our study, the two individual differences in students’ regulation we considered were students’ mastery-orientation toward learning and their self-regulation. In particular, mastery-oriented students focus on “developing new skills, trying to understand their work, (and) improving their level of competence” (Ames, 1992, p. 262). These students seek academic challenge as a way to enhance their learning experiences and tend to exhibit high interest in their course material (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010). Similarly, self-regulated students are those who adapt their behaviors, thoughts, and motivation to help them reach their academic goals through sustained effort and task persistence (Pintrich, 2003). Compared with others, self-regulated students may ultimately perceive more intrinsic value related to learning their coursework (Pintrich & De Groot, 1990) and tend to be intrinsically motivated to learn (Pintrich, 1999).

Mastery-orientation and self-regulation are positively correlated but are distinct motivational constructs (Pintrich, 2003). The distinction is that mastery-oriented students want to learn to self-improve and earn a sense of competence, whereas effort-regulated students are able to sustain academic efforts to learn despite distractions that could derail them from doing so (Pintrich, 2003; Winne, 2011). Put simply, some students want to learn for the sake of mastering the material (not because they want to earn high grades), and other students are successful at directing their efforts toward learning, even when they do not want to. In our study, we predicted that students who value their learning more than others might be especially sensitive to instructor antagonism because these students have more to lose. In other words, because mastery-oriented and self-regulated students take more interest in their learning experiences, they may be particularly likely to suffer from learning environments where instructors behave in ways that are demotivating (Baker & Goodboy, 2018; Zhang, 2007). CATLM predicts that students who regulate their learning experiences learn more with effective instruction; since our study provides students with substandard teaching in the form of instructor antagonism, we might expect these students to resent their learning experiences, and their learning might suffer more. We offer the following research question to probe for moderated mediation:

RQ: Will students score even lower on a quiz when they are mastery-oriented and effort-regulated, because they experienced a greater reduction of affect toward the content from an antagonizing instructor?

**Method**

**Participants**

Participants were recruited to take part in our online experiment from several communication courses at a large Mid-Atlantic university in return for minimal extra credit. Our initial sample consisted of 504 participants. However, we deleted 32 individuals from
the sample because they did not follow instructions regarding the stimulus and post-test. Our final sample consisted of 153 first-year students, 88 sophomores, 114 juniors, 93 seniors, and 24 students in their fifth year or more. Participants were 472 undergraduate students (151 men, 320 women, one unreported) whose ages ranged from 18 to 32 years ($M = 20.04, SD = 1.85$).

Individuals who participated in our study were emailed a link to our IRB-approved online experiment via Qualtrics where they were informed they would (a) watch a brief lesson about persuasion (approximately 8–9 minutes—students were unable to fast forward or skip ahead in the lesson), (b) answer questions regarding their perceptions of the lesson, and (c) take a test on the material they had learned. After reading these instructions, participants were informed that the lesson would begin shortly, and were instructed to turn up their volume to hear the lecture and to make sure there were no distractions as they attended to it. Participants were then randomly assigned to one of two lecture conditions: either a standard lesson taught without antagonism (control: 7 minutes, 51 seconds) or the same lesson and content but with antagonistic misbehaviors enacted by the instructor (treatment: 9 minutes, 21 seconds; see Appendix for lecture scripts and interspersed manipulations; lecture videos are available upon request).

**Lecture videos and pilot test**

The lectures were taught by the first author, who is an Associate Professor of Communication Studies. This instructor was selected because he does not teach undergraduate communication classes that participants could have taken in the past, and thus participants did not have prior experiences with this instructor. The instructor wore a suit and tie, taught in a small college classroom, and used a lecture podium to deliver the lesson. To approximate a real classroom setting and lecture, four undergraduate student confederates were shown sitting in the class (2 male students in the front row, 2 female students in the second row). Three of the four students participated in the video by asking questions and responding to the instructor’s questions. Participants viewed the lecture from the angle of a student who would be sitting in the third row, behind the other students in the first two rows of the video.

In both teaching conditions, the lecture content and subject matter were identical, except that in the treatment condition the instructor belittled students, criticized their answers, and showed favoritism toward one student while being critical of the others (see Appendix). Although instructor antagonism may also include yelling or screaming at students (Goodboy & Myers, 2015), the instructor did not raise his voice in either video. As evidenced by the antagonism mean scores reported later in this study from the treatment condition (pilot and actual experiment), students viewed the instructor as more than “sometimes antagonistic” but less than “often antagonistic.”

