Published in final edited form as:
J Child Media. 2014 January 1; 8(1): 5–22. doi:10.1080/17482798.2014.863475.

Television's Cultivation of American Adolescents' Beliefs about Alcohol and the Moderating Role of Trait Reactance

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Abstract

Cultivation research has shown that heavy television viewing is linked to audiences' generalized, and often skewed, views of reality. This research investigates whether television viewing is related to adolescents' views about the consequences of drinking and whether psychological trait reactance moderates this cultivation effect. Results from a survey of 445 American teenagers show that cumulative exposure to television is linked to reduced beliefs about alcohol's negative consequences and greater intentions to drink. These effects were greater for adolescents low on trait reactance. This research adds to the general psychological research on trait reactance as a moderator of media influences and makes a substantive contribution towards furthering our understanding of the media and public health concerns that surround risky adolescent behaviors.

Keywords

cultivation; adolescence; psychological reactance; persuasion; television

Cultivation refers to a broad theory of the overall cumulative influence of television (TV) on audiences (Gerbner, Gross, Signorielli, & Morgan, 1980; Morgan & Shanahan, 2010; Morgan, Shanahan, & Signorielli, 2012). It is based on the premise that 1) TV program content presents a systematically skewed view of reality and 2) frequent exposure to these distorted images over time results in their internalization. In sum, the more people watch TV, the more they develop values, attitudes, beliefs, and, perceptions that are consistent with the world as portrayed on TV. In turn, these perceptions of the prevalence and normalcy of behaviors frequently depicted on TV increase the likelihood that one will engage in these behaviors. Cultivation has had two main critiques that Gerbner and colleagues have, to a large extent, addressed both theoretically and empirically. First, measuring TV at a general level of frequency and amount of viewing may not be able to pinpoint the specific message of influence, but it does support the view that TV has a cumulative, compounded effect that

develops over a sustained period of time (Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002). Second, the correlational nature of cultivation studies leave open questions of causality, but, in contrast to experimental investigations that do offer causal evidence of impact, the cultivation effect relies on multiple exposures, and not exposure to a single program or episode. Given the prevalence of positive alcohol-related messages across TV programs (Mathios, Avery, Bisogni, & Shanahan, 1998; Russell & Russell, 2009; Russell, Russell, & Grube, 2009), cultivation is a likely factor in shaping TV viewers' perceptions of alcohol and its consequences.

Cultivation effects have been documented for a range of consumption-related attitudes and beliefs, from perceptions of affluent lifestyles to materialism (O'Guinn & Shrum, 1997; Shrum, Burroughs, & Rindfleisch, 2005). A consistent finding is that heavy cumulative exposure to media messages shapes viewers' concept of reality, attitudes, and behavior especially when they have little direct personal experience with the behaviors depicted (Gerbner et al., 1980; Gerbner et al., 2002). The theoretical explanation for the cultivation effect is that TV viewing makes relevant information more accessible in memory for heavy viewers than for light viewers. This accessibility promotes a reliance on heuristic processing when heavy viewers construct their judgments about the real world, hence explaining the positive relation between the amount of TV viewing and estimates of the frequency and probability of violence, affluence, or consumption behaviors often depicted on TV in society (Hawkin & Pingree, 1982; Shrum, Wyer, & O'Guinn, 1998).

This research investigates whether and to what degree there is a cultivation effect of TV viewing relating to adolescents' views of alcohol and their perceptions of the risks associated with heavy drinking. TV programs prominently feature alcohol consumption; more specifically, content analyses of the top-rated primetime series found alcohol to be present in all the TV series, including those popular with youth (Russell & Russell, 2009). Alcohol is portrayed twice as often as the next most frequently portrayed food/beverage group and adolescent characters are more likely to be shown consuming alcohol than adult characters (Mathios et al., 1998). Furthermore, visual portrayals of drinking tend to be positive. On the whole, TV programming associates drinking with positive outcomes such as having fun by partying hard (Russell & Russell, 2009; Russell et al., 2009). Positive drinking messages appear to be especially prevalent in depictions of youth drinking. For example, TV series popular among American youth depict heavy alcohol consumption, including youth drinking, as desirable and normative (Russell, Russell, & Grube, 2013). Alcohol depictions appear in American situation comedies, a genre popular with youth, an average rate of 6 minutes and 56 seconds per hour and the portrayals are mostly positive (Russell & Russell, 2012).

