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Assessing Youth-Appealing Content in Alcohol Advertisements: Application of a Content Appealing to Youth (CAY) Index

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Abstract

Underage drinking is a serious public health problem in the United States, and youth exposure to alcohol advertising has been indicated as a possible contributing factor. Although a number of studies have identified advertising content features that youth find appealing, a key limitation of this research is the absence of a broader tool to examine those features, especially those used by alcohol brands that are popular with underage drinkers. We created an index of content elements found in the research literature to be appealing to youth, and then used this index in a content analysis to identify the degree to which youth-appealing content appeared in a sample of alcohol ads that aired on television shows popular among youth. Finally, using bivariate analysis, we tested the relationship between alcohol brands' use of this content and the popularity of those brands among youth. We found that many of the ads featured youth-appealing content, and that the ads for the alcohol brands most popular among youth had more youth-appealing content than the less popular brands.

Underage drinking is a serious public health problem in the United States (Chen, Yi, & Faden, 2015). By age 15 years, more than half of teens nationwide have tried alcohol, and by age 18 years, 79% have tried alcohol (Eaton et al., 2012). Annually, nearly 1 million youth under age 15 years initiate alcohol use (Johnston, O'Malley, Bachman, & Schulenberg, 2012), which greatly increases the likelihood of their experiencing alcohol-related harms during their lifetime (Hingson, Zha, & Weitzman, 2009; Swahn, Bossarte, & Sullivent, 2008).

Many factors influence youth alcohol use, such as personality characteristics (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2006), parental and peer use (Scull, Kupersmidt, & Erausquin, 2014), and environmental contexts such as high alcohol outlet density (Chen, Grube, & Gruenewald, 2010). Another key contributor is youth exposure to alcohol advertising. Longitudinal studies have found positive associations between youth exposure to alcohol advertisements and drinking initiation (Anderson, deBruijn, Angus,

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Gordon, & Hastings, 2009; Smith & Foxcroft, 2009), drinking frequency (Stacy, Zogg, Unger, & Dent, 2004), and the amount consumed per drinking occasion (Snyder, Milici, Slater, Sun, & Strizhakova, 2006).

Effective advertising uses carefully selected images and messages to promote brand appeal —that is, a brand's perceived attractiveness based on consumers' projected experience with advertised products (American Marketing Association, 2014). With alcohol, brand appeal has been shown to influence youth by creating positive attitudes toward alcohol (Austin & Knaus, 2000), establishing behavioral norms through modeling (Rimal & Real, 2005), triggering brand identification at early ages (Jones, 2016), and solidifying brand preferences later in life (Ellis, Holmes, & Wright, 2010).

Of course, not all brands or types of alcohol are popular among youth (Johnston et al., 2012; Siegel et al., 2013), and not all brand advertising appeals to them (Chen, Grube, Bersamin, Waiters, & Keefe, 2005; Waiters, Treno, & Grube, 2001). To improve our understanding of underage drinking, we need to study how alcoholic beverages are being branded and the effect this has on youth beliefs, attitudes, and behaviors.

Reviewing the literature on youth perceptions of alcohol advertisements, we identified 38 specific images and messages that could be categorized as follows: (a) production value, (b) character appeals, (c) youth-oriented genres, (d) product appeals, (e) reward appeals, and (f) risk-related content.

Youth-appealing content features

Production value

An advertisement's production value refers to stylistic features that stimulate cognitive engagement. Both the Activation Model of Information Exposure (AMIE) (Donohew, Lorch, & Palmgreen, 1998) and the Limited Capacity Model of Mediated Messages (LCMMM) (Lang, 2006) state that, among youth and young adults, certain advertising features lead to greater, involuntary attention while also prompting more extensive message processing, higher recall, and more positive attitudes toward both the ad and the advertised product (Palmgreen et al., 1995; Stephenson, 2003), unless the overall cognitive demand is too high (Lang, 2000).

Important stylistic features include the following. Animation is appealing due to its distinct visual style and its association with cartoon entertainment (Nash, Pine, & Messer, 2009). Intense images—that is, images that are graphic or disgusting—capture attention and promote recall among teens and young adults by eliciting an emotional response (Donohew et al., 1998; Niederdeppe, Davis, Farrelly, & Yarsevich, 2007). Sound saturation refers to background sounds, such as street noise, that increase an ad's realism and therefore its believability (Morgan, Palmgreen, Stephenson, Hoyle, & Lorch, 2003). Loud and fast music increases an ad's sensation value and distinguishes it from contiguous advertising or programming (Morgan et al., 2003).