To ensure that our manipulation was effective, we conducted a pilot study with the lectures. We recruited 61 students from a West Coast university to participate in the pilot test by watching the video lectures (control or experimental) distributed at random and delivered through an online platform. Thirty individuals were exposed to the treatment condition, and 31 were exposed to the control. Participants were 22 men and 39 women with ages ranging from 20 to 54 ($M = 23.05, SD = 4.53$). One student was in the second year of school, three students reported being in the third year,
28 students were in the fourth year, and 29 students reported being in their fifth year of school or beyond. After watching the video, participants responded to eight questions from the antagonism subscale of the Instructor Misbehavior Scale (Goodboy & Myers, 2015) regarding their perceptions of the instructor having taught using antagonistic behaviors ($M = 2.06, SD = 1.43, \alpha = .97$). Responses ranged from (0) never to (4) very often. Results of a Welch’s t-test indicated that the manipulation was successful, $t(58) = 9.63, p < .001, d = 2.46, U_3 = 99.31\%$. Students who saw the experimental manipulation regarded the instructor as being more antagonistic ($M = 3.18, SD = .81$) compared with students in the control condition ($M = .97, SD = .97$).

**Main study post-tests**

**Instructor antagonism**
The Instructor Misbehavior Scale (Goodboy & Myers, 2015) is a 16-item measure that captures the frequency in which instructors misbehave by antagonism, lectures, and articulation. Only the eight items from the antagonism subscale were used as a manipulation check for the lecture conditions. These Likert-type items (e.g., “my instructor tells students their opinions are wrong”) use a response format ranging from (0) never to (4) very often. This measure provided a Cronbach alpha of .97 ($M = 1.76, SD = 1.33$)

**Student affect**
The Instructional Affect Assessment Instrument (Course Form; McCroskey, 1994) was used to measure students’ affective evaluations. We used four-item subscales to measure students’ affect toward the (a) content/subject matter, (b) instructor, (c) likelihood of engaging in behaviors recommended in the course, and (d) likelihood of enrolling in another course with the instructor. These subscales utilize a 7-point bipolar adjective response format (e.g., worthless/valuable). The subscales produced Cronbach alphas of .92 for affect toward the content/subject matter ($M = 4.42, SD = 1.55$), .96 for affect toward the instructor ($M = 3.57, SD = 2.02$), .96 for affect toward engaging in recommended course behaviors ($M = 3.87, SD = 1.83$), and .97 for affect toward enrolling in another course with the instructor ($M = 3.13, SD = 2.04$).

**Cognitive learning**
A 10-item multiple choice quiz was created to test students’ recall of the lecture material. The quiz items were derived from the main points covered in the lecture on persuasion heuristics including knowledge questions (e.g., “Providing small gifts before asking someone to do you a favor is an example of this persuasive tactic?”) and transfer questions (e.g., “Imagine you interact with a salesperson at a clothing store and he/she is incredibly rude and judgmental towards you while you are shopping. You decide to retaliate by never shopping at that store ever again. According to what you learned today, which cognitive heuristic made you decide to boycott shopping at this clothing store?”). Each question had four possible answers. We scored correct answers as 1 and incorrect answers as 0, and then summed the total learning score and converted it to a percentage ($KR-20 = .56, M = 60.46\%, SD = 20.99\%$).
**Mastery orientation**

The mastery orientation subscale from the Achievement Goals Questionnaire (Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000) was used to measure students’ trait-like desires to approach learning for mastery in general. These six Likert-type items (e.g., “I want to learn as much as possible in my classes”) measure students’ desire to master challenging course material using a response format ranging from (1) not at all true of me to (7) very true of me. This measure provided a Cronbach alpha of .92 ($M = 5.65$, $SD = 1.17$).

**Effort-regulation**

The effort-regulation subscale was used from the resource management strategies section of the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1991). These 7-point Likert type items (e.g., “I work hard to do well in class even if I don’t like what we’re doing”) measure students’ trait-like abilities to regulate their own learning during difficult and uninteresting tasks during general coursework, using a response format ranging from (1) not at all true of me to (7) very true of me. This measure provided a Cronbach alpha of .65 ($M = 4.84$, $SD = 1.13$).

**Results**

Before testing the hypotheses and answering our research question, we conducted a manipulation check to ensure that students perceived the treatment condition lecture as more antagonistic toward students in the class. To replicate the pilot test, participants responded to the antagonism subscale of the Instructor Misbehavior Scale (Goodboy & Myers, 2015) after they viewed one of the two randomly assigned teaching videos. Results from a Welch's $t$-test indicated that the manipulation was successful, $t(454) = 23.12$, $p < .001$, $d = 2.13$, $U_3 = 98.34\%$. Students who viewed the experimental manipulation regarded the instructor as being more antagonistic ($M = 2.69$, $SD = 1.02$) compared with students in the control condition ($M = .76$, $SD = .78$).

