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Noncompliance and dissent with cell phone policies: a psychological reactance theoretical perspective

Nicholas T. Tatum[a], Michele K. Olson[b] and T. K. Frey[b]

[a]Department of Communication and Sociology, Abilene Christian University, Abilene, U.S.A.; [b]College of Communication and Information, University of Kentucky, Lexington, U.S.A.

ABSTRACT

This study employed Brehm's psychological reactance theory (PRT) to understand why students do or do not choose to follow classroom cell phone policies. Results ($N = 750$) from this study demonstrate that when instructors discourage cell phone use for noninstructional reasons, students feel their autonomy has been threatened. These perceptions of freedom threat ultimately induce a reactance process, leading sequentially to negative cognitions and anger, which predict policy noncompliance. This reactance process is also predictive of students' enactment of other uncivil classroom behaviors (i.e., instructional dissent). Theoretical implications are discussed, and practical suggestions are given for instructors hoping to increase cell phone policy compliance and limit reactance among students in the classroom.

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Mobile communication technology plays an increasingly important role in the lives of college students (Finn & Ledbetter, 2014; Ledbetter & Finn, 2016). Specifically, cell phones have "everywhere and at any time" communication capabilities (Licoppe, 2004, p. 152), and classrooms are not immune to this ubiquity (Diamanduros, Jenkins, & Downs, 2007; Holtgraves, 2011). The perpetual, habitual use of cell phones is encouraged to some extent by the technologically dependent culture college students inhabit, a culture that promotes continuous contact with one's social network (Hall & Baym, 2012). While students can use cell phones for productive, academic reasons during class (Tessier, 2013), students also engage in noninstructional cell phone use (i.e., using cell phones for purposes outside a classroom's academic goals; Ledbetter & Finn, 2013, 2016). Noninstructional cell phone use, potentially driven by boredom (Bolkan & Griffin, 2017) or habit (Wei & Wang, 2010), has the potential to negatively affect students in the classroom.

Noninstructional cell phone use compromises classroom relationships. When students use cell phones to communicate with individuals outside the classroom, they devote less attention to both peers (e.g., classroom connectedness; Johnson, 2013) and instructors (Tindell & Bohlander, 2012), which diminishes the potential to develop and sustain meaningful classroom connections. Noninstructional cell phone use also distracts students from fully engaging in the learning process. Both students and instructors consider

CONTACT Nicholas T. Tatum nick.tatum@acu.edu Department of Communication and Sociology, Abilene Christian University, Abilene, TX 79699, U.S.A.

nonclass-related cell phone use to be a disrupting classroom behavior (Cheong, Shuter, & Suwinyattichaiporn, 2016; Rashid & Asghar, 2016). Researchers suggest cellular distractions negatively affect student notetaking (Kuznekoff & Titsworth, 2013) and classroom engagement (Campbell, 2006; Johnson, 2013). Finally, noninstructional cell phone use can diminish cognitive learning—a variable of interest for scholars exploring communication and instruction (Clark, 2002; Frisby, Mansson, & Kaufmann, 2014). Both perceived (Froese et al., 2012; Wei, Wang, & Klausner, 2012) and actual (End, Worthman, Mathews, & Wetterau, 2010; Kuznekoff, Munz, & Titsworth, 2015) cognitive learning can be negatively affected by this off-task behavior. For these reasons, it is vital to both instructors and researchers to investigate the classroom policies that limit or eliminate such cell phone use.

Many instructors employ a classroom cell phone policy (CPP) to combat students' noninstructional cellular behavior. As with all classroom management policies, CPPs have varying levels of success in limiting or eliminating noninstructional cell phone use (Baker, Lusk, & Neuhauser, 2012). Despite these mixed results, little is known about what leads students to follow or not follow CPPs in class, as existing research is primarily concerned with examining how CPPs influence student attitudes or perceptions (e.g., credibility and power; Finn & Ledbetter, 2013). Understanding the theoretical mechanism that leads students to noncompliance could help instructors better regulate noninstructional cell phone use and avoid the negative consequences of such use. To meet this need, the present study employs psychological reactance theory (PRT; Brehm, 1966; Brehm & Brehm, 1981) to explore what causes students to follow (or not follow) CPPs in class. Previous research (e.g., Ball & Goodboy, 2014; Zhang & Sapp, 2013) suggests PRT is an appropriate lens for understanding why instructors' persuasive messages fail and helps predict how students may react to such messages. First, we offer a comprehensive explanation of psychological reactance and how it relates to instruction. Second, we synthesize the research exploring classroom CPPs. Third, we hypothesize potential student reactions to classroom CPPs, namely noncompliance and instructional dissent.

Psychological reactance theory

There are various explanations as to how and why persuasive messages fail (e.g., Allen & Stiff, 1989; Byrne & Hart, 2009); PRT provides one such explanation. Key to PRT is an individual's need for autonomy. The theory posits that when an individual perceives a message (e.g., CPP) will threaten their ability to enact free behavior (i.e., freedom to use a cell phone for noninstructional purposes during class), they experience reactance, or "a motivational state directed toward the reestablishment of threatened or eliminated freedom" (Brehm, 1966, p. 48). To restore their threatened freedom or avoid additional freedom threats, individuals may exercise direct or indirect forms of restorative behavior.