Storytelling formats are associated with improved recall (Mandler & Johnson, 1980), but also depress the audience's ability to recognize an ad's persuasive intent and to counterargue (Slater & Rouner, 2002). According to research by Chen et al. (2005), youth prefer ads that tell a story over those that simply present music, animals, and people but without a story narrative. Second-half punch means having a surprising ending, which is rated by youth as having high sensation value, a quality they often seek out (Morgan et al., 2003; Niederdeppe et al., 2007). Transitions to different camera shots, or edits, engage viewers because of the novel visual information that each shot presents (Lang, Zhou, Schwartz, Bolls, & Potter, 2000; Southwell, 2005). A faster pace of edits, up to the point of creating cognitive overload, increases the viewer's physiological arousal and memory activation, which increases liking for the ad (Donohew et al., 1998; Lang et al., 2000; Niederdeppe et al., 2007).

Character appeals

Certain characters portrayed in ads can grab attention, stimulate audience identification, and increase liking for both the ad and the product. Perceived similarity—when characters and viewers share important traits—improves ad liking (Chen et al., 2005) and enhances modeling effects (Martin & Kennedy, 1994). The characters' perceived attractiveness is also important. In one study, females, particularly those with low self-esteem, reported greater trust in and liking for ads with attractive models (Martin & Kennedy, 1994). Research has also shown that youth associate the glamour of a celebrity endorser with the advertised product (Ross, Campbell, Wright, & Turk, 1984). When similar, attractive, or famous people are shown drinking alcohol, youth are more likely to believe that this is expected normative behavior and to model it within their own social networks (Austin & Meili, 1994; Bandura, 1986; Rimal & Real, 2005). Also note that the use of animated characters, animals, and anthropomorphized creatures leads to higher attention, positive emotional response, and greater liking for an ad, particularly among younger teens (Chen et al., 2005; Nash et al., 2009; Waiters et al., 2001).

Youth-oriented genres

Ads using the genres of magic, fantasy, violence, and humor are better liked by youth and create positive associations with the product. Younger youth positively associate magic and fantasy with entertainment and play (Lewis & Hill, 1998), whereas violence, which tends to appeal more to older youth, captures attention by eliciting an emotional response (Rajecki et al., 1994). Humorous ads are the most highly rated by youth of all ages (Aitken, Leather & Scott, 1988; Chen et al., 2005; Nash et al., 2009; Waiters et al., 2001).

Product appeals

Product appeals present rational arguments for purchasing a product based on attributes such as taste, cost, quality, and health effects. Such advertising is less likely to trigger impulse buying (Petty & Cacioppo, 1986; Petty, Fazio, & Brinol, 2009). Youth exposed to these ads rate them less favorably and report less desire to purchase the product (Chen et al., 2005; Waiters et al., 2001). Youth are also less likely to recall such ads due to the higher level of cognitive involvement they require (Petty & Cacioppo, 1986; Slater & Rouner, 2002). Interestingly, one study found that youth tend to disbelieve product appeals about alcohol (Aitken et al., 1988).

Reward appeals

Reward appeals claim that a product will result in positive experiential outcomes. Studies show that youth perceive even indirectly communicated associations between positive rewards and advertised products (Jones & Donovan, 2001), and that they favorably rate these types of appeals (Chen et al., 2005; Lewis & Hill, 1998; Nash et al., 2009). In this context, it should be noted that neurodevelopmental research has established that adolescents are more likely than children or adults to make decisions based on emotions rather than cognitions when experiencing emotional arousal (Crone, Van Duijvenvoorde, & Peper, 2016).

Adolescents experience greater negative affect than children and adults and more often engage in risky behaviors such as alcohol use to cope with distress (Gould, Hussong, & Hersh, 2012; Whalen, Jamner, Henker, & Delfino, 2001). Many youth expect alcohol to induce relaxation and happiness (Fleming, Thorson, & Atkin, 2004), and having such expectations during adolescence is associated with both alcohol use and alcohol misuse later in life (Cable & Sacker, 2008; Patrick, Wray-Lake, Finlay, & Maggs, 2009).

