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To cite this article: Robin L.NabiPh.D. & KarynRiddlePh.D. (2008) Personality Traits, Television Viewing, and the Cultivation Effect, Journal of Broadcasting & Electronic Media, 52:3, 327-348, DOI: [10.1080/08838150802205181](https://doi.org/10.1080/08838150802205181)

To link to this article: <https://doi.org/10.1080/08838150802205181>



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Personality Traits, Television Viewing, and the Cultivation Effect

Robin L. Nabi and Karyn Riddle

This research investigates the impact of 3 personality traits—trait anxiety, sensation seeking, and psychoticism—on cultivation effects regarding perceptions of violence. A survey measuring violence prevalence estimates, personality traits, television consumption, and genre preferences was completed by 427 undergraduates. Results indicate that low trait-anxious individuals, and to a lesser extent high sensation seekers, are more susceptible to cultivation regarding personal vulnerability to crime whereas those low in psychoticism are susceptible to cultivation regarding societal violence perceptions. The worldview offered by these traits, as opposed to TV genre consumption or resonance, seems to best explain these effects.

More than three decades of cultivation research support small, though significant, effects of television (TV) exposure on perceptions of social reality (e.g., Morgan & Shanahan, 1996). Theoretically, the most commonly cited explanation for such effects focuses on the cognitive processes underlying them (e.g., Shrum, 1995), specifically the accessibility of constructs from memory as a function of the heuristic processing of media fare. Although much cultivation literature focuses on determining the key variables that might influence the relationship between TV exposure and perception of the social world, the potential for personality traits to influence the elicitation of cultivation effects has been ignored. This is surprising, given that personality traits, like TV exposure, likely influence construct accessibility. Given the centrality of accessibility in current cultivation theorizing, this research examines how certain personality traits might impede (or facilitate) the cultivation process. As such, they have the potential to illuminate the conditions under which stronger cultivation effects might be expected or, conversely, conditions under which cultivation effects might be unlikely to be found.

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© 2008 Broadcast Education Association *Journal of Broadcasting & Electronic Media* 52(3), 2008, pp. 327–348
DOI: 10.1080/08838150802205181 ISSN: 0883-8151 print/1550-6878 online

Cultivation Theory

Cultivation theory asserts that common conceptions of reality are cultivated by overall patterns of TV programming to which communities are regularly exposed over long periods of time (Gerbner, 1969; Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002). Gerbner and his colleagues propose that compared to light TV viewers, heavy viewers are more likely to perceive the world in ways that mirror reality as presented on TV rather than more objective measures of social reality. Researchers have tested and found support for the cultivation hypothesis in a range of contexts (e.g., Morgan & Shanahan, 1996); however, the bulk of cultivation research focuses on TV violence and its effects on perceptions of real-world incidences of crime and victimization (e.g., Potter, 1993, for a review). Numerous content analyses have documented that the number of violent acts on American network TV greatly exceeds the amount of real-world violence (e.g., Diefenbach & West, 2001). In turn, heavy TV viewers: (a) overestimate the incidence of serious crime in society (first-order effects), and (b) are more likely to believe that the world is a mean place where people cannot be trusted and are just looking out for themselves (second-order effects; Gerbner et al., 2002; Gerbner, Gross, Morgan, & Signorielli, 1980).

Although originally a more sociologically based theory, cultivation theorizing has taken a decidedly psychological approach in recent years. Shrum's research program in particular offers evidence that overestimates of crime prevalence are likely the result of heuristic processing of TV programming, allowing TV-based constructs to enjoy higher accessibility in the minds of heavy viewers (e.g., Shrum, 2001). That is, because heavy viewers are recently and frequently exposed to certain common images and themes on TV, those themes become more accessible in memory and thus more influential in making judgments, like violence prevalence estimates.

Several methodological and conceptual critiques of cultivation (e.g., Doob & Macdonald, 1979; Potter, 1993) have motivated consideration of potential moderators of the cultivation effect. Most notable is personal experience (Doob & Macdonald, 1979; Shrum & Bischak, 2001; Weaver & Wakshlag, 1986), which has been proposed to have two potential effects. *Resonance* suggests cultivation effects may be amplified in situations where viewers have more real-world experience whereas *mainstreaming* suggests that TV exposure might override differences in perspectives that might ordinarily result from personal experiences (e.g., Gerbner et al., 2002).

In addition to personal experience, the cultivation literature has revealed several other variables that moderate the cultivation effect, including viewing motivations (e.g., Carveth & Alexander, 1985); attention level; need for cognition (Shrum, Burroughs, & Rindfleisch, 2005); nation of origin (Woo & Dominick, 2003); and elaboration styles (Shrum, 2001). Despite these advances, however, scholars argue for the need to investigate other potential moderators of the relationship between mass media exposure and crime perceptions (e.g., Shrum & Bischak, 2001). In considering viable directions for such investigations, it seems reasonable to step back and ask:

On what premises are cultivation effects based, and what about the receiver is likely to shape those outcomes? As the cultivation paradigm is predicated on the assumption that TV socializes individuals from infancy and thus its effects predate most experiences, individual differences that predate TV exposure would be of considerable interest. Chief among these are personality traits, which may not only impact processing of TV messages but may also influence construct accessibility, the prime mechanism posited to underlie cultivation effects.