Hypothesis 1 predicted that instructor antagonism would reduce student affect toward the (a) content, (b) instructor, (c) behaviors recommended in the course, and (d) likelihood of enrolling in a future course. Results of a Multivariate Analysis of Variance revealed overall mean differences between the lecture conditions, Wilk’s $\Lambda = .631$, $F(4, 441) = 64.546$, $p < .001$. An examination of the between-subjects effects revealed significant differences in student affect toward the content: $F(1, 444) = 85.491$, $p < .001$, $\eta^2_p = .161$; instructor: $F(1, 444) = 253.032$, $p < .001$, $\eta^2_p = .363$; behaviors recommended in the course: $F(1, 444) = 105.804$, $p < .001$, $\eta^2_p = .192$; and likelihood of enrolling in a future course: $F(1, 444) = 25.527$, $p < .001$, $\eta^2_p = .054$.

### Table 1. Mean scores and standard deviations for affect measures.

<table>
<thead>
<tr>
<th>Teaching condition</th>
<th>Affect: Content</th>
<th>Affect: Instructor</th>
<th>Affect: Behaviors</th>
<th>Affect: Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Antagonism (Control)</td>
<td>$M = 5.058$</td>
<td>$SD = 1.264$</td>
<td>$M = 4.796$</td>
<td>$SD = 1.659$</td>
</tr>
<tr>
<td>Antagonism (Treatment)</td>
<td>$M = 3.881$</td>
<td>$SD = 1.539$</td>
<td>$M = 2.371$</td>
<td>$SD = 1.536$</td>
</tr>
</tbody>
</table>

Note. All means for affect measures are significantly different between teaching conditions.
course: \( F(1, 444) = 128.773, p < .001, \eta^2_p = .225 \). As can be seen in Table 1, instructor antagonism reduced all types of student affect. Thus, Hypothesis 1 was supported.

Hypothesis 2 predicted that instructor antagonism would reduce student affect toward the content and in turn, would decrease student cognitive learning. To test H2, we tested a mediation model using ordinary least-squares path analysis in PROCESS 3.0 (Hayes, 2018a). The indirect effect was estimated using 5000 percentile bootstrapped samples, and the partially standardized indirect effect was used for a mediation effect size. The lecture conditions were indicator-coded (0 = standard lecture, 1 = antagonistic lecture). Results for the total effect indicated that on average, students scored a little over 5% worse on the quiz with an antagonizing instructor \( (c = -5.369, p = .006) \). As predicted, results of the path analysis indicated the effect of antagonism on quiz percentage was mediated by student affect toward the content \( (ab = -3.124 \text{ [95% bootstrapped CI: } -5.007 \text{ to } -1.311]; \quad ab_{ps} = -0.149 \text{ [95% bootstrapped CI: } -0.238 \text{ to } -0.063]) \). Because the lecture manipulations were indicator coded, and path coefficients were unstandardized, the indirect effect can be interpreted as a loss of 3% on the quiz score. There was no evidence of a direct effect \( (c' = -2.244, p = .24) \). (Figure 1)

The research question asked if the effect of instructor antagonism on students’ cognitive learning through the reduction of student affect toward the content would be greater for students who value their learning (those who are effort-regulated and possess a mastery orientation toward learning). A conditional process model was specified to test first-stage multiple additive moderated mediation. Figure 2 displays the model including the two significant interaction terms used to quantify conditional indirect effects.

Although a significant interaction between the independent variable(s) and the moderator serves as a test for moderation, the statistical test of moderated mediation and inference about significant differences among conditional indirect effects is determined by consulting the index of moderated mediation and its accompanying 95\% bootstrapped confidence interval (Hayes, 2015). However, the index of moderated mediation is used in path models with a single moderator, but mediation models specified as a function of two moderators require a different statistical technique for a formal test of moderated mediation. Hayes (2018b) recently introduced a statistical test for detecting multiple

![Figure 1. Mediation model.](image)

Note. Paths are unstandardized coefficients. \(^*p < .05\).
additive moderation (i.e., two two-way interactions) in a conditional process model; the test is the index of partial moderated mediation and it quantifies “how much the indirect effect of \( X \) on \( Y \) through \( M \) changes as [one] moderator changes by one unit when the other moderator is held fixed” (p. 9). In other words, this index serves as a formal test of moderated mediation by one moderator, controlling for the other moderator, when its accompanying bootstrapped confidence interval excludes zero (it is possible that the indirect effect differs only due to one moderator when the other moderator is statistically controlled for).

We found evidence that both moderators, mastery-orientation (index of partial moderated mediation = \(-.629\); CI: \([-1.380 \text{ to } -.079]\)) controlling for effort-regulation, and effort-regulation (index of partial moderated mediation = \(-.871\); CI: \([-1.766 \text{ to } -.227]\)) controlling for mastery-orientation, independently moderated the indirect effect of antagonism on cognitive learning through reduced student affect toward the content. As is the case for any conditional process model, it is necessary to probe the conditional indirect effects. However, as Hayes (2018b) explained for a moderated mediation model with two moderators, “because the indirect effect is a function of two moderators, you must choose values for each moderator. There is no way around this, even though the second moderator is held fixed in the test of partial moderated mediation” (p. 13).