Direct restoration is the performance of the prohibited behavior (Dillard & Shen, 2005) or, in this case, noncompliance with a classroom CPP. Indirect restoration, or engaging in behaviors not threatened by the message, may include the following: acting hostile toward (Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003) or derogating the source of the message (Worchel & Andreoli, 1974), forming attitudes opposite of what is advocated (i.e., boomerang effect; Heller, Pallak, & Picek, 1973; Sensenig & Brehm, 1968), engaging in a similar behavior to the one that was threatened (Miller, Lane, Deatrick, Young, & Potts, 2007), showing a preference for the behavior that was eliminated (Brehm, Stires, Sensenig, &

Shaban, 1966), or denying the existence of the threat (Worchel, Andreoli, & Archer, 1976). In the classroom, indirect restoration can manifest as various forms of student incivility (Ball & Goodboy, 2014), such as instructional dissent (Goodboy, 2011a, 2011b).

Previously, reactance was thought of as a latent, unmeasurable construct (Brehm & Brehm, 1981). In an effort to operationalize psychological reactance, Dillard and Shen (2005) proposed that reactance is a combination of anger and negative cognition, subsequently referred to as the intertwined model of reactance. Previous studies have supported the validity of the intertwined model (Quick & Stephenson, 2007; Rains & Turner, 2007; for meta-analysis, see Rains, 2013).

Despite the potential applicability of PRT within instructional research (Mirick, 2016), instructional scholars have only recently applied this logic to the classroom context. In the first application of PRT, Zhang and Sapp (2013) suggested that increases in perceived politeness of teacher requests and closeness in the instructor–student relationship help alleviate student reactance and, in turn, student intentions to enact restorative behaviors. Later, Ball and Goodboy (2014) discovered that instructional messages using unclear or forceful language were positively associated with student reports of perceived freedom threat, which were predictive of psychological reactance. Consequently, psychological reactance mediated the relationship between perceived freedom threat and student intention to enact indirect restorative behavior (i.e., instructional dissent and challenge behavior). Given these findings, it seems likely that a similar pattern could be observed in student reactions to CPPs.

Classroom cell phone policies

Instructors can enforce classroom CPPs in two primary ways: by encouraging and/or discouraging cell phone use (Finn & Ledbetter, 2013). Instructors can encourage cell phone use by embracing cell phones for instructional purposes. For example, an instructor could require that students use cell phones to complete an assignment or project during class time. However, instructors can also discourage cell phone use in the classroom by restricting or prohibiting technology use for nonclass-related purposes. During class, an instructor might make students turn off their cell phones or put them in an inaccessible location so they will not interfere with classroom activities. Instructors who discourage noninstructional technology may even become annoyed when students use cell phones for noninstructional purposes (Finn & Ledbetter, 2013). In practice, instructors might "engage in one approach (e.g., encouraging instructional use but not discouraging noninstructional use), both, or neither" (Ledbetter & Finn, 2013, p. 304). That is, an instructor may simultaneously encourage students to use their phones during class for an activity while discouraging them from using their phones for text-messaging or surfing the web. Instructors can also have a laissez-faire policy by not appearing to care or take issue with how cell phones are used within the classroom (Finn & Ledbetter, 2013).

Recent instructional studies have considered the impact of CPPs on students, and several key ideas have been highlighted. First, because students expect to utilize mobile devices during class for academic purposes (Finn & Ledbetter, 2014), perceptions of instructional variables improve when these expectations are met (Finn & Ledbetter, 2013; Ledbetter & Finn, 2013). For example, when instructors encourage technology use for class-related purposes, students perceive the instructor as more credible (Finn &

Ledbetter, 2013). Second, students respond to the clarity of an instructor's CPP, as ambiguity has the potential to negatively impact instructional outcomes. Interestingly, students see instructors as more credible when they encourage or discourage technology use compared with when no clear policies or expectations are enforced (Finn & Ledbetter, 2013). Third, the type of technology being regulated (e.g., cell phones, laptops, tablets) plays an important role in student perceptions, since students may react differently to bans on different types of technology (Finn & Ledbetter, 2014). Students seem to be more sensitive to policies regulating laptops or tablets than cell phones, perhaps because they see these devices as more essential to classroom activities (e.g., notetaking; Finn & Ledbetter, 2014).

Fourth, instructors' behaviors and characteristics (e.g., teacher power, verbal aggressiveness) are tied to student perceptions of classroom technology policies and, as such, play a role in shaping how students interpret and respond to policies (Finn & Ledbetter, 2013, 2014). For instance, when instructors discourage students from utilizing technology for instructional purposes, students perceive them to be more verbally aggressive; however, when discouraging noninstructional use, students perceive instructors as less verbally aggressive (Finn & Ledbetter, 2014). Fifth, students desire choice in how they use technology in the classroom. Even if instructors encourage or require technology use for instructional purposes in class, students may perceive the policy unfavorably because their freedom to choose has been taken away (Finn & Ledbetter, 2014).

Two additional experiments have added to Finn and Ledbetter's findings. Lancaster and Goodboy (2015) explained that student attitudes toward specific policies may vary as a function of argumentation; students hold less favorable attitudes toward CPPs when a greater number of supporting arguments were used in the policy. Frey and Tatum (2017) found that students perceive instructors who use encouraging policies to display significantly more competence, caring, and character than those who enforce discouraging policies.

In light of these claims, when instructors discourage all cell phone use in the classroom, students may feel their freedom to choose is threatened. Using a discouraging policy may limit or eliminate students' ability to use their cell phones when they want and for what they want, as such policies prevent the enactment of unrestrained cellular behavior in the classroom and represent an unequivocal threat to freedom. Thus, when framed by PRT, the extent to which an instructor discourages noninstructional cell phone use in the classroom may increase student reports of perceived freedom threat. This leads us to our first research question:

RQ1: Will discouraging policies predict students' perceived freedom threat?