Given the nature of drinking in the TV world, cultivation theory predicts that heavy TV viewing should be related to more positive beliefs about drinking, especially amongst those who have little direct experience with alcohol, such as pre-drinking youths, and whose main basis for judging consequences associated with certain behaviors, such as drinking, comes from what they see on TV (Gerbner et al., 1980). Additionally, the cultivation effect of TV relies on heuristic processing and has been shown to diminish if viewers process what they see on TV more systematically (Shrum & Lee, 2013). Therefore, the cultivation effect may vary as a function of how individuals generally respond to their environment. In particular, personality traits that shape how individuals respond to external influences may moderate TV's cultivation effect. Specifically, traits that guide acceptance or resistance to external influences may affect the degree to which viewers absorb the TV world's depictions of drinking. The research presented in this paper investigates the moderating role of an individual personality characteristic, trait reactance, on the cultivation of adolescents' alcohol beliefs.

Although much research has investigated how personality characteristics are linked to the onset of risky behaviors among adolescents, there has been less focus on whether personality differences moderate adolescents' receptivity to environmental, social, and media influences (Pechmann, Levine, Loughlin, & Leslie, 2005). For instance, trait reactance has been identified as a predictor of risky behaviors, but it may also affect audiences' responses to messages related to such behaviors (Miller, Burgoon, Grandpre, & Alvaro, 2006). This research investigates whether trait reactance moderates TV's cultivation effect on adolescents' beliefs about alcohol.

Conceptual Framework

Adolescents, Alcohol and TV Consumption

Adolescence is a key period of psychological development when many lifelong behaviors and beliefs are formed, including those related to alcohol. The propensity to engage in excessive alcohol consumption is of special concern during adolescence as research has highlighted how the neurological changes that occur during adolescence increase adolescents' willingness to engage in risky behaviors (Pechmann et al., 2005; Spear, 2010; Steinberg, 2008, 2009). Such risky undertakings include seeking short-term gratification, such as consuming alcohol without consideration of the possible negative consequences relative to the short-term benefits (Spear, 2010). Even before alcohol use commences, TV programming can influence young people's beliefs about alcohol and the consequences associated with consumption (Grube & Wallack, 1994).

TV remains the primary source of entertainment for American youth who watch an average of 3 hours and 20 minutes daily (Nielsen Media, 2009; Rideout, Foehr, & Roberts, 2010). The Millennial generation, representing those born at the beginning of the twenty-first century, embraces technology and consumes TV programming on multiple platforms, including smartphones, tablets, and laptops (PEW, 2010). TV programming is often regarded as the most influential media source through which youth acquire knowledge, whether based on accurate or inaccurate information, and learn about social behaviors, including drinking practices (Collins, Schell, Ellickson, & McCaffrey, 2003; Gerbner, 1995). Youth may be especially susceptible to TV programming because the storylines serve as a source of referential learning about adult behaviors that they seek to emulate (Boeknke, Münich, & Hoffmann, 2002; Russell, Norman, & Heckler, 2004). As such, TV has been referred to as a ‘super peer’ for adolescents, a source of normative information, particularly on topics they are just beginning to explore, such as sexuality or alcohol and drug use (Brown, Halpern, & L'Engle, 2005; Strasburger & Wilson, 2002). Such TV-based influences may come from traditionally persuasive communications (e.g., advertisements or promotional messages) but also, in an age of increasingly blurred lines between advertising and entertainment, or “advertainment”, from less explicit messages (e.g., sponsorships or product placements; Shrum, 2013). These messages may be particularly impactful as today's youth is more accepting and less skeptical about advertising and advertainment practices than previous generations (Lafayette, 2013).

TV content is potentially an influential source of health knowledge for teenagers (Pechmann & Wang, 2010). The relation of TV exposure with alcohol beliefs and use is well documented (Collins et al., 2003; Collins, Ellickson, McCaffrey, & Hambarsoomians, 2007); so much so that the US Surgeon General expressed concern over the increased presence of alcohol messages in programming and advocated that the entertainment and alcohol industries have a moral responsibility to limit the exposure of younger audiences to alcohol depictions (USDHHS, 2007). Yet, TV series, across a range of genres, continue to frequently depict alcohol and to associate youth drinking with largely positive outcomes (Russell & Russell, 2009; Russell, Russell, & Grube, 2009). The extensive body of

cultivation research linking cumulative exposure to TV to audiences' real-life beliefs and perceptions suggests that the amount of TV watched by youths may be related to their perceptions of the dangers associated with drinking and their own likelihood of drinking (Gerbner et al., 1980; O'Guinn & Shrum, 1997). Several studies have indeed found that TV exposure is related to the onset of drinking amongst adolescents (Connolly, Casswell, Zhang, & Silva, 1994; Hanewinkel & Sargent, 2009; Robinson, Chen, & Killen, 1998). Therefore, cumulative exposure to TV content is likely to shape adolescents' beliefs about alcohol even before they have direct experiences with drinking. But the influence of cumulative exposure to the numerous positive alcohol messages across TV programs, which relies on passive acceptance of the content, may differ as a function of trait reactance.

