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Is Freedom Contagious? A Self-Regulatory Model of Reactance and Sensitivity to Deviant Peers

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Abstract

Psychological reactance is typically assumed to motivate resistance to controlling peer influences and societal prohibitions. However, some peer influences encourage behaviors prohibited by society. We consider whether reactant individuals are sensitive to such opportunities to enhance their autonomy. We specifically propose a self-regulatory perspective on reactance, wherein freedom/autonomy is the superordinate goal, and thus highly reactant individuals will be sensitive to peer influences that could enhance their behavioral freedoms. In two studies, we find that reactant individuals can be cooperative in response to autonomy-supportive peer influences. Participants read a scenario in which a peer's intentions to engage in substance use were manipulated to imply freedom of choice or not. Results indicated that highly reactant participants were sensitive to deviant peers whose own behavior towards alcohol (Study 1, $N = 160$) or marijuana (Study 2, $N = 124$) appeared to be motivated by autonomy and thus afforded free choice. Altogether, the results support a self-regulatory model of reactance, wherein deviant peer influence can be a means to pursue autonomy.

Keywords

Reactance; Autonomy; Peer Contagion; Self-Regulation

Psychological reactance motivates autonomy from controlling interpersonal and societal influences (Brehm, 1966; Brehm & Brehm, 1981). Although interpersonal and societal influences often align, in some cases they conflict: proximal peer influences to drink alcohol, for instance, conflict with distal societal prohibitions against underage drinking. How do highly reactant individuals respond to deviant peer influences—do they resist, ignore, or cooperate? Accepting a peer's influence might seem antithetical to an autonomously motivated individual; however, deviant peers might also provide the means or inspiration to react against societal prohibitions. History is certainly rife with examples of rebelliously minded individuals banding together in the shared pursuit of freedom. Former

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Vice President Hubert Humphrey even went as far as to suggest, *"freedom is the most contagious virus known to man*." For reactant individuals, seeking autonomy could be manifested in sensitivity to everyday acts of deviance by others.

In the present work, we consider how individuals regulate their reactant tendencies in social environments that often provide little room for it. We consider reactance to be part of a broader motivational system that serves to both protect and enhance a person's freedom of choice. As a result, highly reactant individuals might resist some influences over others—or even accept certain influences that enhance their behavioral freedoms. We assume the need for autonomy is regulated much like any other goal and is thus sensitive to opportunities as well as threats.

A self-regulatory model could help to reconcile the seemingly competing roles of psychological reactance and peer influences to engage in behaviors prohibited by society. Models of peer contagion generally suggest that adolescents "catch" their peers' intentions towards unhealthy behaviors (Dishion & Dodge, 2005; Prinstein & Wang, 2005). College students who are subliminally primed with the names of pro-drug peers, for instance, subsequently report increased motivation to use marijuana themselves (Leander, Shah, & Chartrand, 2009); college students who see a person select oversized portions of candy also eat more candy themselves (McFerran, Dahl, Fitzsimons, & Morales, 2010). Yet it is unclear whether reactant individuals are sensitive to these types of peer contagion; reactance typically serves to counteract influences that constrain them to one particular course of action. However, it might be self-defeating to counteract influences that enhance behavioral freedoms. Even Brehm's (1966) seminal theorizing considered ways in which reactance to smaller freedoms can be attenuated when the alternative is losing a much more valued freedom. Perhaps reactance often involves the choosing of lesser evils, if the superordinate goal is autonomy and to experience freedom of choice. Along these lines, we propose the strength of people's reactance motivation makes them sensitive to deviant peers.

A Model of Self-Regulatory Reactance

Fifty years ago, Brehm (1966) laid the theoretical groundwork for a self-regulatory approach to reactance: he predicted reactance motivation would be moderated by key motivational factors, such as perceived importance (of the desired freedom) and assessments of the feasibility of restoring the freedom. In a subsequent review, Brehm and Brehm (1981) updated reactance theory to connect it to advances in motivation science such as helplessness and energization; they also began to ponder connections between reactance and control motivation – specifically, the need to have personal control over one's outcomes (Brehm & Brehm, 1981). Thus, our notion that reactance operates as part of a broader self-regulatory system focused on the ongoing pursuit of autonomy is consistent with classic reactance theory. Even in his seminal theorizing, Brehm (1966) depicted reactance as a means to an end, stating that individuals can better satisfy their needs if they have the freedom to do what they want and do it when and how they want. Perhaps the same psychological need that facilitates reactance, against controlling social influences, also facilitates sensitivity to autonomy-supportive influences that increase one's perceived freedom and autonomy.

To pursue this idea, we do not focus on a particular reactant state *per se*, but also on a person's general tendencies towards reactance. Traditionally, psychological reactance is considered a motivational state that arises when one's behavioral freedom is threatened (Brehm & Brehm, 1981; Miron & Brehm, 2006). However, reactance can be either state or trait, and we consider trait-level reactance to represent a person's general tendencies towards their pursuit of autonomy, which refers to a superordinate need for freedom of choice and self-determination (Deci & Ryan, 2000). If autonomy is indeed the superordinate goal, it becomes conceivable the motivational underpinnings of reactance—whether trait reactance or state-induced reactance— promote sensitivity to opportunities to enhance one's sense of autonomy. Depending on circumstances, reactance could at times promote cooperativeness with deviant peer influences.