Restorative behavior

When students feel threatened by an instructor's CPP, PRT posits that students will experience a psychological state of anger and negative cognitions (i.e., reactance), subsequently leading to direct and/or indirect forms of restorative behaviors. Students may engage in direct restoration by refusing to comply with the policy itself (Mirick, 2016). Specifically, when students feel their ability to use their cell phones freely is threatened, they will experience a state of reactance, followed by the performance of the prohibited behavior (i.e., using their cell phone in unapproved ways; Dillard & Shen, 2005). Thus, as posited by PRT, rather than a direct relationship between perceived freedom threat

and policy compliance, perceived freedom threat will first influence psychological reactance, which in turn will influence policy compliance or noncompliance (path *ab*, Figure 1). As this pattern is well supported in PRT studies, the present study seeks to replicate research supporting this theorized sequence by posing the following hypothesis:

> H1: Students' perceived freedom threat will indirectly predict policy compliance through psychological reactance.

Students' reactance to a classroom CPP may also prompt indirect restoration of freedom through instructional dissent (Mirick, 2016). Goodboy (2011b) argued that instructional dissent occurs when students express their "disagreements or complaints about class-related issues" (p. 423). Instructional dissent can be classified into three distinct categories: expressive dissent, rhetorical dissent, and vengeful dissent (Goodboy, 2011a). Expressive dissent involves expressing feelings or frustrations with a course in order to elicit sympathy or support from others. Rhetorical dissent refers to students' efforts to persuade an instructor to take corrective action for perceived wrongdoings. Vengeful dissent includes behavior aimed at seeking revenge on an instructor (i.e., ruining their reputation or getting them fired). A number of classroom variables or processes have been identified that lead to instructional dissent, including unfair grading, teaching style, lack of feedback, and classroom injustice (Goodboy, 2011a, 2011b; Horan, Chory, & Goodboy, 2010). Importantly, Goodboy (2011a) identifies classroom policies as a triggering agent leading to students' instructional dissent.

Regarding CPPs, dissent allows students to restore perceived threats to freedom, albeit indirectly, by providing them a chance to express an opinion on a given issue when that right is initially denied. As explained previously, Ball and Goodboy (2014) sought to further clarify the role psychological reactance plays in predicting students' dissent. The researchers discovered that psychological reactance mediated the relationship between perceived threat and each type of dissent. Given these findings, it seems likely that a similar pattern could be observed in the context of CPPs, as Ball and

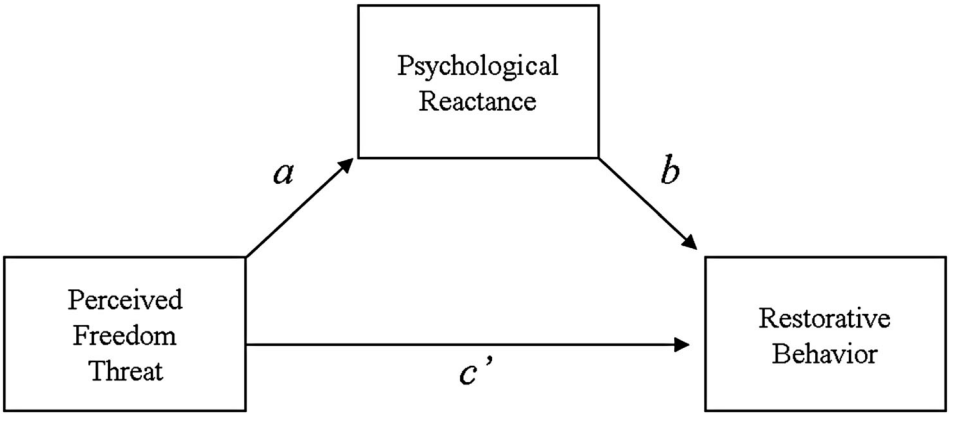

Figure 1. Conceptual diagram of the simple mediation model.

Goodboy claimed that "students would express dissent as a result of psychological reactance toward course policies or practices imposed by the instructor" (p. 197). As an initial exploration of this mediation (path *ab,* Figure 1), we pose the following research question:

> RQ2: Will perceived freedom threat indirectly predict (a) expressive, (b) rhetorical, and (c) vengeful dissent through student reports of psychological reactance?

If discouraging policies are in fact triggers of perceived freedom threat, then perhaps how discouraging a CPP is can be viewed as an antecedent to the mediational process posited by PRT (H1 and RQ2). In other words, it logically follows that discouraging policies will induce more freedom threat than nondiscouraging policies. This freedom threat will elicit reactance and conclude in student noncompliance with a policy or engagement in dissent behaviors. Thus, discouraging policies may affect compliance and dissent through perceived freedom threat and psychological reactance sequentially (path a_1db_2, Figure 2). To explore this serial process, we considered the following questions:

> RQ3: Will discouraging policies indirectly predict policy compliance through perceived freedom threat and student reports of psychological reactance sequentially?

> RQ4: Will discouraging policies indirectly predict (a) expressive, (b) rhetorical, and (c) vengeful dissent through perceived freedom threat and student reports of psychological reactance sequentially?