Personality Traits and Cultivation Effects

According to H. J. Eysenck (1990), personality is a hierarchical structure comprised of single and habitual cognitions or acts, dimensions or patterns of thoughts and feelings (i.e., traits), and intercorrelations between traits. Because personality traits are relatively enduring over time, they are generally presumed to be governed by genetic factors (H. J. Eysenck, 1992; for a review, see Matthews, Deary, & Whiteman, 2003). However, there is some evidence that environment may play a role in shaping personality over the life span (e.g., Roberts, Walton, & Viechtbauer, 2006). H. J. Eysenck (1990) argues for three broad personality dimensions: neuroticism, psychoticism, and extraversion. According to Eysenck, neuroticism represents emotional instability, and its component traits include anxiety, moodiness, tension, shyness, and low self-esteem. Psychoticism represents emotional independence and is marked by a hostile disposition, lack of empathy, impulsivity, creativity, and tough-mindedness. In contrast, extraversion is characterized by sociability, activity, and sensation seeking.

According to Wober (1986), personality traits have been remarkably understudied in media research up until the mid 1980s. Since then, researchers have focused largely on how personality traits impact media selection and preference (e.g., Bruggemann & Barry, 2002; Weaver, 1991; Weaver, Brosius, & Mundorf, 1993), with much less attention paid to the ways in which personality variables shape media effects processes and outcomes. Still, some evidence exists in this domain. For example, Gunter found that neuroticism (Gunter & Furnham, 1983) and psychoticism (Gunter, 1983) enhance perceptions of violent TV content. Relatedly, Zillmann and Weaver (1997) found that after exposure to gratuitous violence, high psychotic males were more accepting of violence as a means of conflict resolution. These findings suggest that personality traits impact the ways in which individuals respond to mass media messages. However, such traits fail to be integrated into broader theoretical frameworks. The goal of this research is to incorporate notions of personality trait into the cultivation paradigm.

Although cultivation research rarely includes personality variables (though Bryant, Carveth, & Brown, 1981, offer a notable exception), recent theoretical advancements lay the foundation for this sort of integration. Recall that Shrum's (1995) model posits that TV exposure leads to first-order cultivation effects because it makes TV images and themes readily accessible in memory. Social cognition research,

however, has demonstrated that both external stimuli and internal factors have the ability to affect construct accessibility (Bargh, Lombardi, & Higgins, 1988). Further, certain constructs may become chronically accessible, even in the absence of a prime, when a person has frequent and consistent related experiences given their unique life history and social encounters (e.g., Higgins & King, 1981; Higgins, King, & Mavin, 1982).

Here, it is argued that personality traits represent internal factors that affect one's unique life history and social encounters and, therefore, promote chronic construct accessibility. This view is supported by the evidence that personality traits are related to cognitions (Calvo & Castillo, 2001b), opinions and attitudes (Zillmann & Weaver, 1997), behavioral tendencies (McCroskey, Heisel, & Richmond, 2001), and direct experiences (McCrae, 1996). If, as asserted, certain personality traits predispose individuals to have related constructs *already* chronically accessible, it would limit TV's opportunity to impact accessibility. Thus, it is expected that cultivation effects are somewhat dependent on personality traits. Below key traits related to H. J. Eysenck's (1990) personality dimensions are elaborated and predictions are offered as to how these traits might interact with TV viewing to affect cultivation outcomes.

Neuroticism/Trait Anxiety

Generally speaking, those high in neuroticism exhibit cognitive biases towards negative, dangerous thoughts; experience more stress; and tend to have lower life satisfaction than low neurotics (for a review, see Matthews et al., 2003). Neuroticism's subcomponent of trait anxiety is of particular interest as it has been a focus in the media effects literature (Bryant et al., 1981). By definition, trait anxiety is a person's proneness to perceive potential harms in his or her environment (H. J. Eysenck, 1992). Research on the relationship between anxiety and cognitive processes has shown that trait-anxious individuals exhibit an attentional bias towards threatening stimuli (MacLeod & Matthews, 1988), are more likely to jump to negative conclusions when presented with ambivalent information (Calvo & Castillo, 2001a), and judge ambiguous situations as threatening (Calvo & Castillo, 2001b). Further, they view their personal experiences as more threatening as they scan their environments for potential dangers (H. J. Eysenck, 1992).

Given their cognitive biases towards negative thoughts and threatening situations, high trait-anxious people are likely to have danger-related constructs chronically accessible. Consequently, exposure to threatening, violent media messages is unlikely to make such constructs any more accessible than they already are. Thus, for high trait-anxious individuals, there should be little relationship between TV viewing and violence-related cultivation outcomes. Individuals low in trait anxiety, on the other hand, do not see the world as dangerous and threatening, and are not likely to have related constructs accessible. Therefore, exposure to the violent world of TV should increase the accessibility of danger and crime-related constructs, leading to the traditional cultivation effect. Thus, the following interaction is expected:

H₁: Trait anxiety will interact with TV viewing such that heavy TV viewing will result in a stronger cultivation effect for those low, versus high, in trait anxiety.

This prediction is somewhat different from what might be expected from a resonance standpoint. Shrum and Bischak (2001) have argued that the media can exert an additive impact on construct accessibility, above and beyond that of direct experience. From this perspective, heavy exposure to violent images would resonate with the threatening, dangerous thoughts and perceptions of high trait-anxious individuals, leading to an even stronger cultivation effect for them compared to those low in trait anxiety. Thus, the resonance hypothesis would predict an interaction between trait anxiety and TV viewing, but in the opposite direction as that proposed above, resulting in the following alternative hypothesis:

H_{1alt}: Trait anxiety will interact with TV viewing such that heavy TV viewing will result in a stronger cultivation effect for those high, versus low, in trait anxiety.