Portrayals of social rewards such as friendship and high social positioning can also shape youth expectations of alcohol use. Teens often experience high levels of self-doubt and anxiety in social situations and can be preoccupied with peer acceptance (Pechmann, Levine, Loughlin, & Leslie, 2005). Unfortunately, many youth overestimate the importance and frequency of drinking among their peers and therefore feel greater normative pressure to drink (Borsari & Carey, 2003). In addition, they commonly expect drinking to diminish their social inhibitions (Fleming et al., 2004). With this, promises of positive emotional experience, peer acceptance, and friendship have the potential to increase youth acceptance of alcohol advertising messages (Pechmann et al., 2005).

Another youth-appealing reward is the achievement of individuality and personal success through brand identification (Buijzen & Valkenburg, 2008; Carr, 2002). During adolescence, youth seek to distinguish themselves from their parents and form a personal identity, an important step toward full adulthood (Erikson, 1950). During this time, youth actively search for identities to emulate (Jacobson, Atkins, & Hacker, 1983). Those who adopt a brand-related identity—for instance, by owning alcohol-branded merchandise—are more likely to drink and to transition to heavy drinking (Hurtz, Henriksen, Wang, Feighery, & Fortmann, 2007; McClure, Stoolmiller, Tanski, Worth, & Sargent, 2009). Depictions of drinkers as successful may further reinforce positive alcohol expectancies and encourage drinking (Jones & Donovan, 2001).

Sexually provocative images can draw attention and promote recall by eliciting an emotional response (Donohew et al., 1998). For teens, exposure to alcohol ads with romantic or sexual themes might also create expectations that drinking will lead to sex (Pechmann et al., 2005; Strasburger, 2012; Waiters et al., 2001). In this context, it is important to note that drinking has been shown to be strongly associated with risky sex among youth (Cooper, 2002).

Risk-related content

Risk-related content refers to media depictions of risky activities such as adventure, physical performance, and activities requiring alertness and coordination. Such content is expected to

appeal to young males in particular (Buijzen & Valkenburg, 2008; Nash et al., 2009), who are more inclined than females, adults, and children to make risky decisions (Gardner & Steinberg, 2005; Giedd, 2008). In line with the AMIE, the fast-paced, high-energy activities shown in alcohol ads are attention grabbing and can stimulate a physiological response associated with liking (Donohew et al., 1998). Also note that studies of adolescents' neural responses to viewing risky behaviors have found decreased neural activity related to cognitive control and response inhibition (Sherman, Payton, Hernandez, Greenfield, & Dapretto, 2016).

Risk-related content also includes representations of inappropriate alcohol use, such as drinking at socially unaccepted times of the day, making excuses for drinking, and prolonged consumption (Rhoades & Jernigan, 2013). These appeals seem designed to counteract the demands of responsible decision making and to create an expectation among inexperienced, impressionable teens that drinking is an anytime, anywhere, carefree experience (Pechmann et al., 2005; Rhoades & Jernigan, 2013).

This body of work on youth-appealing advertising content is limited in a number of ways. First, the field has lacked a tool to measure youth-appealing content, thereby limiting our ability to quantify youth-focused marketing efforts and to study the relationship between such content and youth beliefs, attitudes, and behavior. Second, although previous content analyses have found youth-appealing content in alcohol advertisements (Fielder, Donovan, & Ouschan, 2009; Finn & Strickland, 1982; Gunter, Hansen, & Touri, 2008; Pettigrew, Johnson, & Daube, 2012a; Pinsky & Silva, 1999), including in media with large youth audiences (Pettigrew et al., 2012b; Rhoades & Jernigan, 2013; Sloane, Wilson, & Gunasekara, 2012; Winpenny et al., 2012), much of this research was done during the previous decade or in other countries where the marketing and drinking culture are often very different from the United States today. Finally, past research has not been conducted at the brand level, making it difficult to test the relationship between exposure to specific types of brand appeals and specific brand preferences among youth.

To address these gaps, we compiled the content features described in the preceding into an index for measuring advertising content appealing to youth and then sought to address the following questions:

RQ1: To what extent are youth appealing features used in alcohol advertisements?

RQ2: To what extent are there content differences by brand popularity and alcohol type?