The Role of Trait Reactance

Trait reactance is characterological in nature, reflecting a general tendency to be resistant and, in some cases, react in opposition to messages perceived as threatening one's freedom (Hong, 1992; Hong & Faedda, 1996; Hong & Page, 1989). Unlike initial studies that focused on situational reactance in response to specific persuasion attempts (Brehm, 1966; Rains, 2013; Wellins & McGinnies, 1977), trait reactance is a transituational predisposition that makes individuals suspicious of any perceived attempt to influence them (Dowd, Hughs, Brockbank, & Halpain, 1988; Hong, 1992; Hong & Faedda, 1996; Hong & Page, 1989), even those that are subtle and may not be perceived as obvious attempts to persuade (Noguti & Russell, 2014). High trait reactance individuals often counter-argue against persuasive attempts and derogate the source of such messages (Dillard & Shen, 2005; Quick & Stephenson, 2008; Rains & Turner, 2007). High trait reactance individuals tend to go against whatever is being suggested or advised, regardless of whether significant others or peers make recommendations directly or imply them indirectly (Chartrand, Dalton, & Fitzsimons, 2006; Fitzsimons & Lehmann, 2004). As a result, they are more likely to process any message systematically, rather than heuristically.

Importantly, trait reactance has been shown to trigger resistance both to messages that are directly persuasive (e.g., health promotion campaigns; Quick, Scott, & Ledbetter, 2011) and to more subtly communicated messages (e.g., products visually placed in the content of TV programs; Noguti & Russell, 2014). As a result, trait reactance may moderate the cultivation effect of TV in shaping viewers' judgments and views of the world based on heuristic processing of the cumulative images presented in the televised world (Hawkin & Pingree, 1982; Shrum, Wyer, & O'Guinn, 1998). Specifically, heavy TV viewers who are high in trait reactance may be less affected by cumulative exposure to frequently depicted behaviors, such as drinking on TV, than heavy viewers who are low in trait reactance.

Recent research shows that trait reactance can impact responses to messages even when they are not openly persuasive in nature. Specifically, Noguti and Russell (2014) found that high trait reactant individuals were immune to a sentence completion task designed to prime either conformity or non-conformity (Epley & Gilovich, 1999). In contrast, the primes influenced low trait reactant individuals' behavioral intentions: Primed with conformity, they were more likely to follow others' behaviors whereas primed with non-conformity they were more likely to go against others' behaviors.

Thus, trait reactance appears to predispose people to resist even subtle attempts at going along with a given message. This may be because high trait reactant individuals tend to process information systematically and discount the source, which in turn reduces the cultivation effect (Shrum & Lee, 2013). In contrast to high reactance individuals, low reactance individuals tend not to systematically scrutinize or counter-argue information presented to them (Hong, 1992; Hong & Page, 1989) and tend to conform with what those around them are doing (Chartrand et al., 2006).

Given that the cultivation effect of TV relies on heuristic processing, which increases the ease of availability of media images when making judgments about the real world, the research on trait reactance suggests that that low reactance individuals should be more susceptible to the cumulative influence of TV and that high reactance individuals may in fact be immune to this cultivation effect. To address such a possibility, this research investigates whether trait reactance moderates the effects of heavy TV viewing documented in the cultivation paradigm.

Hypotheses

As posited by cultivation theory, it is hypothesized that adolescents who are heavy TV viewers, compared with lighter viewers, will hold more favorable beliefs about the consequences of drinking heavily (i.e., their alcohol expectancies), express greater intentions to drink, and engage in drinking more often. It is further hypothesized that adolescents who are low in trait reactance will have beliefs about the consequences of drinking that are more positive (and less negative) as their amount of TV viewing increases, whereas the alcohol beliefs of adolescents who are high in trait reactance will not be differentially affected by their amount of TV viewing. Similarly, adolescents who are low in trait reactance will hold greater intentions to drink as their amount of TV viewing increases, but not adolescents who are high in trait reactance. Finally, low reactance adolescents who are heavy TV viewers will be more likely to engage in drinking behavior than low reactance adolescents who are light TV viewers.

Methods

An online survey of teenagers was conducted to test these hypotheses. Online studies have become commonplace in both research and commercial settings as many of the initial challenges to online research (e.g., selection and sampling bias) have now been resolved (Wright, 2005). High Internet penetration rates, 79% overall and up to 95% in the 18-33 age group in the US (Sverdlov, 2012) ensure that online samples achieve good levels of socio-demographic diversity and representativeness.