A self-regulatory model of reactance could foster more nuanced predictions about whether individuals show counteraction or contagion when exposed to deviant peer influences. Thus far, research mainly suggests that, although students are generally sensitive to goal contagion from peers (Aarts, Gollwitzer, & Hassin, 2004), reactant adolescents tend to resist goal contagion. For example, in one scenario-based study, students high in trait reactance were less likely to "catch" a peer's ostensible goal to spend a holiday helping in disaster relief (Leander, Shah, & Chartrand, 2011); in another study, reactant students who were subliminally primed with the name of a controlling relationship showed subsequent activation of an opposing goal (Chartrand, Dalton, & Fitzsimons, 2007). A self-regulatory model assumes there may be cases wherein reactance facilitates sensitivity to such influences.

We test this model with respect to how reactant individuals react to the perceived goal-directed behavior of others—namely, that of a peer who appears to be motivated to engage in a deviant behavior. Reactant individuals may not be averse to such peer influences *per se*; they are averse to influences that restrict their freedom of choice. Reactant individuals may be sensitive to—even inspired by—peers who appear to be autonomously motivated. Indeed, research on goal contagion suggests people are sensitive to "catching" the goals of peers when they have a need for that goal themselves—as long as the influence does not threaten their other needs or values (Aarts et al., 2004; Leander et al., 2011). The issue, of course, is that adolescents often report feeling pressured by their peers to engage in prohibited behaviors (Hays & Ellickson, 1990), and hence many deviant peer influences only threaten one's autonomy in a different way. Given that state reactance and goal contagion are both triggered by inferences about a target person's intentions (Aarts et al., 2004; Ringold, 2002), it is possible reactant individuals are sensitive to autonomy-supportive cues when making inferences about a deviant peer's motivation towards a prohibited behavior. Yet for reactance to facilitate a cooperative response, it may not suffice to simply infer that a peer intends to engage in a prohibited behavior; the reactant perceiver may also need to infer the peer is motivated by autonomy.

In two studies, we test a self-regulatory model of reactance and outline how reactant individuals navigate their social environments in pursuit of autonomy. We apply the model to young adults in context to behaviors often targeted by distal societal prohibitions—namely, alcohol and drugs. The studies test whether reactance facilitates goal contagion

when a peer triggers inferences of autonomy. Note that we predict reactant individuals will only be sensitive to peer influences that trigger the pursuit of autonomy, not peer influences that simply restrict their choices towards engaging in the prohibited behavior.

Study 1

Reactant individuals may be sensitive to goal contagion when a peer's motivation to engage in a prohibited behavior appears to be about exercising free choice as opposed to some other motive. This idea was tested in the context of underage drinking. Alcohol is prohibited in the USA to those under 21 years of age, yet peer contagion is considered a significant contributor to underage drinking (Dishion & Dodge, 2005; Prinstein & Wang, 2005). In this study, underage participants were exposed to a peer whose desire to drink alcohol either appeared to be motivated by the pursuit of autonomy or not. Participants' subsequent motivation to drink was assessed via their explicit ratings of a series of advertisements for various alcoholic and processed beverages, as well as their behavior towards the ads, in terms of time spent looking at them. Reactant participants were expected to demonstrate higher interest in the ads when the deviant peer appeared to be motivated by autonomy as opposed to not.

Method

Participants & Design—One hundred sixty undergraduates (97 female) from a small, private southeastern University participated in exchange for course credit. All participants were under the age of 21.[1] The data were collected prior to analysis and data collection stopped at the end of the semester.

Procedure—After giving informed consent, participants were randomly assigned to one of two conditions (inferred goal: free-choice vs. drinking only). They first gave written informed consent and then completed a goal contagion manipulation via computer. Participants read a scenario about a friend's plans to go drinking, which was framed to trigger an inference that the friend was motivated to drink either for reasons related to autonomy or for unrelated reasons. Participants read: *"Imagine that it's near the end of the day and a friend of yours is trying to decide what to do. One option is to go to a party happening tonight where there will be plenty of alcohol, as it's been a long time since your friend has <had vs. made> the choice to go out and drink."* Changing the one word (*had* vs. *made*) changed the goal inference: stating how long it has been since the friend *had* the choice to drink implies a drinking goal but one motivated by the pursuit of autonomy (e.g., because of a prior lack of opportunity); stating how long it has been since the friend *made* the choice implies a drinking goal only and nothing about free choice (e.g., the friend has always had opportunity but only recently chose to drink).