We analyzed a selection of alcohol advertisements aired on television shows popular among U.S. youth ages 12–20 years. Using data on the alcohol brand preferences of underage youth (Siegel et al., 2013), we tested whether the ads for more popular brands or certain alcohol types presented a greater amount of youth-appealing content. We expected to find that the majority of ads in this sample would have youth-appealing features, and that the more popular brands among underage youth would have the greatest amount of such content. Because past research has shown that youth prefer beer to other alcohol types (Johnston et al., 2012), we also expected beer ads to present more youth-appealing content than wine or liquor ads.

Method

Sample

We used Nielsen Company (New York, NY)[1] data to identify 20 regularly scheduled entertainment television programs that had the largest youth audiences (ages 12–20 years) in 2010–2011. In total, 192 alcohol ads aired on these 20 programs during the time the Siegel et al. youth respondents were reporting the alcohol brands they consumed (December 2011—May 2012). We categorized these ads into two groups: (a) ads for brands found to be popular among youth (n = 90), defined as the 25 brands most consumed by youth, and which make up 50% of the youth market share (Siegel et al., 2013), and (b) ads for brands that were less popular (n = 102). We randomly selected 50% of the popular brands' ads (n = 45) and 50% of the less popular brands' ads (n = 51), totaling 96 ads.

Coding procedure

Two researchers worked independently to code a 10% subsample of the ads (n = 9), after which they discussed their discrepant coding until they reached agreement and then refined the codebook. The researchers then coded a second subsample (15% of the remaining sample, n = 13). Intercoder agreement on the subsamples was high (Cohen's kappa = .76, percent agreement = 89%; see Table 1), and substantial reliability (Cohen's kappa > .60) was reached for all categories (Pew Research, 2016; Viera & Garrett, 2005). Reliability on some features fell below a kappa of .60, likely because these features rarely appeared in the sample, leading to a highly skewed distribution. The researchers again discussed their discrepant coding until they reached agreement (Krippendorff, 2013), after which one researcher completed the rest of the sample (n = 74) (Macnamara, 2005).

Measures

Content Appealing to Youth (CAY) index—We created an index of 38 features shown in the research literature to have any appeal to youth, which we categorized into six content areas: production value, character appeals, youth-oriented genres, product appeals, reward appeals, and risk-related content. Objectively measureable content, such as the presence of animation, was scored either as absent (0) or present (1). Subjectively judged content was scored as absent (0), moderately present (1), or strongly present (2). See the appendix for a list of the content features and their operational definitions. Although we set out to compile a set of features that was more all-inclusive than was used in previous research, it is not necessarily comprehensive.

CAY index score—To calculate a total index score for each ad, we transformed the individual scores for the subjectively judged content to a 0–1 scale, with strong feature presence scored as 1 and moderate feature presence scored as 0.5. With the individual scores added up, a higher index score represented a greater presence of youth-appealing features in an ad. Counts of characters by gender or race were not included in the ad score calculation. Product appeals were reverse coded so that presence of a product appeal subtracted from the final score. For each brand, we calculated a mean CAY Index score for its televised ads. We also created index scores for the six content categories by adding up their component scores.

Data analysis

We used Stata version 12 for all analyses. We produced descriptive statistics after which we performed bivariate analyses to examine the CAY Index scores by brand popularity (independent *t*-tests) and by alcohol type (one-way between-subjects analysis of variance [ANOVA]).

Results

There were 41 brands included in the analysis: 21 liquor (including cordials and liqueurs), 15 beer, 3 wine (including champagnes), 1 flavored alcoholic beverage, and 1 premixed cocktail. Due to their lower alcohol content, the last two types were folded into the beer category. The average ad duration was 26 seconds ($SD = 9.3$).

The overall mean CAY Index score was 11.6 ($SD = 3.9$). The distribution of scores was found to be roughly normal, with a skew of 0.09 ($SE = .25$), and kurtosis of 2.72 ($SE = .49$).

Features found in the literature to be youth-appealing were highly prevalent, with many features—including fast pace and depictions of positive emotional experiences, success, and friendship—found in more than half of the sample. The ads were more likely to use humor and storytelling compared to magic, fantasy, or violence (see Table 2).