Sample Recruitment

Respondents were contacted through their parents who are members of a national panel operated by a commercial organization, Market Tools. Market Tools maintains research panels representative of the US population in terms of gender, race, socio-economic status, and ethnicity. This is achieved by comparing panel members' self-reported demographic data and the latest US Census Bureau data. Invitations to participate in a survey are sent based on a pro-rata percentage of invitations to each demographic group for which representation is required. Demographic quota cells are predefined in the survey software programming so that only the desired number of respondents in each quota cell or demographic sub-group is allowed to complete the survey; all other respondents are locked out. This methodology is consistent with other Internet-based survey models.

To promote panel participation, various incentive programs are maintained: in exchange for participating in research studies, panelists earn points redeemable for goods (e.g., games) from partner organizations. Adult members of the panel are solicited on a regular basis, receiving on average one to three survey invitations per week. However, teenagers (after parental consent is obtained) are rarely solicited to participate in research studies in this panel. On average, they are solicited less than three times per year. Market Tools follows the practices and guidelines set by ESOMAR, a worldwide organization dedicated to promoting better research, to ensure the quality and accuracy of its panel. In particular, Market Tools follows the ICC/ESOMAR International Code, which requires special permissions for

interviewing children. Children under the age of 18 can only participate if their parent has consented. As such, Market Tools contacted adult panel members with teenagers 14-16 years old and briefed them about the purpose and details of the study. Upon obtaining parental consent, the teenage participant received an email invitation to participate in the survey. Assent was obtained on the survey site where respondents were presented with an informed consent form of their own that outlined the nature of the survey. If the respondent assented, they were automatically taken to a secure website to complete a short personality and lifestyles survey.

The survey included the following measures in rotated order as to avoid order effects: TV viewing embedded in other questions about hobbies, a section containing all the alcohol measures, and an unrelated section about fast food consumption. The last section included trait measures and demographics. Upon concluding the survey, respondents were afforded an opportunity to pose questions and concerns directly to the researchers via an anonymous online secure message board or address any concerns about their privacy by email to a research coordinator.

Television Viewing

Using a scale from zero to 20, participants indicated the number of hours per week, they watch each of eight categories of programs on any device (e.g., TV, computer, mobile phone): sports, comedy, documentaries, drama, cartoons, sitcoms, soaps, reality shows, and movies. This is a commonly used measure in cultivation research and it was used here to compute an overall weekly TV viewing measure (O'Guinn & Shrum, 1997). TV viewing in the sample averaged 36.7 hours per week across all media devices, in line with recent findings (Rideout et al., 2010). This included an average weekly viewing of 13.3 hours of TV series (drama, sitcoms, soaps, reality shows).

Traits

Trait reactance was measured using a seven-item version of the trait reactance scale developed in previous research (see items in Appendix; α = .81; Hong, 1992; Hong & Page, 1989; Jonason & Knowles, 2006). Participants indicated the degree to which they felt that each item reflects them (1= *strongly disagree* to 5= *strongly agree*). Sensation seeking, which has been linked to drinking behavior in previous research, was also measured and controlled for in the analyses (Clayton, Segress, & Caudill, 2007; Martin et al., 2004). The six-item Brief Sensation Seeking Scale (α = .85) was used (Stephenson, Velez, Chalela, Ramirez, & Hoyle, 2007; Zuckerman, 1994; Zuckerman, Black, & Ball, 1990). The order of the reactance and sensation-seeking measures was rotated.

Drinking Beliefs, Intentions, and Behaviors

Adolescents' beliefs about alcohol were measured using an alcohol expectancies measure that captured beliefs about both risks and benefits associated with heavy episodic drinking (Grube & Agostinelli, 1999). Participants indicated how likely (1= *very unlikely* to 5= *very likely*) it would be that they would be to experience each of eight negative (e.g., “do something you would regret,” α = .79) and eight positive (e.g., “have an easier time expressing your feelings,” α = .89) consequences “after having multiple drinks at a party”. These items form two scales relating to positive beliefs and negative beliefs with only a modest correlation (r = .13) between them, suggesting that they are relatively independent dimensions (Grube & Agostinelli, 1999).

Using an established measure (Grube & Agostinelli, 1999; Grube & Morgan, 1990), previous drinking was measured by asking participants to report on how many days in the past 30 days they had one or more whole drinks (not just a sip or taste) of an alcohol

beverage (i.e., beer, wine, wine cooler, or liquor). In the current study, the majority of the adolescents (87.1%) reported not having had any drink in the last 30 days, so a simple dichotomous score was used for drinking in the past 30 days: 0 (*no drinking*) or 1 (*some drinking*).

Intentions to drink in the next year were measured with three items designed to capture risky consumption: participants indicated how likely they are (1 = *very unlikely* to 7 = *very likely*) to drink, drink enough to feel drunk, and drink several alcoholic drinks in a row within a two-hour period. As in previous research, the items were averaged to form a single indicator of drinking intention (α = .87; Chen, Grube, Bersamin, Waiters, & Keefe, 2005; Grube & Agostinelli, 1999; Grube & Wallack, 1994).