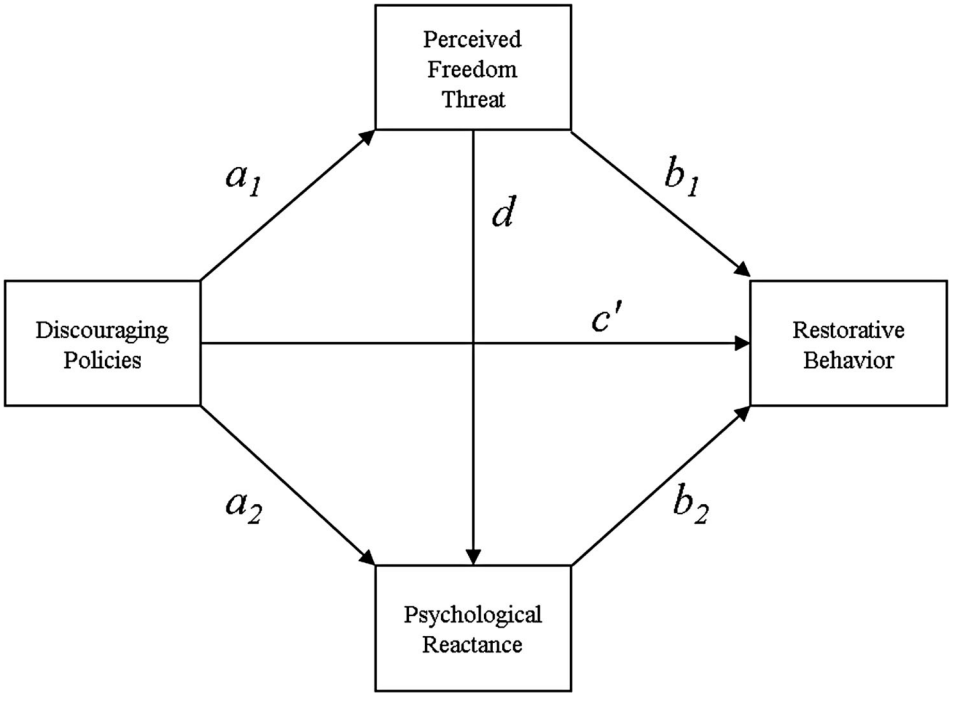

Figure 2. Conceptual diagram of the serial mediation model.

Methods

Research procedure

Following IRB approval, participants were recruited through a research participation system in undergraduate communication courses. A description of the study was provided to students, including how much time they should expect for participation. Students received minimal credit for participating. All participants completed the same questionnaire through a secure and unique link hosted by Qualtrics, an online survey system. Participants completed the instruments in reference to the instructor and CPP of the course they attended immediately prior to completing the survey (Plax, Kearney, McCroskey, & Richmond, 1986).

Participants

Participants ($N = 750$) were undergraduate students from a large Southern university. The majority identified as female ($n = 547$; 72.9%), and a minority identified as male ($n = 202$; 26.9%), with one participant withholding their gender identification. Ages ranged from 18 to 34 ($M = 18.40$, $SD = 1.28$). The sample included students identifying as Caucasian ($n = 628$; 83.7%), African American ($n = 54$; 7.2%), Asian ($n = 24$; 3.2%), Hispanic ($n = 15$; 2.0%), Native American ($n = 4$; 0.5%), and other ($n = 24$; 3.2%). Participants included first-year students ($n = 649$; 86.5%), sophomores ($n = 79$; 10.5%), juniors ($n = 12$; 1.6%), and seniors ($n = 10$; 1.3%), and represented 42 unique majors across the university. Participants reported using cell phones during class for texting ($M = 36.57$, $SD = 26.61$), browsing the Internet ($M = 33.67$, $SD = 28.38$), and social media ($M = 23.16$, $SD = 25.73$), but rarely for playing games ($M = 3.23$, $SD = 10.12$) or streaming videos ($M = 2.41$, $SD = 9.39$), with responses measured from 0 (never) to 100 (always).

Instrumentation

Discouraging policies

Student perceptions of discouraging CPPs were operationalized using one dimension of Finn and Ledbetter's (2013) Teacher Technology Policy Instrument. This 3-item instrument asks students to evaluate the extent to which their instructor discourages cell phone use in the classroom (e.g., "The instructor does not want students to use cell phones"). Responses were measured using a 7-point, Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). This measure had acceptable reliability in previous research (Frey & Tatum, 2017; $\alpha = .77$) and in the current study ($\alpha = .78$, $M = 3.81$, $SD = 1.43$).

Perceived freedom threat

Consistent with previous instructional research (Ball & Goodboy, 2014; Zhang & Sapp, 2013), participants' perceived freedom threat was operationalized using four items modeled after Dillard and Shen (2005; e.g., "The cell phone policy threatens my freedom to choose"). Responses were measured using a 7-point, Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Previous studies have reported reliability ranging from .83 to .90 for similar measures (Ball & Goodboy, 2014; Dillard & Shen, 2005; Zhang & Sapp, 2013). The measure was reliable in the current study ($\alpha = .87$, $M = 2.45$, $SD = 1.45$).

Psychological reactance

Participants' psychological reactance was operationalized as a combination of anger and negative cognitions (Dillard & Shen, 2005; Quick, 2012). Four items were used to measure anger (e.g., "The cell phone policy makes me feel angry"), and four items—two of which were reverse-coded—were used to measure negative cognitions (e.g., "I do not like the given cell phone policy"). Responses were measured using a 7-point, Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A mean composite score was calculated by combining both sets of items. Previous studies have reported reliability ranging from .88 to .89 using similar scales (Ball & Goodboy, 2014; Zhang & Sapp, 2013). The measure was reliable in the current study ($\alpha = .95$, $M = 2.56$, $SD = 1.29$).

Policy compliance

Students' CPP compliance was operationalized using four items developed for this study. These items ask students to report on the extent to which they follow a given CPP in class (e.g., "I follow the given cell phone policy during class"). Responses were measured using a 7-point, Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The measure was reliable in the current study ($\alpha = .87$, $M = 5.34$, $SD = 1.25$). Further, to cultivate factorial validity for this new instrument, the items were subjected to a confirmatory factor analysis, with each observed indicator of policy compliance loading onto a single latent construct. To assess model fit, we followed the guidelines of Byrne (2001) and Kline (2011), which indicated that the model needed to demonstrate (a) a chi-square ratio of approximately 2:1, (b) a comparative fit index (CFI) and normed fit index (NFI) above .90, and (c) a root mean square error of approximation (RMSEA) of less than .10. While each item significantly loaded onto the latent construct, the overall model fit poorly [χ^2 (2) = 22.18, $p < .05$; RMSEA = .19, CFI = .97, NFI = .97].