In Table 2, we report conditional indirect effects at values of both moderators (mastery orientation and effort regulation) probed at one standard deviation below the mean, the mean, and one standard deviation above the mean. Because the bootstrapped confidence intervals for both indices of partial moderated mediation excluded zero for both moderators, we have evidence that students who are higher in mastery orientation, despite their effort regulation, scored progressively worse on the quiz with an antagonizing professor.
because they did not like the content being taught. Likewise, we have evidence that students who are higher in effort-regulation, despite their mastery orientation, scored progressively worse on the quiz with an antagonizing professor because they did not like the content being taught as well. In other words, students who learn because they want to master the material, and independently, who are able to control their efforts in the face of distractions and difficulties, experienced a greater loss of affect about what they were learning from an antagonizing instructor, and consequently, performed even worse on a quiz. In fact, students who were high in both mastery orientation and effort regulation were estimated to lose 4.7% on the quiz because of a greater reduction of affect toward the content. These conditional indirect effects collectively show that students who are more concerned about optimizing their learning experiences, suffered the most in our learning experiment. All the conditional indirect effects have bootstrapped confidence intervals that exclude zero, providing evidence of mediation at these values of the moderators.

### Discussion

Guided by CATLM, the purpose of this experiment was to demonstrate that instructor misbehaviors, particularly in the form of antagonism, reduce student affect, and in turn, interfere with students’ cognitive learning. Moreover, we sought to determine for whom the negative impact of antagonism would be most detrimental. As predicted, our findings suggest that student affect is diminished when instructors antagonize students. Indeed, these findings apply to broad domains of affect. Across the board, antagonism caused students to dislike the instructor, have less appreciation for the content they were learning, not want to apply what they had learned, and become less likely to enroll in a future course with the instructor. These experimental results corroborate much of the correlational research using self-reports of misbehaviors and affect (Goodboy, 2011; Goodboy & Bolkan, 2009; Sidelinger et al., 2011). Importantly, the reduction in student affect was derived from participants observing the instructor antagonize other students who they did not know in a lecture video. Considering instructors can be antagonistic by singling

<table>
<thead>
<tr>
<th>Values of additive moderators</th>
<th>Bootstrapped</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low MO/low ER</td>
<td>-1.337</td>
<td>.615</td>
<td>-2.701</td>
</tr>
<tr>
<td>Low MO/mod ER</td>
<td>-2.306</td>
<td>.795</td>
<td>-3.954</td>
</tr>
<tr>
<td>Mod MO/low ER</td>
<td>-3.276</td>
<td>1.126</td>
<td>-5.578</td>
</tr>
<tr>
<td>Mod MO/mod ER</td>
<td>-2.052</td>
<td>.793</td>
<td>-3.785</td>
</tr>
<tr>
<td>Mod MO/high ER</td>
<td>-3.022</td>
<td>.964</td>
<td>-4.921</td>
</tr>
<tr>
<td>High MO/low ER</td>
<td>-3.992</td>
<td>1.269</td>
<td>-6.501</td>
</tr>
<tr>
<td>High MO/mod ER</td>
<td>-2.768</td>
<td>1.086</td>
<td>-5.126</td>
</tr>
<tr>
<td>High MO/high ER</td>
<td>-3.738</td>
<td>1.234</td>
<td>-6.242</td>
</tr>
<tr>
<td>High MO/high ER</td>
<td>-4.707</td>
<td>1.500</td>
<td>-7.629</td>
</tr>
</tbody>
</table>

Note. MO = Mastery Orientation. ER = Effort Regulation. Low MO (−1 SD = 4.536), Moderate MO (M = 5.676), High MO (+1 SD = 6.815). Low ER (−1 SD = 3.732), Moderate ER (M = 4.846), High ER (+1 SD = 5.959). Conditional indirect effects can be interpreted as a loss of % on the quiz score. All values of the indirect effects at any value of ER selected are significantly different from each other, regardless of the value of MO. Likewise, all values of the indirect effects at any value of MO are significantly different from each other, regardless of the value of ER. To interpret partial moderated mediation, it is useful to interpret significant differences of indirect effects at low (−1 SD), moderate (M), and high values (+1 SD) of one moderator, but at the mean of the second moderator, and vice versa (see Hayes, 2018b).
out individual students, we might assume that reductions in student affect would be greater in actual classrooms if an instructor antagonized a student participant directly.