Demographics

Gender, ethnicity, and age were measured. Subjective Socio-Economic Status (SES) was measured by asking the respondents how well off their family is compared with other families (0 to 10), a measure commonly used for teenage respondents (Goodman et al., 2001).

Sample

Six hundred and eighty-seven parents provided consent and contact information for their teenagers. Of those contacted, 445 opened the survey link and completed the survey, resulting in a response rate of 64.8%. All of those who opened the survey link assented to participate in the study. Of the respondents, 52.1% were male with an age distribution of 14 (38.7%), 15 (34.6%), and 16 (24.0%). Twelve respondents were 17 years old but, as their inclusion did not affect the findings, their responses were retained. Race/ethnicity was self-reported as: White/Caucasian (78.4%), African-American (9.9%), Hispanic (5.8 %), as Native American (0.4%), Asian (2.7%), and some (N = 13) indicated multiple ethnicities. The majority (96.2%) was enrolled in school full-time with the bulk in 9th grade (31.9%) or 10th grade (32.6%). Subjective SES indicated a range of socio-economic backgrounds in the sample ($\bar{x}$ = 5.36; σ = 1.89): 27.0% responded they were as well off as other families, 26.8% worse off (below the mid-point of the scale) and 46.2% better off (above the mid-point) than other families.

Results

Continuous dependent variables (negative beliefs, positive beliefs, and drinking intentions) were regressed on TV exposure, reactance, and the TV exposure × reactance interaction, as well as the control variables (sensation-seeking, gender, age, subjective SES, and ethnicity - the latter recoded as a series of dichotomous variables representing each ethnicity and allowing for multiple ethnicities). Previous drinking was controlled for in the beliefs regressions. The independent variables used in the interaction terms were mean-centered (Aiken & West, 1991; Jaccard, Wan, & Turrisi, 1990). The means, standard deviations and correlations are shown in Table 1.

As shown in Table 2, the amount of TV watched by adolescents had a significant and inverse relationship with their negative alcohol beliefs and a positive relationship with drinking intentions. TV viewing was not directly related to adolescents' positive beliefs about alcohol. That is, the more TV adolescents were exposed to, the less they believed that heavy episodic drinking was risky and the more they intended to drink in the future. This supports a cultivation effect of TV viewing: The greater adolescents' exposure to TV, the lower their perceptions of the negative consequences to them personally of heavy drinking. But this relationship is qualified by adolescents' level of trait reactance. Viewing of specific

TV categories (sitcoms, soap operas, dramas, reality TV, etc.) was not predictive of the dependent variables beyond overall TV viewing.

As predicted, adolescents' levels of trait reactance moderated the relationship between TV viewing and alcohol beliefs, both positive and negative, and of future drinking intentions. Slope analyses illustrate these interactive effects by plotting means of the dependent variable at +/- one standard deviation from the mean for each independent variable (Aiken & West, 1991). As shown in Figure 1, there are no differences in either positive or negative alcohol beliefs amongst high reactance adolescents (i.e., no cultivation effect) as a function of the amount of TV they viewed. In contrast, low reactance adolescents who are heavy TV viewers held less negative beliefs and more positive beliefs about the consequences of heavy drinking. In fact, low reactance adolescents who were heavy TV viewers had the lowest perceptions of risks associated with heavy episodic drinking. Therefore, while higher TV exposure was associated with lesser perceptions of the risks of heavy drinking (main effect), this effect was strongest amongst low reactance adolescents (interaction). Although high reactance adolescents held more positive alcohol beliefs than low reactance adolescents, for those adolescents who were low in reactance, positive alcohol beliefs increased in favorability as TV viewing increased. The same interactive effect of TV viewing and reactance was found for drinking intentions. That is, high reactance adolescents were generally more likely to report wanting to drink than did low reactance adolescents, but these greater drinking intentions were not related to the amount of TV they viewed. In contrast, for those adolescents who were low in reactance, drinking intentions increased as TV viewing increased.

A logistic regression was conducted for previous drinking using the same independent variables. This analysis (see results in Table 3) reveals a main effect (positive) of TV viewing qualified, again, by a significant interaction with reactance. As with previous research, we found that the amount of TV viewing is significantly and positively correlated with drinking (Robinson, Chen, & Killen, 1998). However, the relationship between TV viewing and drinking is greater for low reactance adolescents.