Instructional dissent

Instructional dissent was operationalized using the Instructional Dissent Scale (IDS; Goodboy, 2011b). This 22-item instrument asks students to report on the extent to which they express their disagreements or complaints about class-related issues, consisting of three subscales that measure expressive dissent (10 items; e.g., "I complain to others to express my frustrations with this course"), rhetorical dissent (6 items; e.g., "If want my teacher to remedy my concerns, I complain to him/her"), and vengeful dissent (6 items; e.g., "I seek revenge on my teacher by trying to get him/her in trouble"). Responses were measured using a 5-point, Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Previous studies have reported reliability ranging from .91 to .96 (expressive), .83 to .90 (rhetorical), and .86 to .94 (vengeful) for each respective subscale (Goodboy, 2011b; Goodboy & Frisby, 2014; Goodboy & Myers, 2012; LaBelle, Martin, & Weber, 2013). Each dimension was reliable in the current study ($\alpha_{expressive} = .93$, $M = 2.31$, $SD = .97$; $\alpha_{rhetorical} = .82$, $M = 2.23$, $SD = .87$; $\alpha_{vengeful} = .89$, $M = 1.16$, $SD = .39$).

Results

Means, standard deviations, and Pearson correlations for study variables can be found in Table 1.

Table 1. Means, standard deviations, and Pearson correlations for study variables.

	1.	2.	3.	4.	5.	6.
1. Discouraging Policies						
2. Perceived Threat	.32**					
3. Psychological Reactance	.37**	.73**				
4. Policy Compliance	−.15**	−.42**	−.58**			
5. Expressive Dissent	.08*	.27**	.31**	−.23**		
6. Rhetorical Dissent	−.01	.12*	.06*	−.03	.21**	
7. Vengeful Dissent	.09*	.23**	.21**	−.21**	.27**	.25**

*Correlation is significant at the 0.05 level (one-tailed).
**Correlation is significant at the 0.001 level (one-tailed).

RQ1 explored whether discouraging policies would predict students' perceived freedom threat. Results of a linear regression revealed that discouraging policies were a significant, positive predictor of students' perceived freedom threat [$F(1, 748) = 87.56$, adjusted $R^2 = .10$, $\beta = .32$, $t = 9.36$, $p < .001$].

For the subsequent hypothesis and research questions, the PROCESS macro created for SPSS (Hayes, 2013) was used to examine both simple (Model 4; H1 and RQ2) and serial (Model 6; RQ3 and RQ4) mediation. Using bias-corrected bootstrapping results from 5000 samples, PROCESS provides unstandardized coefficients, standard errors, and confidence intervals for both direct and indirect effects, with evidence of significant effects reflected by a confidence interval not containing 0.

H1 predicted that students' perceived freedom threat would indirectly predict policy compliance through psychological reactance. Results revealed that students' psychological reactance mediated the relationship between perceived threat and policy compliance [$ab = -.426$, $SE = .038$, 95% CI (−.502, −.354), $ab_{cs} = -.428$]. Thus, H1 was supported. RQ2 explored whether perceived freedom threat indirectly predicted (a) expressive, (b) rhetorical, and (c) vengeful dissent through student reports of psychological reactance. Results revealed that students' psychological reactance mediated the relationship between perceived threat and both (a) expressive [$ab = .143$, $SE = .030$, 95% CI (.085, .203), $ab_{cs} = .185$] and (c) vengeful [$ab = .022$, $SE = .010$, 95% CI (.003, .042), $ab_{cs} = .071$] dissent. However, students' psychological reactance did not mediate the relationship between perceived threat and (b) rhetorical dissent [$ab = -.024$, $SE = .028$, 95% CI (−.078, .031), $ab_{cs} = -.035$]. Table 2 contains unstandardized path coefficients, standard errors, confidence intervals, and completely standardized indirect effects for each simple mediation model.

RQ3 explored whether discouraging policies indirectly predicted policy compliance through perceived freedom threat and student reports of psychological reactance sequentially. Results revealed that the indirect effect was significant [$a_1db_2 = -.117$, $SE = .017$, 95% CI (−.153, −.088), $ab_{cs} = -.134$]. RQ4 explored whether discouraging policies indirectly predicted (a) expressive, (b) rhetorical, and (c) vengeful dissent through perceived freedom threat and student reports of psychological reactance sequentially. Results revealed that the indirect effects for both (a) expressive [$a_1db_2 = .040$, $SE = .009$, 95% CI (.024, .061), $ab_{cs} = .059$] and (c) vengeful [$a_1db_2 = .006$, $SE = .003$, 95% CI (.001, .012), $ab_{cs} = .021$] dissent were significant. However, the indirect effect for (b) rhetorical dissent [$a_1db_2 = -.005$, $SE = .008$, 95% CI (−.020, .010), $ab_{cs} = -.008$] was not significant. Table 3 shows unstandardized path coefficients, standard errors, confidence intervals, and completely standardized indirect effects for each serial mediation model.

Table 2. Unstandardized path coefficients, standard errors, confidence intervals, and completely standardized indirect effects for simple mediation models.