Psychoticism

High psychotic individuals tend to be neither sympathetic nor empathetic towards others (Richendoller & Weaver, 1994). They are, however, curious about morbid events (Zuckerman & Litle, 1986), argumentative (McCroskey et al., 2001), and likely to embrace violent conflict resolutions (Zillmann & Weaver, 1997). Further, high psychotics seem to select media heavy in violence (Weaver, 1991), and tend to see violent media as more amusing, interesting, and exciting than low psychotics (Bruggemann & Barry, 2003). In fact, considerable research links high psychoticism to antisocial behavior and criminality (H. J. Eysenck, 1996).

Combined, this research suggests that high psychotics are likely to have aggressive, violent, and hostile constructs chronically accessible (e.g., Zillmann & Weaver, 1997). If so, an accessibility ceiling for high psychotics that limits the potential for cultivation effects is expected. For low psychotics, however, TV exposure should increase the accessibility of aggression-related constructs and thus enhance cultivation effects. Thus, it is proposed:

H₂: Psychoticism will interact with TV viewing such that heavy TV viewing will result in a stronger cultivation effect for those low, versus high, in psychoticism.

An alternative prediction can also be offered based on the resonance hypothesis. That is, the violent imagery on TV might resonate with the violent world perceptions of high psychotics, amplifying the cultivation effect by even further increasing the accessibility of violence-related constructs. Thus,

- H_{2alt}: Psychoticism will interact with TV viewing such that heavy TV viewing will result in a stronger cultivation effect for those high, versus low, in psychoticism.

Extraversion/Sensation Seeking

Within the broader personality dimension of extraversion, media researchers have emphasized the trait of sensation seeking, particularly in studies of media violence. According to Zuckerman (1979), sensation seeking is a biologically based personality trait that represents "...the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences" (p. 10). There is conflicting research, however, about the chronic accessibility of constructs pertaining to crime and violence-related topics for high sensation seekers. On one hand, high sensation seekers are more aggressive (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993), more curious about morbid events (Zuckerman & Litle, 1986), more attracted to dangerous behaviors (Roberti, 2004), and more likely to have committed a nonviolent crime than low sensation seekers (Horvath & Zuckerman, 1993). Thus, high sensation seekers might have aggression and violence-related constructs chronically accessible. However, it is likely that sensation seekers seek out dangerous situations because they fail to recognize the potential harmful consequences of their actions (Joireman, Anderson, & Strathman, 2003), which suggests they do not have danger-related constructs accessible. Indeed, high sensation seekers are more likely than low sensation seekers to view the world as nonthreatening and to fail to perceive dangerous stimuli (Roberti, 2004).

Based on this evidence, high sensation seekers should be less likely than low sensation seekers to have danger-related constructs chronically accessible. Therefore, exposure to the often extreme dangers portrayed on TV likely make violence-related constructs more accessible for high sensation seekers than they might have been otherwise. Consequently, high, but not low, sensation seekers, should be more prone to violence-related cultivation effects. Thus, the following interaction is proposed:

- H₃: Sensation seeking will interact with TV viewing such that that heavy TV viewing will result in a stronger cultivation effect for high, versus low, sensation seekers.

Again, an alternative prediction derived from the resonance hypothesis can be offered. That is, for low sensation seekers, TV's mean and dangerous world might resonate with their perception of the world as dangerous, leading to an enhanced cultivation effect relative to that evidenced for high sensation seekers. Thus, it is proposed:

- H_{3alt}: Sensation seeking will interact with TV viewing such that heavy TV viewing will result in a stronger cultivation effect for low, versus high, sensation seekers.

Personality Trait and Selective Exposure

The above hypotheses are predicated on the assumption that personality traits influence the degree of cultivation possible due to their effects on the chronic accessibility of violence-related constructs. However, it could be argued that any cultivation differences found might be the result of the traits' impact on the *selection* of media content. Indeed, some evidence suggests that personality traits influence media preferences, though the literature presents somewhat inconsistent findings. For example, high sensation seekers seem to prefer media messages with high sensation value (i.e., fast-paced, novel; Stephenson & Palmgreen, 2001), and they seek out and enjoy horror and X-rated movies (Zuckerman & Litle, 1986), action-adventure (Nolan & Patterson, 1990; Perse, 1996), music programs (Perse, 1996), news (Zillmann, 1991), sports (Krcmar & Greene, 1999; Nolan & Patterson, 1990), and even comedies and game shows (Nolan & Patterson, 1990). Yet, Rowland, Fouts, and Heatherton (1989) found that after controlling for age, sensation seeking did not relate to program content preference. Further, Krcmar and Greene (1999) found contradictory evidence with some dimensions of sensation seeking positively associated with watching sports but negatively related to all violence.

Evidence linking trait anxiety with media preferences is also inconclusive. Some studies suggest that anxious individuals are more likely to select and enjoy crime dramas in which justice triumphs (Wakshlag, Vial, & Tamborini, 1983), and research on the "parent" trait of neuroticism shows that high neurotics watch more tragic movies, listen to downbeat music, and watch news and information programs (Weaver, 1991). On the other hand, Weaver et al. (1993) found no links between neuroticism and movie genre preferences.

A clearer usage pattern emerges for psychoticism. Weaver (1991) found that high psychotics were less interested in comedy but strongly preferred violent horror movies (see also Bruggeman & Barry, 2002, and Weaver et al., 1993), and they found the violence to be more enjoyable, interesting, and humorous than low psychotics (Bruggemann & Barry, 2002). Thus, high psychotics seem to seek out and enjoy violent media while avoiding lighthearted options.

Although this line of research is far from complete, it gives reason to suspect that personality traits might drive media exposure patterns, which could potentially explain any differences in cultivation patterns identified. To explore this possibility, it is asked:

- RQ₁: Do differences in genre consumption explain any cultivation differences associated with personality traits?