Discussion

Cultivation research has reached a level of acceptance in media studies (Morgan & Shanahan, 2010). The current study reveals a cultivation effect of TV viewing on adolescents' beliefs about drinking: Heavy TV viewing is related to adolescents' beliefs about the risks, to them personally, of drinking alcohol. This study indicates that psychological trait reactance moderates this cultivation effect: Low reactance youth are especially susceptible to the influence of cumulative TV viewing. This research also shows that, even in an age of increasing audience fragmentation, the consistency of alcohol messages across channels and programs, mainly positive, reinforces TV as a powerful “purveyor of widely shared messages [where] Gerbner's main ideas are likely to persist” (Morgan & Shanahan, 2010, p. 350). The fact that genre-specific effects were not found is consistent with cultivation theory's assumption that it is cumulative, overall TV viewing that is important, given the consistency of the drinking messages that are woven throughout TV programming (Russell & Russell, 2009). As cultivation researchers have argued, finding effects of total viewing but not selective category viewing reduces worries about reverse causality effects (Morgan & Shanahan, 2010). Indeed, the effect could instead be due to viewers selecting particular programs because of shared values were only selective program categories linked to alcohol beliefs. The finding that youth who watch a lot of TV hold lower risk perceptions of drinking offers continuing evidence of “media harm” (Livingstone, 2007, p. 5). These findings are important in terms of understanding the role of media in young people's lives.

The moderating role of psychological trait reactance on TV's influence is another noteworthy finding. Not only has reactance not been previously tested in the context of cultivation effects, but research linking trait reactance to individual responses to persuasive attempts has also been surprisingly scant (Dillard & Shen, 2005; Quick & Stephenson, 2008; Rains & Turner, 2007). The finding that low reactance adolescents who are heavy viewers of TV appear to be especially desensitized to the negative consequences of alcohol may be due to their less systematic approach to the information presented to them.

Although the underlying explanation that highly reactant individuals process TV messages more systematically and critically deserves further causal evidence, this study demonstrates that, unlike high trait reactant individuals who are more critical of and reactant to what they see, low reactance individuals embrace what they see uncritically and hence are more impacted by the cumulative exposure to the televised world (Hawkin & Pingree, 1982; Shrum, Wyer, & O'Guinn, 1998). Consequently, low reactance heavy TV viewers have a greater intention to consume alcohol. Thus, trait reactance similarly moderates the relationship between TV viewing and drinking.

The finding that low reactance individuals may be less critical of influences in general provides some implications for prevention. For example, low trait reactance individuals may be receptive to more explicit messages, such as Public Service Announcements, aimed at correcting the otherwise detrimental impact of TV (Moyer-Gusé, Jain & Chung, 2012); and they may especially benefit from media literacy training that promotes a more critical evaluation of media images and attempts to re-sensitize desensitized youth (Webb & Martin, 2012).

Future Research Directions

Evidence of the moderating role of reactance on the cultivation effect suggests several questions for future research. First, this research highlights the potential role of personality traits in affecting the reception and outcomes of TV exposure. Yet, with a few exceptions (Bryant, Carveth, & Brown, 1981; Nabi & Riddle, 2008), research on TV-based influences has not incorporated the moderating role of personality characteristics. The finding that the reactance trait moderates the relationship between TV viewing and drinking expectancies and intentions invites two future avenues of research: 1) trait reactance may moderate other social influences important in adolescence, such as peers and family (Scull et al., 2010); and 2) there may be other individual traits that impact the influence of TV viewing on youth.

This research also paves the way for further work on psychological trait reactance. This research pushes the communications research agenda to move beyond ‘state’ reactance, the situational response to a given persuasive attempt (Albarracin, Cohen, & Kumkale, 2003; Brown, 2001; Dillard & Shen, 2005; David, Cappella, & Fishbein, 2006; Miller et al., 2006; Rains & Turner, 2007), to more general ways in which personality traits impact the effects of communications. This study adds to the nascent body of evidence that trait reactance, which reflects a transituational propensity to resist whatever is being suggested, triggers resistance to even subtle suggestions such as embedded messages in the content of entertainment programs (Noguti & Russell, 2014). Future research should assess whether the boomerang effects that emerge when persuasive messages are too freedom threatening, such as with anti-drinking messages (Allen, Spenkel, & Vitale, 1994; Quick & Bates, 2010; Ringold, 2002; Scheier & Carver, 1977), are lessened when the message is subtle, such as if it is embedded in a TV episode.

The underlying explanation that high reactance leads individuals to process information presented to them more critically and systematically should be further tested to provide causal evidence of the ways in which TV content is processed, stored and retrieved. Because

it is difficult to assess the cumulative impact of television in controlled experiments, studies evaluating the ways in which single episodes are processed could be conducted. For example, eye-tracking technology could be used to measure the degree of attention devoted to embedded messages in the content of programs to assess whether high reactant individuals are also more likely to attend to them.