Path		*B*	*SE*	95% CI (lower, upper)	ab_{cs}
All Models					
a	PT → PR	.751	.026	.701, .801*	—
Model 1 (H1)					
b	PR → Compliance	−.568	.043	−.651, −.484*	—
c′	PT → Compliance	.009	.044	−.076, .095	—
ab	PT → PR → Compliance	−.426	.038	−.502, −.354*	−.428
Model 2 ($RQ2_a$)					
b	PR → Expressive	.191	.038	.116, .266*	—
c′	PT → Expressive	.062	.039	−.015, .139	—
ab	PT → PR → Expressive	.143	.030	.085, .203*	.185
Model 3 ($RQ2_b$)					
b	PR → Rhetorical	−.032	.036	−.102, .039	—
c′	PT → Rhetorical	.104	.037	.032, .177*	—
ab	PT → PR → Rhetorical	−.024	.028	−.078, .031	−.035
Model 4 ($RQ2_c$)					
b	PR → Vengeful	.030	.016	−.002, .061	—
c′	PT → Vengeful	.049	.016	.017, .081*	—
ab	PT → PR → Vengeful	.022	.010	.003, .042*	.071

Note. PT, Perceived Threat; PR, Psychological Reactance; CI, confidence interval; ab_{cs}, completely standardized indirect effect.
*Effect is significant at $p < .05$ (CI excluding 0).

Discussion

Eliciting compliance from students in the classroom is challenging (Burroughs, Kearney, & Plax, 1989), and persuading students to comply with a policy that limits the use of an electronic device integral to their social identity is no exception to this reality. For instructors charged with maintaining an optimal learning environment, "the challenge remains to find a classroom policy that discourages the nonacademic use of cell phones in class, and one that students will follow" (Lancaster & Goodboy, 2015, p. 111). The results of this study bring scholars closer to meeting this seemingly insurmountable goal and offer several important implications for communication and instruction scholarship, CPP research, PRT, and classroom practice.

When students feel that their autonomy to use cell phones freely is threatened by a CPP, they experience anger and negative feelings; this reactance triggers students to enact both direct (noncompliance with the CPP; H1) and indirect (expressive and vengeful dissent; RQ2) forms of restorative behavior. These significant results further support the utility of employing PRT as a theoretical lens for predicting student attitudes and behaviors in the classroom. This study is unique from previous research, however, in that a classroom policy—not simply a request from the instructor (e.g., Zhang & Sapp, 2013)—prompted the reactance process. This deepens the field's understanding of what types of classroom messages PRT can be employed to understand; future studies should examine what additional classroom messages can be studied through this lens.

Methodologically, this study also represents progress for PRT research as applied to communication, teaching, and learning. In their 2014 article, Ball and Goodboy discussed the importance of "measuring antecedents of reactance using continuous data," allowing "researchers to test serial mediation" in an instructional context (p. 205). The present study works toward this proposed methodological goal by testing a sequential, multiple mediation model of reactance. The significant indirect effects revealed herein should

Table 3. Unstandardized path coefficients, standard errors, confidence intervals, and completely standardized indirect effects for serial mediation models.

Path		*B*	*SE*	95% CI (lower, upper)	ab_{cs}
All models					
a_1	DP → PT	.284	.030	.224, .343*	—
a_2	DP → PR	.131	.023	.085, .177*	—
d	PT → PR	.702	.027	.650, .754*	—
Model 1 (RQ3)					
b_1	PT → Compliance	.000	.044	−.085, .086	—
b_2	PR → Compliance	−.589	.043	−.674, −.504*	—
c'	DP → Compliance	.067	.028	.012, .122*	—
a_1b_1	DP → PT → Compliance	.000	.013	−.026, .026	.000
a_2b_2	DP → PR → Compliance	−.077	.016	−.110, −.048*	−.088
a_1db_2	DP → PT → PR → Compliance	−.117	.017	−.153, −.088*	−.134
Model 2 (RQ4a)					
b_1	PT → Expressive	.067	.040	−.011, .144	—
b_2	PR → Expressive	.201	.039	.124, .278*	—
c'	DP → Expressive	−.033	.025	−.083, .017	—
a_1b_1	DP → PT → Expressive	.019	.012	−.004, .043	.028
a_2b_2	DP → PR → Expressive	.026	.007	.014, .042*	.039
a_1db_2	DP → PT → PR → Expressive	.040	.009	.024, .061*	.059
Model 3 (RQ4b)					
b_1	PT → Rhetorical	.108	.037	.035, .180*	—
b_2	PR → Rhetorical	−.024	.037	−.096, .048	—
c'	DP → Rhetorical	−.025	.024	−.071, .022	—
a_1b_1	DP → PT → Rhetorical	.031	.011	.011, .055*	.050
a_2b_2	DP → PR → Rhetorical	−.003	.005	−.013, .006	−.005
a_1db_2	DP → PT → PR → Rhetorical	−.005	.008	−.020, .010	−.008
Model 4 (RQ4c)					
b_1	PT → Vengeful Dissent	.049	.017	.017, .081*	—
b_2	PR → Vengeful Dissent	.030	.016	−.002, .062	—
c'	DP → Vengeful Dissent	.000	.011	−.021, .021	—
a_1b_1	DP → PT → Vengeful Dissent	.014	.005	.005, .024*	.050
a_2b_2	DP → PR → Vengeful Dissent	.004	.002	.001, .008*	.014
a_1db_2	DP → PT → PR → Vengeful Dissent	.006	.003	.001, .012*	.021

Note. PT, Perceived Threat; PR, Psychological Reactance; CI, confidence interval; ab_{cs}, completely standardized indirect effect.

*Effect is significant at $p < .05$ (CI excluding 0).

prompt other instructional researchers to consider additional antecedents of reactance through similar statistical procedures.