Participants' subsequent motivation towards drinking was assessed using an indirect self-report measure and an implicit behavioral measure, so as to circumvent self-presentation issues with asking reactant participants to self-report their drinking intentions. Immediately

[1]Some additional participants were recruited but were excluded for being 21+ years old (and therefore drinking alcohol would be considered a legal behavior for them).

after the scenario, participants were given a cover story that the researchers were interested in the potential market effectiveness of a series of beverage ads. There were 20 full-color ads, half were for alcoholic beverages and the rest were sugary sodas and other processed beverages one might encounter at a party. The ads were presented in random order and participants gave a subjective rating for each ad (*"How effective do you think this ad will be?" 1= not at all – 7= extremely*). Two dependent measures were derived: First was the subjective rating of the ads' effectiveness ($M = 4.03$, $SD = 0.66$, $\alpha = .83$), which could be positively biased by reactant participants' exposure to the autonomy-motivated peer. The second dependent measure was time spent on the ads—a measure of goal-directed behavior. Activated goals tend to draw attention towards goal-relevant stimuli (e.g., Moskowitz, 2002), and this may apply to the amount of time perceivers spend looking at product advertisements (Celsi & Olson, 1988). To address non-normality typical for reaction time data, each score was log-transformed and outliers were removed (i.e., reaction times 3 *SD*s beyond the mean; 2.6% of all responses). A mean score was calculated for the number of seconds spent per ad, $M_{untransformed} = 5.29$, $SD = 0.88$, $\alpha = .92$.

Participants then completed a series of questionnaires, including the Hong Reactance Scale, $M = 3.03$, $SD = 0.54$, $\alpha = .74$ (Hong & Faedda, 1996). There was also an eight-item measure of self-regulatory effectiveness to help explore whether the predicted reactance effect was indeed associated with self-regulation. Sample items include, *"I usually judge what I'm doing by the consequences of my actions", "It's hard for me to notice when I've 'had enough' (alcohol, food, sweets)"* [R] (rated 1= *not at all*, to 7 = *extremely*), $M = 4.99$, $SD = 0.76$, $\alpha = .68$ (see Brown, Miller, & Lawendowski, 1999; Leander et al., 2009).[2] Participants then reported their demographics, indicated their suspicions about the study, and were fully debriefed. No participants reported how the scenario might have influenced their responses to the task.

Results and Discussion

Subjective Ratings—An initial regression analysis predicted participants' advertisement ratings from their peer influence condition (inferred goal: free-choice vs. drinking only [coded 1, −1]), trait reactance (standardized), and the interaction of these two variables. Results indicated a crossover interaction, $B = .16$, $t(156) = 2.96$, $p = .004$, 95% CI (0.05, 0.27), and no direct effects (ts < 1). As illustrated in Figure 1, relatively reactant participants (*1 SD* reactance) gave increased ratings when their friend was motivated by free choice, $B = 0.94$, $t(156) = 1.75$, $p = .082$, 95% CI (−.02, .28); in contrast, relatively nonreactant participants gave increased ratings when their friend was motivated to drink for reasons unrelated to free choice, $B = -0.19$, $t(156) = -2.55$, $p = .012$, 95% CI (−.33, −.04). Note that at + 1.17 *SD* reactance, the positive effect of the free-choice condition crossed the threshold for significance ($p = .050$). Altogether, relatively reactant participants showed higher motivation towards drinking when it was associated with autonomy.

Goal-Directed Behavior—A regression analysis predicted time spent on the ads (log-transformed) from their goal inference condition, trait reactance, and the interaction of these

[2]Trait reactance and self-regulatory effectiveness were negatively correlated ($r = -.26$, $p = .001$).

two variables. Results again indicated a two-way interaction, $B = .007$, $t(156) = 2.13$, $p = .034$, 95% CI (0.001, 0.014), as well as a marginal positive direct effect of free choice, $B = .005$, $t(156) = 1.66$, $p = .100$, 95% CI (−0.001, 0.012). As illustrated in Figure 2, relatively reactant *(1 SD)* participants spent more time on the beverage ads when their friend's goal to drink was motivated by free-choice as opposed to not, $B = .012$, $t(156) = 2.63$, $p = .010$, 95% CI (0.003, 0.022). Relatively nonreactant (*−1 SD*) participants did not differ in time spent on the ads ($t < 1$).

Moderation by Self-Regulatory Effectiveness—Exploratory regression analyses tested whether scores on the self-regulation measure further moderated the effects. If reactance is self-regulatory, goal contagion might only occur among effective self-regulators. Separate regression analyses predicted participants' subjective ratings and implicit behavior from the goal inference condition, trait reactance (standardized), self-regulatory effectiveness (standardized), and all possible interactions. On the subjective ratings, there were no additional effects of self-regulatory effectiveness (ts < 1). However, there was a marginal three-way interaction for time spent on the ads, $B = .006$, $t(156) = 1.96$, $p = .052$, 95% CI (0.00, 0.01). The behavioral pattern illustrated in Figure 2 only occurred among more effective self-regulators (*1 SD*). The moderation analysis helps to illustrate that reactance is self-regulatory.

The results suggest reactant individuals distinguish opportunities from threats and regulate their sensitivity to deviant peers accordingly. Participants with higher trait reactance showed goal contagion when they could infer that the peer's motivation to drink was about exerting free choice, as indicated by their subjective ratings and behavior towards the ads. Reactant participants were especially likely to show increased goal-directed behavior if they were effective self-regulators. In contrast, participants with lower trait reactance showed goal contagion when the peer's motivation to drink was unrelated to autonomy, as indicated by the subjective ratings. The results support the idea that reactant individuals are sensitive to peers who trigger autonomy goals.