Method

Participants and Procedures

Surveys were completed by 433 undergraduates during class periods in exchange for course extra credit. Of these, 6 reflected outlying responses on the key dependent measure of first-order beliefs and were thus excluded from analysis, leaving 427 valid cases. The sample was 57% female. The participants' average age was 21.15 ($SD = 2.83$), and 81% were Caucasian.

Although college student samples are not necessarily ideal, they are still suitable for cultivation investigations focused on accessibility as there is little about college students to suggest they differ from more general samples of adults in their cognitive processes (see Shrum, 2001, for a more detailed discussion on these matters). As to the nature of this investigation, which focuses on issues of violence in particular, 19% of the sample reported having personally been a victim of a violent crime and 50% reported that a family member or close friend had been a victim of violent crime. As these figures do not include other forms of violence the students might also have experienced (e.g., physical abuse in family or dating relationships), it appears many of the students have the sorts of experiences that would allow for a fair test of the alternative, resonance-based hypotheses.

Measures

Measures are presented in the order in which they appeared in the survey. First- and second-order beliefs were assessed first. The former represents prevalence estimates of events in the real world whereas the latter represents value judgments or general attitudes about the state of the world at large (Shrum, 1995). Of note, scholars have found more consistent evidence for first-order, rather than second-order, effects (Hawkins & Pingree, 1982; Potter, 1991a, 1991b). However, in the interest of comprehensiveness, both are examined.

Violence Prevalence Estimates. Fourteen belief questions used in past research (e.g., Nabi & Sullivan, 2001) measured respondents' estimations of crime frequency. Of these, 10 focused on crime generally and 4 on personal likelihood of victimization. Responses were translated into z scores and combined to create a "relative estimation" scale of each participant's tendency to over- or underestimate crime prevalence relative to the sample as a whole. The 14 items formed a reliable scale of overall crime prevalence estimations ($\alpha = .84$). Separate scales based on the 10 *societal estimate* items ($\alpha = .80$) and the 4 *personal victimization likelihood estimate* items ($\alpha = .79$) were also created as these have been shown to have different effects in past research (e.g., Shrum & Bischak, 2001; Tyler, 1980).

Mean world attitude was assessed with the three classic mean world items, but in anticipation of their poor reliability ($\alpha = .61$) given the scale's history, eight

5-point Likert items were included based on the original mean world scale. Of these, seven formed a single-factor reliable measure ($\alpha = .77$), and thus served as the measure of second-order beliefs. The seven items included: *Most people will try to take advantage of you if given the chance*; *Generally speaking, the world is a dangerous place*; *Most people would not bother to go out of their way to help someone*; *In general, you cannot be too careful in dealing with people*; *Most people are basically honest*; *Most of the time people try to be helpful*; and *Generally speaking, most people can be trusted* (the latter three items were reverse coded).

Although not often assessed in cultivation research, behavioral intentions and behaviors are of interest as the concern over cultivation effects often stems from the effects that altered perceptions of the real world as a function of TV viewing might have on viewers' actions. Thus, for exploratory purposes, both were assessed consistent with Nabi and Sullivan (2001). *Protective behavioral intentions* were measured by asking respondents how likely they would be to take more or less risky action in response to eight different scenarios that could present some personal danger ($\alpha = .75$). *Protective behavior* was measured by asking, on 5-point scales, how often the respondents generally take each of 16 precautions against crime victimization ($\alpha = .77$).

Three personality traits were then assessed. *Trait anxiety* was measured with the 20-item trait anxiety inventory (Spielberger, Gorsuch, & Lushene, 1970; $\alpha = .89$). *Sensation seeking* (SS) was assessed with Ferguson, Valenti, and Melwani's (1991) 10-item measure of impulsivity and adventurous risk taking ($\alpha = .87$). These items are more general than Zuckerman's (1979) measure and are more consistent with past media research in which thrill/adventure-seeking and disinhibition have been predictive of media selection (Krcmar & Greene, 1999). Finally, *psychoticism* was measured with Eysenck, Eysenck, and Barrett's (1985) 12-item revised psychoticism scale ($\alpha = .66$). Of note, correlations among the traits were generally small ($r_s = .07$ – $.33$; see Table 1), and thus they can be considered separate constructs.

To assess *TV viewing hours*, respondents indicated how many hours of TV they watched during each of four time periods (6 a.m.–noon, noon–6 p.m., 6 p.m.–midnight, midnight–6 a.m.) during the average weekday, the average Saturday, and the average Sunday. These data were combined (weighting the "average weekday" questions by a factor of 5 compared to the "Saturday" or "Sunday" questions) to create an "average TV viewing hours/day" measure. The sample's mean daily TV viewing hours was 4.36 ($SD = 2.66$), which is comparable to Nielsen data on the average adult's daily TV viewing of 4.45 hours (Nielsen, 2000).

Rubin's (1981) perceived TV realism scale was also included. Of the five items, four formed a single factor scale with notably higher reliability than the full scale ($\alpha = .79$ vs. $\alpha = .64$). For this reason, the four-item index was used in the analyses.

Respondents then rank-ordered their preference for 10 genres of TV programming (comedy, drama, news, soap operas, sports, daytime talk shows, late-night talk shows, documentaries, action adventure, and game shows) and indicated their estimated number of weekly viewing hours for each programming type. Finally, respondents were asked to list up to six TV programs that they make efforts to

watch every week. These programs were then categorized into 16 genres (including the 10 noted above, with the exception of action-adventure, and including competitive reality-based TV, noncompetitive reality-based TV, news magazine programs, entertainment news, cartoons, music TV, and "other") by two coders blind to the purposes of the study. Coder reliability was high ($Kappa = .95$).