For CPP research, these results add to knowledge claims about students' perceptions and attitudes (e.g., Finn & Ledbetter, 2014) by understanding what motivates student behaviors that are enacted in response to CPPs. Given these findings, we now know that student noncompliance with CPPs is, in some cases, prompted by a feeling of threatened autonomy and not simply due to social needs (e.g., Ledbetter & Finn, 2016) or a general negative feeling toward the source of the message or the message itself (Burroughs et al., 1989). As CPPs exist to limit or eliminate students' cellular behavior in the classroom, it is essential that future research continue exploring policy compliance and other behavioral reactions and move away from solely considering attitudinal or perceptual instructional outcomes.

These findings also have important theoretical implications when thinking about PRT research more broadly. Brehm's early research was conducted predominately in interpersonal contexts, and more current research explores reactance in mostly marketing, advertising, and health settings (e.g., cigarette warning labels; LaVoie, Quick, Riles, & Lambert, 2017). However, because human beings can have autonomy threatened and reactance

evoked across contexts (Zhang & Sapp, 2013), researchers should continue to test the boundaries and limitations of PRT in various settings—such as the classroom—to further confirm the theory's explanatory value. Exploring the reactance process as a result of a policy also expands the theory's utility. Messages designed with the intention of behavior change (e.g., health campaigns) have well studied effects in persuasive contexts (Rains, 2013). But policies, which exist to control but not necessarily *change* an audience's behavior, are relatively unexplored. This study provides initial evidence to suggest that policies, whether enforced in a classroom or elsewhere, can also be understood through a reactance lens. This could provide other fields with an opportunity to use a similar approach (e.g., organizational communication researchers could consider using PRT to understand employee reactions to and behaviors resulting from various workplace policies).

These findings add to what is known about instructional dissent. Ball and Goodboy (2014) found that psychological reactance mediated the relationship between students' perceived freedom threat upon exposure to an unclear, forceful persuasive message and their intention to engage in instructional dissent. However, the present research measured students' self-reported dissent, not just intention, further validating this connection. These results provide empirical evidence that classroom policies can be considered triggers for instructional dissent in the classroom (Goodboy, 2011a, 2011b) and answer Goodboy's (2012) call for more research exploring mediators of instructional dissent. These findings are also consistent with research investigating indirect forms of restoration in other contexts. Grandpre et al. (2003) suggested that individuals experiencing reactance may act hostile toward the source of the message. In this case, students who engage in vengeful dissent are portraying some level of hostility toward the instructor. Worchel and Andreoli (1974) suggested that reacting individuals may also derogate the source of the message; when students engage in expressive dissent, they are denigrating the instructor to their peers.

Notably, unlike in previous research (Ball & Goodboy, 2014), psychological reactance did not mediate the relationship between students' perceived freedom threat and their efforts to persuade an instructor to take corrective action for perceived wrongdoings (i.e., rhetorical dissent; RQ2). There are several plausible explanations for these results. First, student intentions to dissent rhetorically (via Ball & Goodboy, 2014) may be inherently different than their reported enactment of rhetorical dissent; anticipating such behavior is void of the circumstantial realities of classroom interaction between an instructor and student following a triggering incident. Second, although students may feel threatened by discouraging CPPs, they may not perceive such a CPP as a "wrongdoing." Campbell (2006) argued that students often understand and support the implementation of CPPs because they know that nonacademic cell phone use can affect classroom engagement. Third, as has been noted in previous instructional research, students may feel that dissenting rhetorically is not worth the effort involved (Bolkan & Goodboy, 2013). This idea is consistent with organizational dissent literature (e.g., Oh, 2004) wherein employees may perceive the process of dissent as too costly to warrant effort or the triggering act not extreme enough to necessitate confrontation.

Finally, when the ability to use cell phones freely for noninstructional purposes is taken away with a discouraging CPP, students feel threatened (RQ1). Previously, Finn and Ledbetter (2014) posited that students expect freedom to use technology for instructional

purposes in the classroom. However, these findings suggest that students also desire freedom—as evidenced by the participants' reported threatened freedom—to use technology for noninstructional purposes in the classroom, highlighting a clear distinction that should be made in future CPP research. Although students may not want technology to interfere with the learning process (Wei et al., 2012) and thus may view policies that discourage noninstructional use favorably (Finn & Ledbetter, 2014), students can still be threatened by discouraging policies. To better understand the intricacies of this delineation, researchers could explore how the perceived threat of a CPP relates to previously explored instructional variables like students' general attitudes toward cell phone policies and overall use of cell phones during class (Campbell, 2006). Students who generally support CPPs or rarely use their cell phones for noninstructional purposes may be less threatened by discouraging policies. Additionally, discouraging CPPs can be considered antecedents to the reactance process in instructional settings (RQ3 and RQ4). Existing research has indicated that message clarity, forcefulness, request politeness, request legitimacy, teacher credibility, and relationship distance between the instructor and student are antecedents of the instructional reactance process (Ball & Goodboy, 2014; Zhang & Sapp, 2013). Now, policies that discourage cell phone use could also be considered. Researchers could explore whether similar outcomes result from policies restricting laptops or other types of classroom technology. Practically, the more that is known about antecedents to the reactance process, the more successfully instructors can create messages that avoid triggering the reactance process.