Study 2

The aim of this study is to demonstrate that the superordinate goal served by reactance is autonomy. To reactant individuals, the appeal of deviant peer influences is not necessarily to engage in the prohibited behavior itself, but to have the freedom to choose whether or not to engage in the behavior. Classic reactance theory (Brehm, 1966) has long considered ways in which people seek other, often indirect, means of restoring freedom that are not necessarily focused on engaging in the one behavior being threatened – which suggests engagement in the behavior itself is not the superordinate goal. Thus, exposure to a friend who appears to be autonomously motivated may not trigger a goal to engage in any one behavior in particular; it could simply trigger motivation to join a friend in their pursuit of autonomy and free choice.

This was tested in the context of marijuana use among college students in the Netherlands. Dutch law technically prohibits marijuana possession, but it is commonly available via so-called "coffee shops". As with underage drinking, peer contagion is a contributor to

motivation for marijuana use; Leander et al (2009) found that participants who were subliminally primed with the names of pro-marijuana friends subsequently showed heightened accessibility of marijuana-related concepts in memory via a euphemism-listing task. Yet in those studies, there were no contextual cues to trigger autonomy goals. The present study instead used context cues to trigger reactance and then behavioral cues to indicate whether a peer was restricted by a focal motivation to use marijuana, or was instead more broadly motivated to go out—and thus afford free choice—about using marijuana or not.

A second aim of this study is to provide further evidence reactance is self-regulatory. We sought to manipulate reactance motivation in advance to show that it can be activated in the same way as other goal states (Chartrand & Bargh, 1996). Participants also reported their chronic marijuana use to test whether they would only show goal contagion when marijuana is a valued behavioral freedom, with the idea that implicit motivational influences are often moderated by motivational self-relevance of the behavior (Aarts et al., 2004; Leander et al., 2009). Participants should not show goal contagion if marijuana is not a valued freedom (see also Brehm, 1966).

Method

Participants & Design—One hundred twenty-six undergraduates from a Dutch university participated in exchange for course credit. Participants were in an English-speaking psychology program (88 German, 12 Dutch, 26 other nationalities; 104 female). All data were collected prior to analysis and data collection stopped at the end of a three-week lab reservation period.

Procedure & Materials—After giving informed consent, participants were randomly assigned to one of four conditions in a 2 (subliminal prime: reactance vs. control) × 2 (goal inference: free-choice vs. marijuana use) between-subjects design. They first gave informed consent and then completed a subliminal priming procedure to either prime reactance motivation or not. Based on similar paradigms (e.g., Leander et al., 2009), participants were given a focal task to occupy their conscious attention as they were subliminally primed (16ms) with either reactance words (*rebel, free, oppose, revolt, independent*) or control words (*game, cake, flower, finger, atmospheres*). The focal task was simply to decide whether a number that appeared in the center of the screen was even or odd (e.g., “768” or “745”) and to press the *F* key for even numbers and the *J* key for odd numbers. Before the number appeared, a string of asterisks (********) first directed participant’s attention to the center of the screen. This was followed by a word prime in one of the screen quadrants (i.e., their parafoveal field). Participants completed 106 trials and were then forwarded to the goal inference scenario.

Participants were instructed to imagine it was a Friday night and they were having dinner with a friend. After a while, the friend says, *“Hey, I was thinking of what we could do later tonight. I know this great coffee shop where they sell good quality marijuana. I am really up for smoking tonight. This is what we <are going to do/could do> today. I am <not/also> in the mood for anything else like dancing or watching a movie.”* Thus, in both conditions the

friend was motivated to use marijuana, but only the *"could do/also"* condition afforded free choice.

Cognitive Accessibility of Marijuana: Participants then completed a euphemism listing task previously used to measure the cognitive accessibility of marijuana (Leander et al., 2009). An ability to generate more "marijuana words" from ambiguous stimuli is associated with greater cognitive accessibility (e.g., goal activation) and predicts engagement in the behavior (Stacy, Ames, Sussman, & Dent, 1996). Participants were instructed to generate as many euphemisms for the word "marijuana" as possible (e.g., *weed, reefer*). The number of euphemisms generated by participants represented its cognitive accessibility and thus whether a marijuana goal was activated; five outliers were winsorized, $M = 3.41$, $SD = 2.25$.[3]

Subjective Rating of Motivation—Participants were later asked, *"How likely is it that you join your friend?"* (rated *1= not at all* to *7= extremely*, $M = 3.94$, $SD = 1.99$). This item assessed general motivation to join their friend without specifying they would use marijuana. Participants who were motivated to exert free choice may be more motivated to join the friend even if they do not report any heightened motivation to use marijuana *per se*. Two subsequent items assessed perceptions of social pressure to smoke marijuana or to join their friend, but these items had no bearing on the results. Only their motivation to join the friend was correlated with cognitive accessibility of marijuana ($r = .36$, $p < .001$); the other two items were not (rs < .04, ps = *ns*).