Finally, age and race were assessed along with personal experience as a victim of violent crime (no = 0; yes = 1). Enjoyment of violent programming was then assessed with two items (*I enjoy TV shows more if they have lots of excitement, like fights and explosions; As far as I am concerned, the more violent a TV show is, the better*; $r = .63$, $p < .001$).

Results

For hypothesis testing, three regression analyses were conducted with comparable structures. Demographic and past experience variables typically included as controls in cultivation studies were entered in Block 1: age, race (0 = non-White; 1 = White), gender (0 = male; 1 = female), past victimization experience (0 = not victimized; 1 = victimized), and perceived TV realism. Enjoyment of violent media was also included given its association with the predictor and dependent measures (e.g., SS $r = .11$; psychoticism $r = .28$; daily TV viewing $r = .23$; behavior $r = -.19$). The key cultivation-related TV viewing measure (daily TV viewing hours) and the targeted personality trait (as a continuous measure) were then entered in Block 2, and the interaction between the latter variables were entered in Block 3. TV viewing hours and personality trait interactions were created by centering each variable based on its mean and multiplying the transformed variables. All partial correlations among the traits and dependent measures are reported in Table 1.

Cultivation effects have consistently been recognized as small in magnitude, both generally (average $r = .09$) and for violence specifically (average $r = .103$, Morgan & Shanahan, 1996). This study has power of approximately .55 to detect a small effect of $r = .10$, and .98 to detect an effect of $r = .20$ at $p = .05$.

Television Viewing and Prevalence Estimates of Violence

A hierarchical regression with demographics, perceived TV realism, and liking violent programming entered in Block 1 ($R^2 = .12$, $p < .001$), and daily TV viewing hours entered in Block 2 indicated a positive association between daily TV viewing and overall prevalence estimates of violence-related occurrences ($\beta = .12$, $R^2 = .012$, $p = .02$). This suggests a general cultivation effect consistent with past literature (e.g., Morgan & Shanahan, 1996). When considering societal versus personal estimations separately, TV viewing maintained a comparable association with societal estimates as reported above ($\beta = .12$, $R^2 = .013$, $p = .02$), but the association between TV viewing and personal victimization estimates decreased

Table 1
Partial Correlations Among Study Variables

	TV Hrs	Overall Estimates	Societal Estimates	Personal Estimates	Mean World	Behave Intent	Behave	Trait Anxiety	Sensation Seeking	Psychoticism
1	—	.12*	.12*	.07	.09	.00	.02	.16***	-.02	.22***
2		—	.94***	.75***	.35***	.19***	.12*	.13**	.03	.02
3			—	.47***	.34***	.21***	.11*	.12*	.02	.02
4				—	.24***	.09 [†]	.09 [†]	.09 [†]	.03	.01
5					—	.25***	.17***	.29***	-.03	.07
6						—	.27***	.07	-.21***	-.17***
7							—	.04	-.10*	-.08
8								—	.02	.14**
9									—	.29***

Note: Partial correlations control for sex, race, age, past victimization, perceived TV realism, and liking TV violence. $df = 416$.

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

($\beta = .07$, $R^2 = .005$, *ns*). These data are consistent with past research indicating that the cultivation effect holds more for societal than personal estimates of victimization likelihood. Further, there was a small association between daily TV viewing hours and mean world beliefs, though it only approached standard conventions of statistical significance ($\beta = .09$, $R^2 = .007$, $p = .08$).

To determine if these relationships might in part be explained by personality traits, the regressions were repeated with the three traits entered in a separate block prior to TV viewing hours. Although the traits combined to explain some variance in the overall prevalence estimate ($R^2 = .015$, $p = .07$), societal estimate ($R^2 = .013$, $p = .10$), and mean world perception ($R^2 = .08$, $p < .001$) measures, the magnitudes of the TV viewing–prevalence relationships did not meaningfully change (overall $\beta = .11$, $p = .03$; societal $\beta = .11$, $p = .03$; personal $\beta = .07$, *ns*). The TV viewing–mean world relationship, however, did decrease ($\beta = .03$, *ns*).

Personality Traits and the Cultivation Effect

Trait Anxiety. H_1 and H_{1alt} offered competing interaction predictions regarding the relationship between trait anxiety and heavy TV viewing. Compared to those low on trait anxiety, H_1 suggested those high on trait anxiety would experience weakened cultivation effects whereas H_{1alt} suggested those high on trait anxiety would experience enhanced cultivation effects. Regression results indicated that the interaction between trait anxiety and daily TV viewing hours was not significant for the overall prevalence estimates ($p = .19$), societal prevalence ($p = .47$), or mean world perceptions ($p = .26$). However, the interaction for the personal victimization likelihood estimate was significant ($\beta = -.09$, $p = .05$; see Table 2). Consistent with H_1 , the nature of the interaction indicated that among heavier TV viewers, those higher in trait anxiety evidenced less of a cultivation effect regarding personal estimates of victimization likelihood than those lower in trait anxiety. This is most clearly depicted with partial correlations between TV viewing and personal victimization likelihood estimates for those high in trait anxiety, $r_p(208) = -.02$, *ns*, and those low in trait anxiety, $r_p(199) = .17$, $p = .02$, based on a median split on the trait variable (see also Figure 1).