Because research on trait reactance is still emerging, future research should consider how it impacts external influences in general and media influences amongst even younger segments of the population. Many personality traits may be formed by early in life, although they continue to be shaped by genetic factors, environmental consistency, and psychological makeup (see Roberts & Del Vecchio, 2000). As a result, personality traits found in childhood often predict those found later in life (Caspi & Silva, 1998). This study's findings suggest that trait reactance, and possibly other personality traits, may moderate the relationship between media content and children's understanding of the world around them. Thus, trait reactance may have important implications for understanding how exposure to media images impacts children's beliefs, judgments, and behaviors, prior to and leading up to adolescence.

Further research is also warranted to establish causal evidence of reactance's moderating impact on the effect of embedded messages in the media. In this respect, longitudinal studies monitoring media exposure and the developmental trajectories of youth beliefs, intentions, and behaviors would be beneficial. Additionally, it would be useful to assess whether the findings based on aggregate exposure also apply to single exposures. Experiments with adolescents who vary in psychological trait reactance could expose them to TV episodes with different embedded alcohol messages to assess the degree to which their alcohol beliefs shift as a result. Future research should also expand beyond TV and alcohol to evaluate responses to other media where embedded consumption messages abound (e.g., movies, music videos, social media pages, etc.) and to other risky behaviors (e.g., unprotected sex, smoking cigarettes, or experimenting with illegal drugs). The role of parental mediation in moderating the impact of TV influence would also be of interest, as would its interaction with the children's level of trait reactance. Specifically, parental beliefs and behaviors about both the media to which their children are exposed and their own risky behaviors (e.g., the parents' views and behaviors regarding alcohol) could be incorporated in understanding adolescent behaviors and beliefs (Barradas, Fulton, Blanck, & Huhman, 2007).

Finally, this research again highlights that the entertainment industry and policymakers need to be sensitive to and better understand how viewers perceive and react to embedded messages, especially those pertaining to alcohol usage (Miller & Quick, 2010; USDHHS, 2007). From a policy perspective, researchers could turn to what portrayals of risk behaviors in TV series could be effective in reducing adolescents' intention to engage in these behaviors or what type of Public Service Announcements could help reinforce positive messages and correct the otherwise detrimental role of TV viewing (Pechmann, Zhao, Goldberg, & Reibling, 2003).

Acknowledgments

This research was funded by grant R01-AA016969 from the United States National Institutes of Health to the first author.

Appendix

Seven-item Trait Reactance Scale:

I become angry when my freedom of choice is restricted.

I become frustrated when I am unable to make free and independent decisions.

I am contented only when I am acting of my own free will.

The thought of being dependent on others aggravates me.

When something is prohibited, I usually think that's exactly what I am going to do.

Regulations trigger a sense of resistance in me.

I find contradicting others stimulating.

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Biographies

Cristel Antonia Russell: An expert on the influence of messages embedded in the content of media programming, she has published articles on product placement and particularly on the

nature and impact on youth of alcohol messages in television series. She was the Principal Investigator on the grant that funded this research, received from the United States National Institute on Alcohol Abuse and Alcoholism.

Dale Wesley Russell: His research focuses on the behavioral health impact of traumatic experiences among vulnerable populations, especially military populations, families, and youth. His current projects include the impact of military deployments on post-traumatic stress and substance use and abuse.

Wendy Attaya Boland: Her research focuses on consumer decision-making, risky consumption, consumer well-being, information processing, and marketing and public policy issues, especially those dealing with child and adolescent consumers. Her current research projects evaluate a variety of risky, adolescent consumption behaviors including: playing violent video games, partaking in sexting, consuming unhealthy foods, and using illegal substances for recreation.

Joel W. Grube: His research focuses on social-psychological and environmental factors influencing substance use and other problem behaviors among adolescents and young adults. His current projects include longitudinal studies on the effects of community policies on drinking and smoking trajectories among youth and a randomized community trial to reduce abuse of inhalants and other harmful legal products.