Though the indirect learning decreases in our study were small, we speculate that over the course of an entire semester, the cumulative effects of antagonism could be larger. One explanation for our results stems from work in the field of education psychology. In particular, proponents of CATLM contend that students learn in their classrooms to the extent that they pay attention to important information, organize it in meaningful ways, and integrate new lessons into their existing base of knowledge (Moreno, 2006). However, according to Moreno, the extent to which these processes occur is influenced by motivational factors linked to the learning environment because, as Park, Moreno, Seufert, and Brunken (2011) argued, “students need to become motivated to make full use of their cognitive resources during learning” (p. 9). In essence, Park et al. argued that the optimal learning environment is one that fosters students’ abilities to deeply process course material while simultaneously increasing their motivation to invest in cognitive engagement. Thus, in our study, it is possible that student learning may have suffered when participants were exposed to an antagonistic instructor because their experiences of reduced positive affect may have left them less willing to engage with the learning activity (Park, Plass, & Brunken, 2014) or less willing to put forth as much effort as they might have under other teaching conditions (Um, Plass, Hayward, & Homer, 2012). It is possible that students consciously decreased their efforts to learn because they were less invested in the learning content they disliked. This explanation coincides with Lewis and Riley’s (2009) claim that excessive negative criticism and embarrassment result in students becoming resentful of their instructor and disengaged from learning.

A secondary purpose of our experiment was to determine if students who value their educational experiences more suffer greater learning impediments than students who value it less, due to indirect effects from antagonism. Results indicated that students who were either higher in mastery orientation, or independently, effort regulation, scored even lower on the quiz because of their reduced affect toward the content. Ultimately, the greater reduction in learning for mastery-oriented and effort-regulated students might be due to disappointing expectations from antagonizing instruction because these students place a higher concern for their learning (Bouffard, Boisvert, Vezeau, & Larouche, 1995). Since these students value their learning opportunities more, albeit it for different reasons (wanting to understand the material for mastery versus being able to persist in the academic task in the face of distraction), they might have experienced a more noticeable violation from their expectations for effective instruction. After all, students higher in mastery-orientation and effort-regulation, independently, reported greater affect toward the content in the standard lecture (control) than students who were lower and viewed the same standard lecture without antagonism. Antagonistic instruction, then, might have deprived these students from learning tasks that they typically would have held in higher regard if experienced without antagonism.

**Implications for teaching and learning**

From our results, the obvious pedagogical takeaway is to not misbehave by antagonizing students. This implication is perhaps too self-evident and unhelpful because most
instructors intuitively know not to antagonize their students, and the instructors who do antagonize their students are unlikely to be concerned with effective instruction and might not be reading this research anyway. However, as Borzea and Goodboy (2016) noted, even slight antagonism, coupled with otherwise effective instruction, can demotivate students from being engaged in class and interested in their learning opportunities. A single antagonistic episode, or one bad day of teaching, can potentially ruin a students’ perception of the instructor by diminishing affect. And even the most patient and polite instructors may become irritated and agitated when dealing with a frustrating encounter from a problem student, or an academically entitled student who completes minimal work but expects educational success (Goldman & Martin, 2016). Frustrating encounters with students on a particularly bad teaching day (e.g., dealing with cheating, plagiarizing, disruptive behavior, etc.) might encourage instructors to argue with students during class, belittle them, criticize their responses, and/or highlight flaws in student thinking or opinions, all of which are antagonistic. Even instructors who normally are confirming to their students, could suffer from a bad mood any given day of the semester, as negative teacher emotions bleed into the classroom when personal issues or social/cultural issues exacerbate the way instructors treat their students by expressing emotion (Fried, Mansfield, & Dobozy, 2015).

In these ways, antagonism that normally would not occur could surface in the classroom, perhaps even without the knowledge of the instructors who are engaging in these behaviors. One of the ways that instructors might work to improve their classroom outcomes, then, is to determine when they are being antagonistic. That is, by asking for feedback from students, instructors may provide themselves with the opportunity to determine if or how they are being perceived as antagonistic by their students. Though most students who experience discontent with their instructors never articulate their problems (Bolkan & Goodboy, 2013), instructors might consider what they can do to help facilitate the receipt of this important information (see Bolkan & Goodboy, 2016). Even a few unplanned instances of instructor antagonism may jeopardize student affect for the remainder of the semester or ruin the climate of the classroom (Sidelinger et al., 2011), and though it might not be commonplace in most classrooms, even small doses of it may be enough to adversely disturb a learning environment. Thus, by asking students to alert them to how and when they are being antagonistic, instructors might learn when they are most susceptible to engaging in these types of behaviors.

Related, our results may have extended implications for graduate teaching assistant (GTA) orientations and training. Master’s and doctoral students are the future instructors in our discipline, and perhaps they could be trained to avoid misbehaviors in the classroom. Such a training could focus on identifying misbehaviors, including antagonism, and then focusing on more confirming ways of communicating with students (Ellis, 2004), even during frustrating teaching moments or during times of disagreement. Instructor antagonism can manifest in an email response to a student, during an out-of-class encounter, or in written feedback or grading; accordingly, new GTAs could be trained and mentored to avoid antagonizing. This is a possibility as previous research on GTA training has demonstrated that post-training, GTAs are more likely to appreciate and choose prosocial strategies to manage undergraduate students in their classrooms (Young & Bippus, 2008). This possibility coincides with the notion we might train graduate students and prepare them for disequilibrium in teaching instead of equilibrium;
specifically, that when they inevitably misbehave (hopefully unintentionally), they learn
from their mistakes by embracing the rhythm in their teaching instead of trying to
restore balance to unpredictable and inadvertent mistakes (Dannels, 2015).