Psychoticism. H_2 and H_{2alt} offered competing interaction predictions regarding psychoticism and cultivation effects. H_2 predicted those low in psychoticism would experience a stronger cultivation effect whereas H_{2alt} predicted that those high in psychoticism would experience the stronger effect. The interaction between psychoticism and daily TV viewing hours approached significance for the overall prevalence estimates ($\beta = -.09$, $p = .07$) and societal estimates ($\beta = -.09$, $p = .07$) but not personal estimates ($p = .28$) or mean world perceptions ($p = .32$; see Table 2). Consistent with H_2 , the nature of the interactions suggested that those high on psychoticism experienced weaker cultivation effects than those low on psychoticism. This relationship is well depicted with partial correlations between

Table 2
Regression Results for Trait Anxiety, Psychoticism, and Sensation Seeking
and Cultivation-Related Outcomes

	Overall Estimates		Personal Estimates		Societal Estimates		Mean World	
	ΔR^2	β	ΔR^2	β	R^2	β	ΔR^2	B
Trait Anxiety								
Block 2	.02**		.01 [†]		.02**		.08***	
Tr. Anxiety		.11*		.08 [†]		.10*		.28***
TV hrs/day		.11*		.08		.11*		.05
Block 3	.004		.01*		.001		.003	
Anx. x TV		-.06		-.09*		-.03		-.05
Psychoticism								
Block 2	.01*		.01		.01*		.01	
Psychot.		-.02		-.02		-.02		-.05
TV hrs/day		.15**		.09 [†]		.15**		.09
Block 3	.01 [†]		.003		.01 [†]		.002	
Psych x TV		-.09 [†]		-.06		-.09 [†]		-.05
Sensation Seeking								
Block 2	.01*		.01		.01*		.01	
SS		.03		.04		.02		-.03
TV hrs/day		.12*		.07		.12*		.09 [†]
Block 3	.00		.01		.00		.00	
SS x TV		.01		.07		-.03		-.03

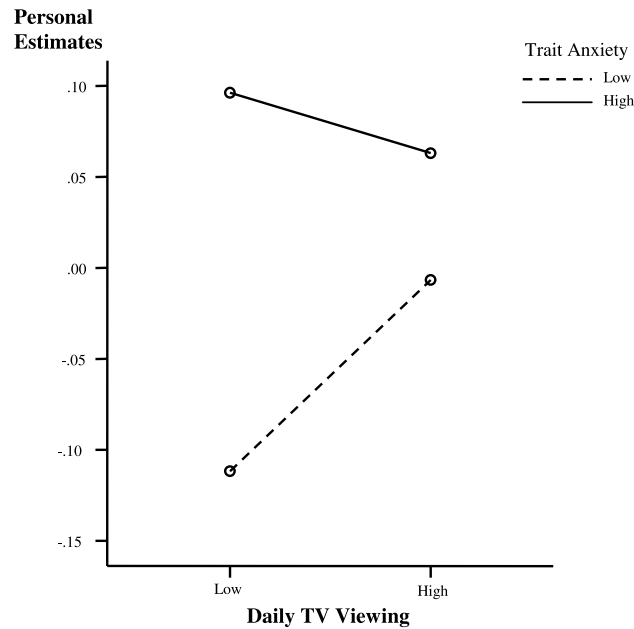
Note: [†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Block 1, which contained the control variables, is omitted from this table for ease of presentation.

TV viewing and both overall and societal estimates for those high in psychoticism, $r_p(198) = .09$, ns , and $r_p(198) = .06$, ns , versus those low in psychoticism, $r_p(209) = .20$, $p = .003$, and $r_p(209) = .24$, $p = .001$, based on median splits on that variable. The discrepancy between those high and low in psychoticism on the societal prevalence estimate measure appears particularly meaningful (see Figure 2).

Sensation Seeking. H_3 and H_{3alt} offered competing interaction predictions regarding sensation seeking and cultivation effects. H_3 predicted high sensation seekers would experience stronger cultivation effects whereas H_{3alt} predicted low sensation seekers would evidence stronger effects. The regression analyses did not reveal significant interactions for overall prevalence estimates ($p = .84$), societal estimates ($p = .58$), or mean world perceptions ($p = .61$; see Table 2). The interaction with

Figure 1
Interaction Between Trait Anxiety and TV Viewing on
Personal Prevalence Estimates of Violence

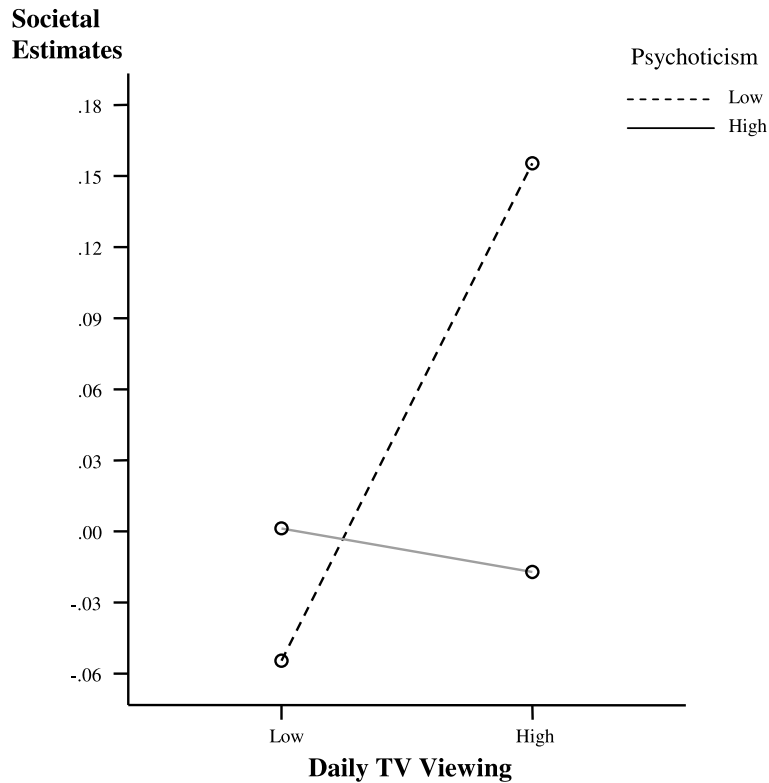


personal prevalence estimates was weak ($\beta = .07$, $p = .12$), though suggestive that high sensation seekers may experience greater cultivation effects, $r_p(211) = .13$, $p = .055$, than low sensation seekers, $r_p(196) = .00$, ns , based on the variable's median split. To the extent this difference might be meaningful, it supports H_3 .