CAY index scores by brand popularity

Ads from brands popular among youth did indeed have higher index scores ($M = 12.8$, $SD = 3.6$) than nonpopular brands ($M = 10.7$, $SD = 3.9$), $t(94) = -3.28$, $p = .001$. Popular and less popular brands had similar scores for production value and character appeals. Compared to less popular brands, popular brands used storytelling marginally more often, $t(94) = -1.93$, p = .056, and featured animals, $t(69) = -2.04$ p = .04, and minority actors more often, $t(94) = -3.02$, $p < .01$. Popular brands used marginally more youth-oriented genres, $t(94) = -1.93$, $p = .06$; used more of the reward features except sex and romance, though the difference was only significant for friendship, $t(94) = -2.85$, $p < .01$; had a marginally higher mean risk-related content score, $t(94) = -1.96$, $p = .05$; and used more depictions of inappropriate alcohol use, $t(65) = -2.79$, $p < .01$. Less popular brands used product appeals more frequently $t(85) = 3.34$, $p < .01$, and used quality, $t(94) = 3.43$, $p < .001$, and properties, $t(94) = 2.15$, $p = .03$, more often. See Table 3 for details.

CAY index scores by alcohol type

A one-way between-subjects ANOVA revealed a significant difference in the use of appealing content by beverage type, $F(2, 93) = 6.44$, $p = 0.002$. Post hoc comparisons using the Tukey HSD test indicated that the mean CAY Index scores for both beer ($M = 11.5$, $SD = 3.2$) and liquor ($M = 12.4$, $SD = 3.1$) differed significantly from wine ($M = 6.4$, $SD = 4.5$). The CAY Index scores for beer and liquor did not differ significantly.

Compared to the other alcohol types, liquor ads featured more character appeals, $t(63) = -2.17$, $p = .03$; more animated characters, $t(66) = -2.35$, p = .02; more fantasy, $t(51) = -2.07$, $p = .04$; more sexual content, $t(71) = -2.90$, $p < .01$; and marginally more overconsumption, $t(69) = -1.84$, $p = .07$.

Beer ads used more males, $t(63) = -3.87$, $p < .001$, and more White actors, $t(71) = -3.89$, $p < .001$, than nonbeer beverages. Beer ads also featured more magic, $t(73) = -2.22$, $p = .03$, humor, $t(84) = -3.22$, $p < .01$, success, $t(94) = -2.00$, $p = .04$, and inappropriate use appeals, $t(68) = -3.17$, $p < .01$. Bud Light, the most consumed brand among youth (Siegel et al., 2013), used humor and storytelling in 83% of its ads.

Wine ads did not use any youth-oriented genres, but did use product appeals more frequently ($M = 3.0$, $SD = 2.2$) than beer ($M = 1.9$, $SD = 1.6$) or liquor ($M = 1.1$, $SD = 1.0$), $F(2, 93) = 5.82$, $p < .01$. Wine ads also had the highest average use of most of the product appeals, but only significantly so for benefits, $t(45) = -2.69$, $p = .01$, and properties, $t(45) = -2.69$, $p = .01$, compared to liquor ads. See Table 3 for differences by alcohol type.

Discussion

We found multiple instances of youth-appealing content in the alcohol advertisements broadcast during the 20 television programs with the highest youth ratings. Extrapolating from past research, this finding suggests that alcohol ads with high youth exposure are attention-grabbing (Donohew et al., 1998; Lang, 2006), memorable (Mandler & Johnson, 1980; Niederdeppe et al., 2007), and capable of stimulating impulsive behavior (Moore & Rideout, 2007; Petty et al., 2009). Moreover, such ads can kindle aspiration (Bandura, 1986) and shape perceived norms regarding alcohol use (Rimal & Real, 2005).

Overall, the brands youth drink the most had ads that presented the most youth-appealing content. These popular brands also portrayed riskier patterns of use in their advertising, depicting alcohol as part of a carefree lifestyle where it is supposedly fun—and funny—to have impromptu parties in the workplace, drink in the morning, or sneak a bottle when the bartender's back is turned. The message conveyed is that when it comes to drinking, there are no rules, a highly problematic communication for youth who are just forming their perceptions of what is normative.

It was unsurprising that wine, the alcohol of choice among drinkers aged 50 years and older (Gallup, 2013), scored significantly lower than beer or liquor on the CAY Index. On the other hand, we expected but did not find a significant difference in overall youth-appealing content between beer and liquor ads. Evidence is mounting that youth are more frequently choosing liquor over beer (Centers for Disease Control and Prevention [CDC], 2007; Gallup, 2013; Siegel, Naimi, Cremeens, & Nelson, 2011), an increase that has coincided with a 200% increase in liquor advertising over the past decade (Center on Alcohol Marketing and Youth [CAMY], 2012). Of great concern is the recent increase in teenage girls' preference for liquor (CDC, 2007). We found that liquor ads, particularly for flavored vodkas, used fantasy and sexual connotation and had more female characters, but seldom had adventure or physical performance content, both of which would appeal more to males (Buizjen & Valkenburg, 2008; Nash et al., 2009). Such depictions raise concerns given the prevalence of risky sexual behaviors and sexual assault among underage youth following alcohol use (NIAAA, 2006).