**Limitations and future directions**

We recognize the limitations of our study. Two major limitations include the fact that we
used a video-recorded lecture and that our learning assessment consisted of a short 10-
item quiz immediately following the lecture. The problem with using a video lecture
over a live class is that the performance stakes are low for students. To student partici-
pants, it may matter little how closely they pay attention to the lecture or how they
perform on a quiz that does not reflect a course grade. Moreover, an 8- to 9-minute
video does not approximate an entire 50- to 90-minute lecture in a college course. In
addition, providing a quiz right after a lecture measures short-term recall and excludes stu-
dents’ meaningful efforts to learn that include notetaking, reading, and studying. Although
these represent significant limitations, overcoming them is difficult considering it would
be unethical to antagonize students in a real class, especially considering how instructor
misbehaviors are theorized to hurt students’ grades. That said, our experiment allowed
us to control for a variety of outside influences while testing the impact of instructor mis-
behaviors on direct indicators of student learning—despite the limitations in our study,
this result had not been demonstrated empirically before the current investigation.
Finally, it is possible that the results might have been moderated by instructor sex. The
instructor in the videos was a man, and results might be different if we used a female
instructor.

Despite these limitations, we contend that communication researchers should consider
experimental research when studying instructor misbehaviors in the future. It is important
to verify existing correlational claims with new causal evidence that misbehaviors affect
student learning; randomized experiments can demonstrate causal processes. In addition,
we believe misbehavior research would benefit from increased attention on individual mis-
behaviors. Although it is easier for researchers to make sweeping claims about instructor
incompetence, indolence, or offensiveness in a general sense (Kearney et al., 1991), it may
be more useful to re-examine specific instructor misbehaviors at the behavioral level
instead of clusters of misbehaviors that are similar. For example, we know very little
about how instructors’ misuse of email or classroom technology detract from student
learning. For the sake of conceptual clarity, it could be beneficial to conduct tightly con-
trolled experiments manipulating one specific instance of the many possible misbehaviors
in addition to examining how broad clusters of misbehaviors work together to influence
students’ classroom experiences.

In addition, researchers might consider broadening the scope of misbehaviors they
study. This is because there may be more misbehaviors that have not yet been discovered.
We are certain most scholars could think of a variety of instructor misbehaviors that are
not listed in the typologies (Goodboy & Myers, 2015; Kearney et al., 1991). For example,
Goodboy and Myers (2015) found that students resent instructors who teach in opinio-
nated ways by pushing their personal religious or political viewpoints on their students.
In today’s politically charged and outspoken world, these types of instructor misbehaviors
might be adversely affecting students in classrooms right now (Linvill, Boatwright,
Grant, 2018). Finally, the results of this study raise two important questions not answered by our data. What should instructors do to remediate misbehaviors if they make a mistake by antagonizing a student? Clearly this could cause disequilibrium (especially for less experienced teachers); how might an instructor regain rhythm in teaching after misbehaving? And how much misbehavior can occur in a classroom before student affect is compromised? Given that some misbehaviors may be unintentional toward students, it would be important to examine these questions, and especially consider students’ attributions and blame for why misbehaviors occur— (external) is an instructor seen as having a bad day or (internal) is an instructor viewed as a mean person (Kelsey et al., 2004; Vallade & Myers, 2014).

**Contributions**

In this study, we demonstrated that instructor antagonism caused students to score slightly lower on a quiz of the material, because they disliked the material they were learning more, and that these negative indirect effects on quiz scores were worse for students who were mastery-orientated and effort-regulated. We also showed that instructor antagonism substantially reduced student affect. Although some instructors might not consider the repercussions of belittling their students and putting down their classroom contributions, by doing so, they risk reducing students’ affect and creating an unnecessary roadblock to learning. Fortunately, this learning roadblock is avoidable if instructors remain watchful of their communication in the classroom.

**Note**

1. The term "media" might mislead readers to think of media in the traditional sense (e.g., mass media). In CATLM, Moreno (2006) stated, "I use the term media to refer to the physical system or vehicle used to deliver instruction—such as a teacher’s lecture, a textbook, or a desktop computer" (p. 49). In CATLM, instructional media includes a traditional lecture as the medium used to deliver educational materials.

**Acknowledgement**

We would like to thank Harley Hymes for his assistance with our method.

**References**


**Appendix 1. Lecture script and manipulations.**

*Lecture video begins.*

Instructor: “Hello, class, thanks for having me today as a guest lecturer. Today, I am going to talk to you about some ideas related to persuasion and social influence. The ideas I am going to discuss were first articulated by a researcher named Robert Cialdini, who attempted to explain social influence in people’s everyday experiences. Essentially, Cialdini noted that people often use cognitive shortcuts, also called heuristics, to make most of their decisions and claimed that people who know about these shortcuts can use them to change people’s behaviors. Today, we are going to talk about three of these cognitive shortcuts, or heuristics: these are Reciprocity, Authority, and Social Proof.”