Personality Traits and Television Exposure

The results thus far support the idea that violence-related constructs that are chronically accessible due to personality traits minimize cultivation effects rather than enhance them, as resonance might predict. An alternative explanation for the cultivation differences identified thus far, however, might be variations in patterns of media exposure for those high and low on each personality trait. Indeed, controlling for gender, age, race, and past victimization, enjoyment of violent programming correlated with sensation seeking ($r_p = .13$, $p = .006$), and psychoticism ($r_p = .14$, $p = .005$), though not trait anxiety ($r_p = .04$, $p = .37$). However, enjoyment is a poor substitute for actual exposure. Thus, the relationships between personality traits and programming exposure were explored in multiple ways.

Figure 2
Interaction Between Psychoticism and TV Viewing on
Societal Prevalence Estimates of Violence



First, each respondent's favorite genre was categorized as either high violence/conflict (drama, soap operas, daytime talk, news, action adventure, sports) or low violence/conflict (situation comedies, late-night talk, game shows, documentaries). Second, the number of hours respondents reported viewing each of the 10 genres were collapsed into high and low violence/conflict viewing hours as described above. Third, the favorite programs listed were collapsed into high versus low violent/conflict programming as follows: high violence/conflict (drama, soap operas, daytime talk, news, news magazines, sports, reality-conflict, cartoons) and low violence/conflict (sit-coms, late-night talk, game shows, documentaries, reality-non conflict, and entertainment news). Given their rarity, the music and "other" categories were dropped.

Focusing on preferred genre, partial correlations indicated no significant association between personality traits and preference for more violent TV genres: anxiety $r_p(390) = .02, ns$; SS $r_p(390) = -.01, ns$; psychoticism $r_p(390) = -.02, ns$. In addi-

tion, partial correlations suggested that those high in anxiety watched significantly more hours of violent programming, $r_p(363) = .16, p = .002$, and those high in psychoticism watched more hours of both violent, $r_p(363) = .13, p = .01$, and non-violent programming, $r_p(363) = .09, p = .07$. When controlling for daily TV viewing hours, however, these associations were eliminated for psychoticism ($r_p = .00$ and $r_p = .02, ns$) and reduced for anxiety, $r_p = .08, p = .12$. Finally, partial correlations involving the number of low and high violent/conflict programs watched regularly indicated no significant relationships between trait anxiety, sensation seeking, or psychoticism and preference for low conflict, $r_p(421) = -.04$ to $.04, ns$, or high conflict programming, $r_p(421) = -.03$ to $.05, ns$. Of note, the proportion of favorite programming likely to contain conflict and violence was roughly equal for those high and low on each personality trait (anxiety $p = .73$; SS $p = .84$; psychoticism $p = .49$). Thus, in answer to RQ₁, these data offer little support for the notion that the personality trait-cultivation effect relationships could be explained by selective programming exposure.

Discussion

This research sought to understand the role that personality traits might play in the cultivation process, and specifically to identify conditions under which stronger (or weaker) effects than ordinarily expected within the cultivation framework might occur. These data indicated an overall cultivation effect for violence prevalence estimates consistent with past research. They further revealed that, consistent with predictions, personality traits may interact with TV exposure under some circumstances, and in ways consistent with the personality trait/chronic accessibility perspective, but not the cultivation-based resonance viewpoint. In particular, evidence from both the regression and correlation analyses suggested trait-anxious individuals appeared *less*, not more, likely than their low trait-anxious counterparts to evidence cultivation regarding estimations of personal victimization likelihood. Although the interactions did not reach standard levels of statistical significance, the correlational evidence for psychoticism and sensation seeking suggested differences in magnitude of cultivation effects for those high and low on these traits consistent with the main hypotheses. Those lower in psychoticism evidenced a significant cultivation effect in terms of societal estimates of crime and violence whereas those higher in psychoticism did not, and high sensation seekers evidenced a borderline significant cultivation effect regarding personal victimization likelihood estimates whereas low sensation seekers did not. Further, the magnitudes of these relationships were consistent with or greater than those found in previous cultivation research. However, one must be cautious in interpreting the correlational evidence given the interaction results fell outside the conventional significance level of $p < .05$.

To the extent the identified differences are real, the data offered no evidence to suggest that they might stem from differences in the consumption of particular TV genres. Although those high in trait anxiety seemed to watch more violent/conflictual

programming, this would suggest high trait-anxious individuals would evidence a stronger cultivation effect compared to those low in trait anxiety. However, the opposite was true in these data. Thus, the nature of the personality traits themselves, rather than selective media exposure, seems the more reasonable explanation for the differences in cultivation effects identified.

This research, then, offers unique evidence supporting the importance of studying personality traits in the domain of cultivation, given their likely impact on chronic construct accessibility. Still, it is important to note that of the four possible dependent measures, effects for relatively few of them were found. Although concerns might arise regarding the possibility that the results found might be due to chance alone, the following is observed. First, the supportive data were always in the direction predicted by the main hypotheses. Were the effects the result of chance, this pattern would not likely have been so consistent. Second, past research indicates more consistent effects for prevalence estimates as dependent measures than mean world perceptions and further that specific types of prevalence estimates are more likely to be impacted than others, under different conditions. Although a very broad approach was taken to look for possible effects, the ones found make sense within these contexts.