Participants' history of chronic marijuana use, which would turn out to be a critical moderator of the predicted effects, was assessed via three questions used in previous research (Leander et al., 2009). Participants reported how many times they used marijuana in the last 30 days (free response), lifetime (*0= never* to *8= 100+ times*), and over the last six months (scale response, *0= no use* to *8= more than once per day*). Responses to these items were standardized and combined ($\alpha = .89$).

Suspicions regarding the nature of the study were assessed before participants were thanked and fully debriefed. Three participants identified at least one of the prime words, but excluding these participants did not significantly change the results.

Results and Discussion

The predicted effects were only observed in a three-way interaction with chronic marijuana use, so we focus on those results. Also, note the pattern of the data unexpectedly differed between the two dependent measures, but did so in a theoretically consistent way.

Motivation to join the friend—A regression analysis predicted motivation to join the friend from participants' reactance condition (reactance vs. control [coded 1, −1]), goal inference condition (free-choice vs. marijuana use only [coded 1, −1]), chronic marijuana

[3]Participants also completed a modified measure of self-reported motives to use marijuana (see Leander et al., 2009). The motives correlated with chronic marijuana use ($r = .44$, $p < .001$), cognitive accessibility of marijuana ($r = .23$, $p = .009$), and motivation to join the friend ($r = .56$, $p < .001$). There were no effects of the manipulations on this measure.

use (standardized), and all possible interactions. Results indicated a direct effect of chronic marijuana use, $B = 1.46$, $F(1, 118) = 77.74$, $p < .001$, 95% CI (1.13, 1.79), and a three-way interaction of the goal inference, reactance, and chronic marijuana use, $B = -0.34$, $F(1, 118) = 4.21$, $p = .042$, 95% CI (−0.67, −.01). No other effects approached significance (Fs < 1.65).

As illustrated in Figure 3, chronic marijuana users generally reported a high likelihood of joining their friend. However, a slight goal contagion effect still emerged among chronic users primed with reactance when their friend's motivation towards marijuana afforded free choice. The positive effect of the free choice condition was marginally significant at *1 SD* chronic marijuana use, $B = .58$, $t(118) = 1.74$, $p = .084$; the simple slope crossed the threshold for significance ($p < .050$) at +1.82 *SD* chronic marijuana use. Otherwise, reactant participants resisted the influence of a peer whose only goal was to use marijuana, suggesting it threatened their autonomy. Although marijuana had to be an attractive option in order for peer contagion to occur, it could not be the only option—it still had to be presented as a free choice.

Cognitive Accessibility of Marijuana—To test whether reactant participants' motivation to join the friend was focused on marijuana use or not, a second regression analysis predicted participants' cognitive accessibility of marijuana from their reactance condition (reactance vs. control), goal inference condition (inferred goal: free-choice vs. marijuana use only), chronic marijuana use (standardized), and all possible interactions. Results again indicated a direct effect of chronic marijuana use, $B = 1.37$, $F(1, 118) = 48.13$, $p < .001$, 95% CI (0.98, 1.76), and a significant three-way interaction—but this time in the opposite direction, $B = 1.37$, $F(1, 118) = 5.09$, $p = .026$, 95% CI (−0.84, −.054). No other direct effects or interactions were significant (Fs < 2, ps > .06).

As illustrated in Figure 4, chronic marijuana users generally showed high accessibility of marijuana, but a goal contagion effect emerged, which exacerbated this accessibility, among chronic users who were *not* primed with reactance and who inferred that the friend was restricted to marijuana use. This was indicated by a significant simple slope of the goal inference condition, $B = -1.30$, $t(118) = -3.52$, $p < .001$. This is a classic peer contagion effect that has been observed before (Leander et al., 2009). Notably, participants primed with reactance did not show increased accessibility of marijuana (ts < 1), nor did controlling for accessibility alter their subjective ratings. Altogether, we found no evidence that reactance-primed participants were specifically motivated to use marijuana: despite reporting increased motivation to join the friend whose motivation afforded free choice about whether to use marijuana or not, they maintained their default level of accessibility of marijuana-related constructs. This suggests marijuana use was not their focal goal; rather, their focal goal was to join their autonomy-supportive friend.

The results suggest reactant individuals are sensitive to goal contagion from peers who trigger an autonomy goal rather than a goal to engage in the prohibited behavior *per se*. When chronic marijuana users were primed with reactance, they showed heightened motivation to join the friend who afforded freedom of choice. However, they did not become specifically motivated to use marijuana. Only those chronic users who were *not* primed with

reactance showed increased motivation for marijuana use. In sum, reactant individuals showed peer contagion under different circumstances and, apparently, the goal they "caught" also differed. Importantly, this study helps to show that freedom/autonomy is the superordinate goal in the minds of highly reactant individuals, not the specific behavior *per se*.

These results support the idea reactance is self-regulatory. The reactance manipulation triggered a slight shift in responding and the effects only occurred among chronic marijuana users (Leander et al., 2009). That the effects were only observed among chronic marijuana users suggests the inferred goal (i.e., the behavioral freedom) had to be self-relevant to trigger goal contagion (Brehm, 1966; Brehm & Brehm, 1981). For reactant individuals, the prohibited behavior has to be an attractive option—but not the only option, and the goal that is "caught" is the pursuit of freedom/autonomy, not to engage in the prohibited behavior *per se*. In sum, when reactance facilitates sensitivity to implicit peer influences, autonomy is the goal that is triggered.