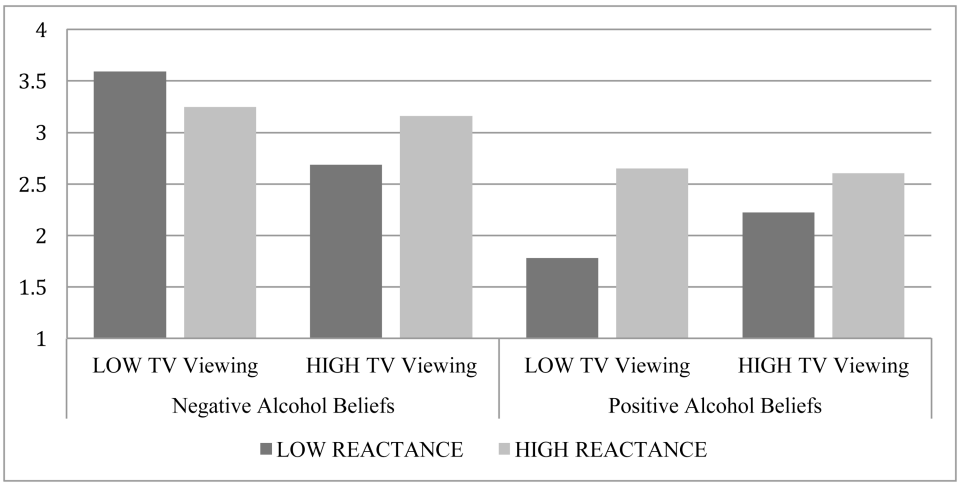

Figure 1. TV Viewing × Reactance Interaction on Alcohol Beliefs

Table 1

Means, Standard Deviations and Correlations

	$x(\tilde{\sigma})$	Overall TV viewing hours/wk	+ Alcohol Beliefs	- Alcohol Beliefs	Drinking Intentions	Sensation Seeking	Previous Drinking
Trait Reactance	2.97 (.82)	.05	.26**	.01	.16**	.51**	-.16*
Overall TV viewing hours/wk	36.71 (49.61)		.09*	-.11*	.33*	.17**	-.25*
+ Alcohol Beliefs	2.31 (1.22)			.13*	.46*	.33**	-.36*
- Alcohol Beliefs	3.18 (1.37)				-.08	-.11*	.12*
Drinking Intentions	1.49 (1.09)					.33*	-.70*
Sensation Seeking	2.57 (.90)						-.26*

Note:

* $p < .05$;

** $p < .01$

Table 2
Regression Results for Alcohol Beliefs and Drinking Intentions

	Unstandardized Regression Coefficients (Standard Errors)		
	Negative Beliefs	**Positive Beliefs**	**Drinking Intentions**
(Constant)	4.81 (.59)**	1.67 (.48) **	.85 (.53)
Reactance	.20 (.09)*	.17 (.07)*	.06 (.08)
Overall TV Viewing [a]	-.03 (.01)	.01 (.01)	.05 (.01) **
Previous Drinking	-.30 (.20)	.98 (.17)**	-- [a]
Reactance × Overall TV Viewing	.05 (.02)**	-.03 (.02)*	-.03 (.02)*
Sensation-Seeking	-.25 (.09)**	.23 (.07)**	.40 (.08)**
Gender (1 = Male)	.09 (.13)	.24 (.10)*	.07 (.11)
Year of birth	-.19 (.07)**	.03 (.06)	.08 (.07)
Ethnicity (1 = White/0) [b]	-.33 (.36)	.17 (.29)	.16 (.32)
Ethnicity (1 = Black/0)	-.56 (.41)	-.22 (.34)	-.23 (.37)
Ethnicity (1 = Hispanic/0)	-.22 (.45)	.81 (.36)*	.07 (.40)
Ethnicity (1 = Asian-Am./0)	-1.06 (.53)*	-.26 (.44)	.58 (.47)
Subjective SES	-.03 (.03)	.01 (.03)	.03 (.03)
Adjusted R^2	.06	.21	.15

Note:

*$p < .05$;

**$p < .01$

[a] Previous drinking is not include: as seen in Table 1, it is highly correlated with drinking intentions. When previous drinking is included in the drinking intention regression, the reactance × overall TV viewing interaction is not significant.

[b] Because some participants reported multiple ethnicities, all ethnic categories were dummy coded and included in the model (i.e. there is no baseline). The results do not change when White is used as the baseline category.

Table 3
Logistic Regression Results (past drinking)

	B	S.E.	Wald	Exp (B)
Overall TV Viewing	.10	.03	13.31**	1.11
Reactance	.29	.24	1.42	1.33
Overall TV Viewing × Reactance	-.08	.04	5.06*	.99
Gender (1 = Male)	.04	.32	.01	1.04
Year of birth	.40	.18	5.15*	1.50
Ethnicity 1 = White/0	.76	1.07	.49	2.13
Ethnicity 1 = Black/0	.84	1.18	.51	2.32
Ethnicity 1 = Hispanic/0	1.00	1.19	.70	2.71
Ethnicity 1 = Asian-Am./0	1.54	1.29	1.43	4.68
Subjective SES	.10	.08	1.59	1.11
Sensation-Seeking	.75	.215	12.30**	2.12
Constant	-8.00	1.79	19.92**	.00**

Note:

* $p < .05$;

** $p < .01$

Model -2 Log Likelihood = 275.78