Student #1 (male) [raises his hand.]

Instructor [Acknowledges]: “Yeah.”

Student #1: “What do you mean by social influence?”

Instructor:

*Condition 1 (treatment): “You should already know the answer to that question if you were paying attention to last class. Anyway …”*

or

**Condition 2 (control): “We went over that last class, so it should be in your notes, but I can go over that with you later if you’d like.”*

Student #1: “Sorry, well, could you at least spell Cialdini for me?”

Instructor:

*Condition 1 (treatment) [With a condescending tone]: “That is not really that important to know. C-I-A-L-D-I-N-I. Anyone else need a spelling lesson?”*

or
**Condition 2 (control):** “Sure, don’t worry about spelling, but it’s C-I-A-L-D-I-N-I.”

**Instructor:**

“The first shortcut, reciprocity, refers to the idea that people feel obligated to repay favors to others. That is, if someone does something nice to you, you tend to feel like you need to do something nice for them sometime down the road. Reciprocity also works the other way around too—if someone does something mean to you, you may feel like retaliating down the road. Cialdini notes that one way to change people’s behaviors is to use the reciprocity heuristic first to create a feeling of obligation in others. Cialdini calls this “pregiving” and gives examples of providing small gifts before asking someone else for a favor. For instance, some companies will send consumers a dollar bill in an envelope and then will subsequently ask them to fill out a survey…”

*Condition 1 (treatment):* “… though, I am sure most people from West Virginia would probably take the dollar and not fill out the survey—the irony is West Virginians are the people that need money the most as a poor state, yet they don’t want to do any work for their money, not even a short survey.”

or

**Condition 2 (control):** “… though, I am sure most people would probably take the dollar and not fill out the survey—the irony is the people that need money might not even complete a short survey.”

“Pregiving works best under three circumstances: (1) when the gifts are customized to the person you deliver them to, (2) when the gifts are meaningful to the person you gave them to, and (3) when the gifts are unexpected.”

**Student #2 (male) [Raises his hand and asks a question]:** “Wouldn’t customized gifts already be considered meaningful by people?”

**Instructor answers:**

*Condition 1 (treatment) [With a confused and judgmental facial expression]:* “Ummmm, no … no. Why would you say that?”

or

**Condition 2 (control):** “Sometimes.”

**Student #2:** “If I got a customized gift, it would have significant meaning because it suggests this person knows me.”

**Instructor:**

*Condition 1 (treatment):* “No, you could customize a gift that has no meaning to someone at all. Like I could send you a customized refrigerator magnet with your name on it, but perhaps you don’t think it’s meaningful and you throw it away. In WV, you all care about pepperoni rolls, drinking, fairs, and Mountaineer football, and all that other hick stuff. So, any gifts like that could be customized in a way that West Virginians find meaningful. If you go to California, where people have more class, they wouldn’t care about these customizable gifts; they wouldn’t be meaningful.”

or

**Condition 2 (control):** “Possibly, but you could customize a gift that has no meaning to someone at all. Like I could send you a customized refrigerator magnet with your name on it, but perhaps you don’t think it’s meaningful and you throw it away.”

**Student #2:** “Oh … yeah, I see what you mean. But I’m from New Jersey.”

**Instructor:**
*Condition 1 (treatment): “Yea well, that explains a lot hahaha.”

or

**Condition 2 (control): “Oh, ok, I didn’t know that about you.”

“Alright, so, let’s think of an example of how this might work in your life if you worked in a company. Imagine you want to give your boss a gift certificate in the hopes of having him or her approve a business deal you are working on in the upcoming weeks. In order for your gift to be maximally effective, the best pregiving would occur if you gave your boss a gift certificate to a restaurant you know he or she liked as opposed to one that just happens to be in the area. This is the idea of customization. In addition, the gift certificate would work best if you felt like it took some work to obtain and was thoughtful. This refers to the meaningfulness of the gift. Finally, the gift certificate would mean more if it was unexpected. So, for instance, it would be more effective for eliciting reciprocity if you gave it as a random gift as opposed to something like a birthday present where your boss might expect you to give a gift anyway.”

Instructor asks a question: “Can anyone repeat the three ideas related to effective pregiving?” [Looks directly at student #3.]

Student #3 (female): “Sure, reciprocity works best when pregiving includes (1) gifts that are customized, (2) gifts that are meaningful, and (3) gifts that are unexpected.”