General Discussion

The present studies suggest reactant individuals can be influenced by others in their pursuit of autonomy. Reactant participants did not reflexively react against every influence they encountered—they were sensitive to opportunities as well as threats. They were sensitive to deviant peers who appeared motivated by autonomy and afforded freedom of choice. When reactance facilitated goal contagion, it was also mainly among effective self-regulators (Study 1) and the goal "caught" from their peers was to exercise free choice, not to engage in the prohibited behavior *per se* (Study 2). Notably, reactant individuals who showed sensitivity to deviant peers were not simply motivated to get drunk or high; their motivation towards the prohibited behavior was a means to an end. To them, the superordinate goal was autonomy and they were sensitive to social opportunities to exercise freedom of choice.

Theoretical Implications

This research considered how reactance operates as part of a broader self-regulatory system focused on the ongoing pursuit of autonomy. Our logic is based partly in early theorizing by Brehm (1966; Brehm & Brehm, 1981), wherein he noted the important of reactance by stating that individuals can better satisfy their needs if they have the freedom to do what they want and do it when and how they want. We built upon this idea, and considered whether the same motivational concerns that could make one react against controlling social influences could also facilitate sensitivity to influences that enhance freedom and autonomy. Our approach is in keeping with a classic perspective on reactance. For example, when Brehm and Brehm (1981) reviewed the advances of the theory since its original 1966 conceptualization, they considered the possibility that reactance is connected to control motivation – namely, having control over one's own behavior (i.e., autonomy). If reactance motivation is indeed a manifestation of a superordinate autonomy need, new predictions for reactance could be derived from other motivation theories: Self-Determination Theory (Deci & Ryan, 2000) could give insight on how to further connect reactance to the need for autonomy (or perhaps other trait-level motives – see Jonason & Ferrell, 2016); alternatively,

Goal Systems Theory (Kruglanski et al., 2002) could give insight into the specific operation of reactance as a means to an superordinate end.

The findings of our two studies also illustrate how a self-regulatory perspective could explain the nuances of reactance in response to different types of influence. For example, the present results are in harmony with research showing that people typically only resist goal contagion when the influence interferes with other needs (Leander et al., 2011). This may help to reconcile the seemingly contradictory roles of reactance and peer contagion in predicting motivation to engage in prohibited behaviors. It also suggests reactance could increase motivation to engage in a prohibited behavior via at least two routes: by reacting against the societal prohibition via increased attraction to the restricted behavior – the traditional route, or in sensitivity to interpersonal influences that provide means to engage in the behavior – a novel and indirect route. Little is known about the interpersonal route or its implications, but the present studies suggest it could explain a range of health-related behaviors connected to peer influence.

The findings are also consistent with recent research showing that individuals may be sensitive to social influence as long as its controlling aspects are not made salient (Laurin, Kay, Proudfoot, & Fitzsimons, 2013). This is reminiscent of Brehm's idea that reactance is only triggered when there is a perceived intent to influence (Brehm, 1966). Indeed, goal contagion occurred among reactant participants as long as the prohibited behavior was *not* the focal motivation, which may have reduced the salience of its influence.

Another notable finding is that the autonomy threats were not real – they occurred entirely in participants' minds. This supports past findings showing that the imagined presence of others can suffice to trigger reactance to implicit motivational influences (Chartrand et al., 2007; Leander et al., 2011). Yet reactance effects can also occur simply from perceiving threats to others' autonomy, even if there are no implications for the perceiver's freedoms (Andreoli, Worchel, & Folger, 1974). From a self-regulatory perspective, reactance may motivate a kind of vigilance that inflates one's assessments of threat, leading even imaginary and inferred threats to trigger a reactant response.

Limitations and Future Directions

It is important not to overstate the results – the sample sizes were small and some of the effects were only marginally significant. Our tentative conclusion from these data is that there are elements to reactance that fit a self-regulatory model. The results also do not indicate that reactance motivates pursuit of prohibited behaviors; rather, it motivates sensitivity to social opportunities to enhance one's freedom and autonomy.

The studies also only focused on immediate responses in an experimental setting, which may not always map onto long-term outcomes. Although reactant individuals may be drawn to peers whose influence facilitates their pursuit of autonomy, they could eventually be repelled when the influence becomes repetitive. Theorizing on fatal attractions suggests that the quality that initially brings two people together is often the same quality that later pushes them apart (Felmlee, 1995). A question for future research is how long or often reactant individuals will accept the influence of a deviant peer.

It is also worth noting that Study 1 used a measure of trait reactance that is operationalized primarily in terms of threat sensitivity. Although past work suggests reactance can indeed be assessed as a unidimensional trait (e.g., Jonason, Bryan, & Herrera, 2010), there are concerns about the validity and usefulness of such a measure (Jonason, 2007; Miron & Brehm, 2006). The present work may signal the need for a trait reactance measure that distinguishes autonomy-enhancing opportunities from threats to autonomy.