The data were most supportive of trait anxiety moderating the cultivation effects of TV viewing, but only for personal estimates of victimization likelihood. This is reasonable if one considers that trait-anxious people likely worry about their personal safety on a regular basis, regardless of media exposure. Thus, there is little room for TV viewing to enhance their personal perceptions of risk or to make related thoughts more accessible than they already are. Yet those low in trait anxiety, who are not prone to concern, are more vulnerable to influence by repeated exposure to violent TV content. That is, the media might make accessible thoughts about personal safety that might otherwise have remained dormant. The fact that no difference was found on societal prevalence estimates might be because those who are trait anxious focus overwhelmingly on personal, not societal, risk and safety.

Next, though the interaction reached only $p = .07$, the correlational analyses suggested that those scoring low on psychoticism appeared more likely to experience cultivation effects regarding perceptions of violence in society than their higher-scoring counterparts. It is suggested that those low in psychoticism have a healthy level of concern for personal safety but perhaps are more trusting generally (i.e., more empathetic). Consequently, exposure to programming that suggests the world is a place where others cannot be trusted would have a greater impact on those with that sort of psychological makeup. Of note, one might assume low psychotics are also trait anxious, but the data suggest only a small correlation between these traits ($r = .16$).

Finally, sensation seeking appeared to have minimal impact on the cultivation process, though correlational analyses indicated high sensation seekers evidenced a small cultivation effect regarding personal estimates of victimization likelihood whereas low sensation seekers did not. Any conclusions drawn based on these data are rather speculative, but if low sensation seekers are less likely to have natural

concern for personal risk, then it is reasonable to imagine they would be more susceptible to the risk-related content embedded in TV programming.

Clearly, the cultivation effects brought to light here are highly dependent on the nature of the personality trait and the nature of the context in which it is considered. For example, in the context of crime and violence, trait anxiety may be the most relevant personality trait to consider as a moderator. Indeed, of the three variables, it was the only one to maintain a significant (or near significant) association with each of the belief measures in the regression analyses (especially mean world beliefs; see Table 2). However, in the context of beliefs about marriage, for example, predisposition towards romanticism might be most relevant, and in the context of beliefs about gender roles, femininity and masculinity might be more relevant. Additional research is needed not simply to replicate the results here but especially to identify the specific contexts in which such effects are likely to arise, with these conceptual issues in mind.

Of course, the conclusions from this study must also be tempered by issues related to the study design and measures. With a cross-sectional survey, one cannot make definitive claims of causal order. Although the genre exposure evidence helps undermine the selective exposure argument, it is recognized that the measures of genre are also imperfect indicators of degree of violent content. Indeed, realistically speaking, it is likely that the relationship between personality and TV viewing is dynamic and mutually reinforcing. Thus, to separate them may misrepresent their relationship in the real world over time. Further, the study was, in fact, underpowered to detect small to moderate differences between correlations. Thus, as noted above, the psychoticism and especially the sensation-seeking data must be interpreted with caution.

Nevertheless, the findings of this study have important ramifications for cultivation theory and the heuristic processing model. Although the main hypotheses were derived from the personality trait literature, they are arguably consistent with the cultivation-based notion of mainstreaming in that those high and low on trait anxiety who were also heavy TV viewers looked more similar in their worldviews (i.e., more concerned for personal safety) than those high and low on trait anxiety who were light TV viewers. Assuming this to be one type of mainstreaming effect, not only is the role of personality trait successfully introduced to the cultivation literature but further a cognitively based (rather than a personal experience-based) explanation is offered for the conditions under which mainstreaming effects might occur. Moreover, because this explanation is rooted in the concept of chronic accessibility, which features prominently in Shrum's (1995) heuristic processing model of cultivation effects, not only is additional support offered for the importance of this approach to the study of cultivation effects but the limits of accessibility are also emphasized. Specifically, the significant findings for trait anxiety and near-significant findings for psychoticism suggest a ceiling effect in construct accessibility. That is, personality traits represent particular worldviews that may compete with, or be compatible with, those presented on TV. To the extent those views are compatible, traits can create an effects ceiling making some groups impervious to

TV's influence. Conversely, those lacking such traits may be even more susceptible to TV's influence than might otherwise have been expected.

From a practical standpoint, cultivation research generally points to the effects cultivated worldviews might have on behaviors. Behavioral intentions and protective actions were, in fact, measured in this research, and the range of prevalence estimates and mean world perception significantly associated with intentions to take protective action as well as past protective action, even after controlling on the three personality traits and past behavior (where applicable; see Table 1). To the extent trait anxiety, for example, interacts with TV viewing to influence personal perceptions related to crime, there may be real implications for the likelihood of those individuals taking protective measures. Further, the cultivation effects evidenced in these data suggest TV is doing no additional harm to those who already focus on danger or are not prone to seek out risk, and yet may encourage those who might be less concerned to be more cautious.

The authors acknowledge that in the complex environment in which people live, TV viewing is but one source of influence that explains only a very small portion of variance in prevalence estimates and world perceptions. Still, these data suggest TV exposure has at times the same, at times less, and at times more influence as other arguably critical variables, such as personality traits themselves (see Table 2). Future media research, then, would be well-served to consider not simply how personality traits might influence media selection, as has been the focus in the past, but how such traits affect the cognitive processes associated with media effects. This point is relevant not simply to cultivation, but also to other theoretical approaches to the study of media effects, like social cognitive theory, agenda-setting, or framing, in which personality trait-driven worldviews might affect construct accessibility in ways that could meaningfully influence message perception and interpretation.

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