Instructor [Sounds surprised]:

*Condition 1 (treatment): “Yup. Well, it looks like some people can keep up and pay attention.” [Looks at student # 1.] “Brian, you could try and be more like Brenda here.” [Brenda is student #3].

or

**Condition 2 (control): “Yup. Thanks for keeping up and paying attention.”

“The second heuristic we will talk about is authority. Authority refers to the idea that people often listen to others who have expertise or status to determine what they should do. This cognitive shortcut often works for us because people cannot know everything, and therefore need to rely on others to help them navigate a complex world.”

Student #1: “Can you give us an example?”

Instructor:

*Condition 1 (treatment): “Seriously? If you would let me finish, you would have an example.”

or

**Condition 2 (control): “Sure.”

“For example [Condition 1 in a condescending tone; Condition 2 without the tone], we rely on our doctor’s advice instead of getting medical degrees ourselves, and we trust our doctors to tell us the best way to get better when we are feeling sick. According to Cialdini, the use of authority as a persuasive device is most useful when people believe the authority figure to be credible. Specifically, authority figures are considered credible to the extent that they are considered competent, trustworthy, and caring. As I am sure you know, competence refers to being knowledgeable. Being trustworthy means that individuals are honest, ethical, moral, and free from bias from outside sources. Finally, being caring means that people have your personal best interests at heart. Authority figures who are considered competent, trustworthy, and caring tend to be more persuasive.”

Instructor: “Can anyone give us an example of how credibility works in a real-life scenario?”

Student #3: “Sure. Imagine you go to the doctors’ office because you feel sick. I bet you would trust a doctor with a degree from Harvard more than one who earned an online certificate. The idea here is based on expertise. If you knew that your doctor was paid by a pharmaceutical company to
recommend a specific brand of medicine, you might become suspicious of the doctor’s motivation. This is the idea of trustworthiness because your doctor’s recommendation is not really free from bias and the decision to recommend medicine because it benefits him may be immoral. Finally, if instead of listening to your symptoms carefully and getting to know your sickness your doctor takes only a few minutes with you when diagnosing, you might not believe that his or her recommendation is the best one. This is the idea of caring.”

Instructor:

*Condition 1 (treatment): “That answer is okay. It is basically what I just said earlier, but it works. It looks like someone took a minute away from their phone to actually listen for once.” [Looks at student #1.] “This is why Brenda [student #3] is my favorite student.”

or

**Condition 2 (control): “That answer is okay. It is what I said earlier, but it works.”

“The third heuristic I want to discuss is social proof…”

Student #1: “Can you slow down a little bit?”

Instructor:

*Condition 1 (treatment): “Come on, Brian [student #1], try to keep up…” [Waits.] “You’re always making me slow down.”

or

**Condition 2 (control): “Sure.” [Waits.]

[Now in slowed-down pace.] “Social proof is the idea that in uncertain circumstances people look to similar others to determine the correct behavior. So, for example, when you are in a new setting, like a classroom or church, you can often follow what other people are doing in order to behave appropriately in the circumstances. For social proof to be most effective, people have to behave in uncertain circumstances and be exposed to similar others. When circumstances are certain, people do not need others to help them figure out to behave. For instance, if you have been to church before, you probably do not look to others to see what you should be doing. Instead, you probably already know what to do. The way people can use social proof as a heuristic to influence others may be through things such as bandwagon appeals. These types of appeals demonstrate that other people have done something in the past and therefore you should too. For example, noting that a movie is the number one film in America is one way marketers try to get people to think about seeing a movie: if everyone else liked it, you should too! Of course, this type of appeal only works if you are not familiar with the movie and it should be most persuasive if the other people who liked the movie were similar to you as opposed to being different.”

Student #2: “Wait, I am confused.”

Instructor: “About what?”

Student #1: “What you just said?”

Instructor:

*Condition 1 (treatment): “What kind of question is that? Talk to Brenda [student #3], obviously they know how to pay attention.”

or

**Condition 2 (control): “Ok, well, let’s try to clear this up then.”

Instructor: “Okay what are the big takeaways from today?”

Student #1: “Advertisers use heuristics to make decisions.”
Instructor:

*Condition 1 (treatment): “Wow, you are so smart.” [Sarcastic voice]. “No, that is completely wrong. Come on. What have you been doing during this entire lecture? Seriously. This is why West Virginia students are seen as incompetent.”

or

**Condition 2 (control): “Not exactly. I’m looking for a summary.”

Student #3: “We went over Reciprocity, Authority, and Social Proof and demonstrated how each of these might be useful to people who are interested in influencing others.”

Instructor:

*Condition 1 (treatment): “Alright, thank goodness someone came prepared for today. I hope the rest of you were paying attention to what Brenda [student #3] had to say. I know that is a lot to ask you all these days, but next class try to be more like her.”

or

**Condition 2 (control): “Thank you, Brenda [student #3]. That’s a great summary.”

[Lecture ends.]

Notes.

There is a 4th student in the lecture video but she does not participate or communicate in either of the lecture videos. She can, however, be seen in the video.

Videos are available upon request.