Along the same lines, one might question whether the motivation adopted by participants is indeed the personal pursuit of freedom/autonomy, or one more akin to vicarious reactance (arousal because of a threat to the target's freedom, see Sittenthaler *et al*, 2015). Although we assume the former, there is work to suggest that merely perceiving a threat to another person's freedom has implications for vicarious reactance (Andreoli *et al*, 1974; Sittenthaler *et al*, 2016). Perhaps a distinction can be made between a *motivational contagion* mechanism and a *vicarious reactance* mechanism by identifying what, exactly, perceivers notice about the target person—is it their goal-directed behavior or the threat to their freedom? A goal contagion explanation may be apt when perceivers attend to a target person's behavior (rather than the threat to their freedom), especially given our findings that the goal "caught" was not necessarily to engage in the restricted behavior. More research is needed to distinguish the specific implications of exposure to others' threats to freedom versus their behavior to restore it.

Altogether, the present work highlights the potential self-regulatory nature of reactance, and perhaps also the illusory nature of any autonomy that one can attain in social situations. Despite the seeming shortsightedness of many reactant behaviors, the need for autonomy may be fundamental. Thus, societies and governments may be obligated to accommodate this need and craft regulations in a way that makes healthy choices also feel like autonomous choices.

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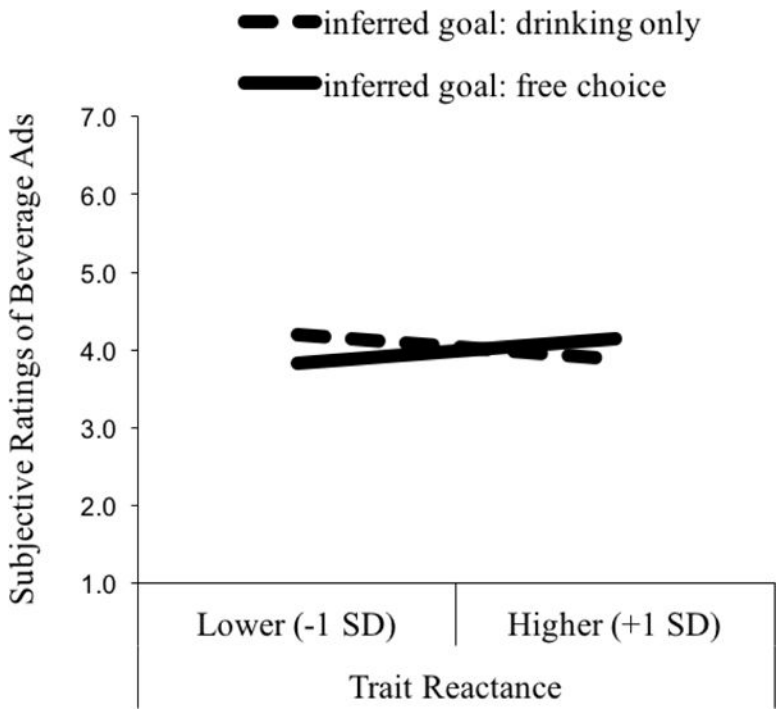

Figure 1.
Mean rating of beverage advertisements as a function of participants' goal inference condition (free choice vs. drinking only) and trait reactance (Study 1).

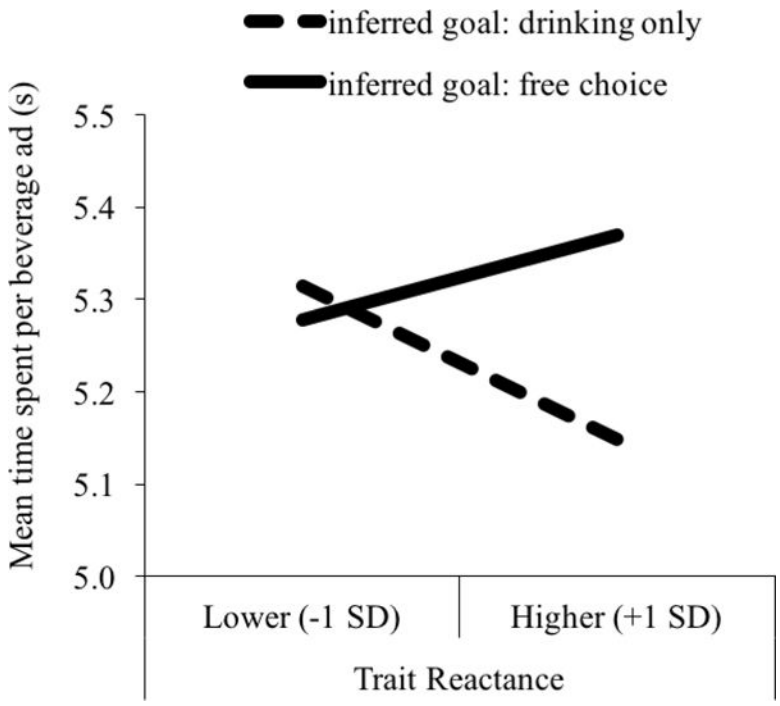

Figure 2.