Limitations

The results of the present study must be interpreted within the scope of its limitations. Traditional measurements of psychological reactance follow the precedent set by Dillard and Shen (2005), implementing thought-listing as an appropriate operationalization of negative cognition. Though recent approaches to measuring negative cognition have departed from this approach (see Ball & Goodboy, 2014), perhaps asking students to compile an exhaustive list of their negative thoughts related to a class CPP may result in more comprehensive results. Thought-listing could potentially reveal more subtle, nuanced perspectives toward the CPPs not captured by the existing scale. Further, the results of the study may be confounded by the homogeneity of the participants. The sample consisted primarily of first-year (mean age of approximately 18 years old), Caucasian, female students enrolled in a basic communication course. Age, gender, and ethnicity have been found to impact an individual's level of reactance. Historically, younger individuals (aged 18 to 24) and males have demonstrated higher levels of reactance (e.g., Woller, Buboltz, & Loveland, 2007). However, females aged 18–23 have displayed higher levels of reactance than their male counterparts (Sung-Mook, Giannakopoulos, Laing, & Williams, 1994). In addition, Caucasians have been found to have lower levels of reactance compared with African Americans, Asian Americans, or Latino/Hispanics (Woller et al., 2007). This sample's rather homogeneous gender, age, and ethnicity limit the generalizability of these findings. Next, it is possible that the class students attended immediately prior to completing the survey had no CPP, potentially skewing their survey responses; this possibility was not accounted for in the present analysis. A final limitation was that the CFA for the newly developed policy compliance measure

yielded a poor fit despite the large sample size; future researchers who utilize this measure should explore this structural issue further (for a discussion, see Lai & Green, 2016).

Future directions

This line of research could be continued in several ways. The current investigation asked participants to recall and reflect on a CPP enforced in a previous class. While this reflection provides a degree of ecological validity, future research might consider experimentally manipulating the forcefulness of the language in a CPP, similar to Ball and Goodboy (2014). Specifically, a CPP that uses forceful or controlling language (Miller et al., 2007) such as "ought" or "must" may increase the likelihood that an individual will feel a sense of freedom threat (Dillard & Shen, 2005; Miller et al., 2007; Quick & Stephenson, 2008; Rains & Turner, 2007) and may subsequently induce a sense of reactance (Grandpre et al., 2003; Miller et al., 2007). However, if policies that use less forceful language also create reactance, reactance may be more a function of having a CPP in general rather than the language used or the way a policy is framed (i.e., encouraging or discouraging).

Additionally, individual characteristics may be incorporated into the current mediation models (H1 and RQ2) by testing for moderated mediation (i.e., conditional process analysis; Goodboy, 2017; Hayes, 2013). That is, the effect of perceived threat on restorative behavior through student reactance may be contingent on particular student differences. One relevant characteristic to consider is trait reactance. Trait reactance examines reactance-proneness as an individual attribute (Miller et al., 2007) and explains why there is variability in reactance among individuals in the same situation (Burgoon, Alvaro, Grandpre, & Voloudakis, 2002). Simply, certain individuals may value their autonomy more than others and are thus more prone to experience reactance. Another pertinent characteristic that may impact both reactance and compliance is the student's level of academic entitlement. Academic entitlement can be understood as "the tendency to possess an expectation of academic success without taking personal responsibility for achieving that success" (Chowning & Campbell, 2009, p. 983). Entitled students also expect to participate in instructional processes according to their preferences (Cain, Romanelli, & Smith, 2012), such that students expect course policy and procedures to be malleable to their needs (Miller, 2013). Therefore, students who are more entitled may experience a higher degree of reactance when their freedom is threatened by an inflexible CPP.

Because only discouraging policies were explored in the present study, understanding how encouraging policies function in the context of PRT could be insightful. For instance, encouraging policies could serve a moderating role (i.e., conditional process analysis; Goodboy, 2017; Hayes, 2013) in the proposed serial mediation reactance process (RQ3 and RQ4). Perhaps the extent to which an instructor encourages instructional technology use in the classroom could lessen the threat students perceive from discouraging policies, as both types of policies function independently (Ledbetter & Finn, 2013). That is, an instructor may be able to lessen the reactance induced by their discouraging policy by simultaneously encouraging cell phone use for instructional purposes. This exploration could be especially important for instructors trying to increase policy compliance in the classroom.

Implications for teaching and learning

These findings offer several implications for classroom practice. To begin, instructors should attempt to enforce CPPs in a manner that reduces student perceptions of freedom threat, as results suggest that instructors who reduce threat should witness marked declines in students' noncompliant behaviors. Instructors could decrease the amount of controlling language used within the request, increase the clarity of the request, or emphasize the role of choice within the request (Mirick, 2016). Mirick (2016) noted that requests from instructors are perceived as less threatening when they demonstrate transparency in the decision-making process; students need to understand exactly why a specific CPP has been implemented and how it will positively affect their well-being.

Additionally, instructors should consider how their own characteristics and behaviors may interact with student reactance in the classroom. Instructors who achieve higher levels of credibility through perceptions of competence, caring, and trustworthiness should elicit lower levels of reactance from students (Slattery & Carlson, 2005). Similarly, instructors who employ immediacy behaviors (e.g., using humor in the classroom; for a review, see Banas, Dunbar, Rodriguez, & Liu, 2011) may reduce the perceived power differential between themselves and their students, and thus limit reactance.

Increasing students' role in establishing CPPs could similarly diminish the potential for reactance. If students collaborate with their instructors to establish the CPP that is enforced, their freedom would be threatened less, as students had a choice in deciding what freedoms should or should not be taken away. At the beginning of a given course, instructors could set aside time for the cocreation of the CPP with students as an activity. However, empirical research is needed to explore the effectiveness of such an approach in increasing compliance and diminishing reactance.

Contributions

Research examining policies that effectively regulate cell phones in the classroom is increasingly important, as instructors struggle to engage distracted students on an everyday basis. Students are more dependent than ever on mobile devices inside and outside of the classroom, and scholars should continue to adapt instructional research to reflect the unique needs of this generation. Thoughtful and carefully enforced CPPs, informed by PRT, could help instructors negate the detrimental effects of off-task cellular behavior.

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