Mean time spent on ads as a function of participants' goal inference condition (free choice vs. drinking only) and trait reactance (Study 1). Note the y-axis starts at five seconds.

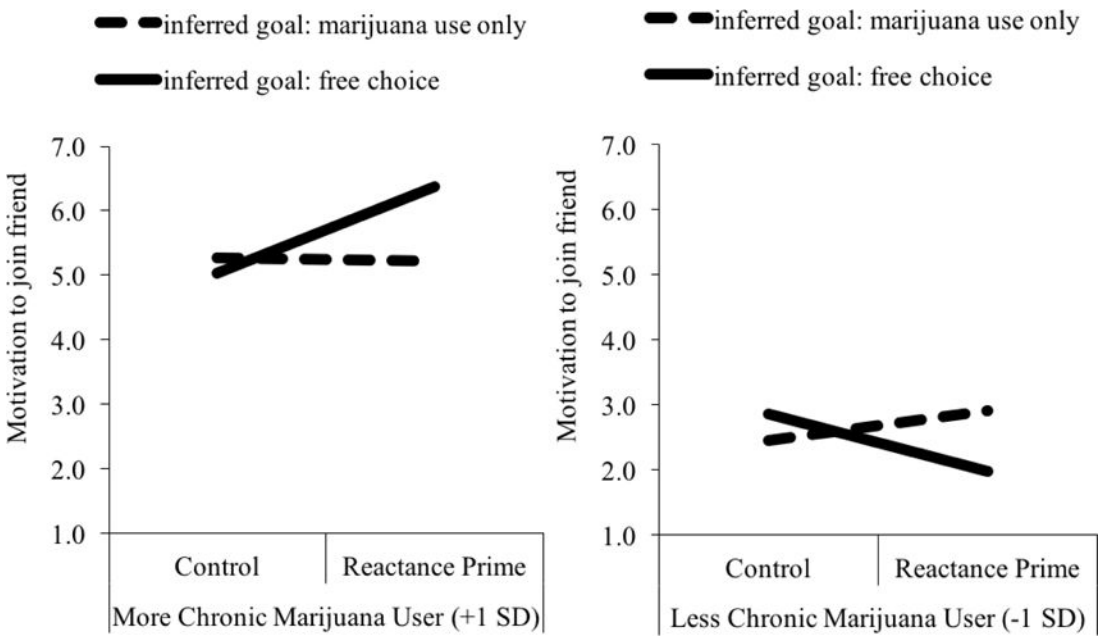

Figure 3.

Motivation to join friend as a function of participants' priming condition (reactance vs. control), goal inference condition (free choice vs. marijuana use only), and chronic marijuana use (Study 2).

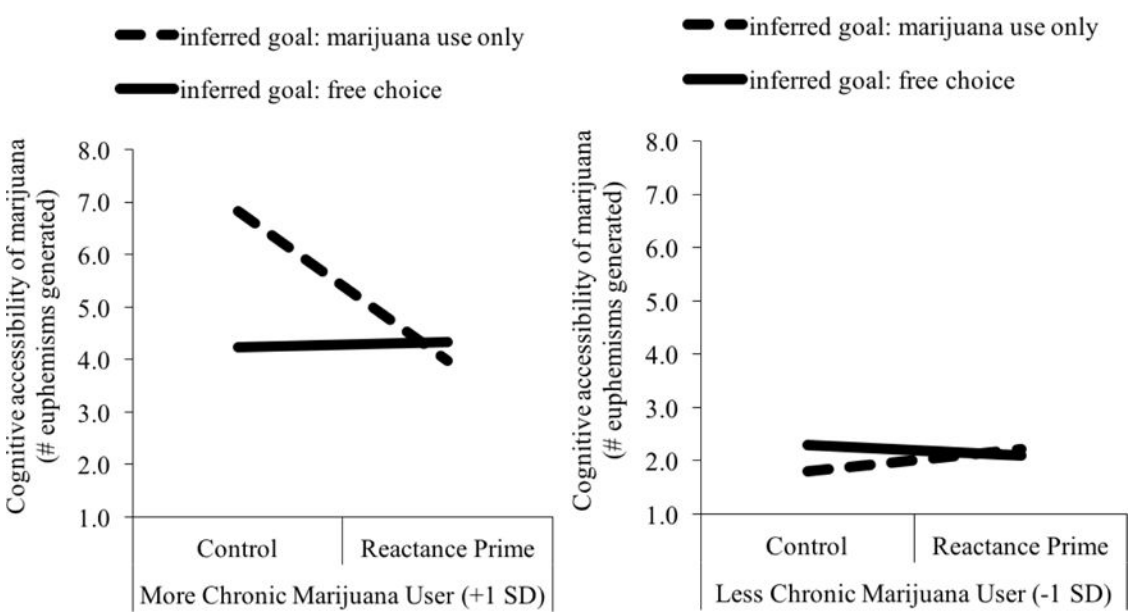

Figure 4.

Cognitive accessibility of marijuana as a function of participants' priming condition (reactance vs. control), goal inference condition (free choice vs. marijuana use only), and chronic marijuana use (Study 2). Higher scores indicate greater accessibility.