Limitations

Given the cross-sectional nature of the study, we are unable to state definitively that the greater use of youth-appealing content by popular brands is responsible for those brands being more popular among youth. We also cannot say whether the ads appeal to underage youth specifically or whether they appeal more broadly to nonyouth as well. Alcohol advertising is industry self-regulated in the United States, and according to the Distilled Spirits Council and the Beer Institute Codes of Advertising and Marketing (Beer Institute, 2011; Distilled Spirits Council of the United States [DISCUS], 2011), alcohol advertising cannot primarily appeal to underage youth. Future research should compare the associations between brand CAY Index scores and youth and adult brand consumption to determine if the appeals studied here are primarily appealing to youth over adults.

That said, as long as alcohol ads have content that appeals to youth at all, the presence of such ads during popular youth television shows indicates a need to reconsider current advertising placement policies (Jernigan, Ostroff, & Ross, 2005; Ross, Ostroff, & Jernigan, 2014). We further recommend that the alcohol industries revise their advertising codes to broaden the list of prohibited content beyond depictions of Santa Claus and underage models, and that they add specific examples of problematic content rather than just requesting that marketers avoid unspecified symbols, language, music, gestures, entertainers/celebrities, cartoon characters, groups (Beer Institute, 2011), depictions of “rites of passage,” and branding on items used by underage youth (DISCUS, 2011).

Despite its limitations, this study moves the literature forward by exploring how the content of alcohol advertising relates to adolescent interests and vulnerabilities, by providing an up-to-date and more comprehensive examination of the content creation strategies of alcohol companies, and by suggesting possible regulatory implications. The CAY Index is a unique tool for assessing the extent of youth-based appeals in alcohol advertising, and perhaps other substances such as tobacco or food and beverage advertising. Analyses using the index can help identify youth-focused marketing efforts and then inform media literacy programs and health communication campaigns aimed at countering these advertising messages.

Appendix

Appendix

Appendix:

Operational Definitions for the Content Appealing to Youth (CAY) Index

Content codebook category	Code	Operational definition
Production value[a, b]	Animation (none = 0, partial = 1, full = 2)	Use of cartoons, drawn/sketched images, or computer-generated features. Does not apply to introductory or concluding shots that simply show the product or brand name.
	Edits (count)	Transition to a new camera shot.
	Duration (count)	Duration of the ad.
	Pace (edits/duration)	Duration of the ad divided by the number of edits.

Content codebook category	Code	Operational definition
	Sound saturation (no = 0, yes = 1)	Use of background noise (e.g., street noise, crowds cheering, sound effects) during at least half of the ad. Does not apply to music playing in the background.
	Loud and fast music (no = 0, yes = 1)	Use of loud (relative to other sounds in the ad) and fast (>120 bpm) music during at least half of the ad.
	Second-half punch (no = 0, yes = 1)	Presence of a shocking, startling, or surprising end to the ad (occurring in its second half) that a first-time viewer could not have anticipated.
	Story format (0 = absent, 1 = moderate presence, 2 = strong presence)	Youth(s) or adult(s) engaged in actions or activities that directly correspond to the ad's main theme(s). Not used when individuals simply talk directly to the camera; characters stand still while the ad's point is conveyed in text, figures, or voice; movement in the background is incidental to the ad's main point; or cartoon characters or animal activities are depicted.
	Intense images (no = 0, yes = 1)	Inclusion of images that are intense, grotesque, disgusting, or horrifying.
Character appeals[d,e]	Real or animated (real = 0, animated = 1)	Character(s) portrayed as a cartoon, drawn/sketched, or computer-generated.
	Human or animal (human = 0, animal = 1)	Actual animals, anthropomorphized animals, or other creatures (e.g., a robot or the product represented as being alive).
	Adult or youth (adult = 0, youth = 1)	Model(s) appearing to be under age 25 years ("youth").
	Celebrity or unknown (unknown = 0, celebrity = 1)	Celebrity portraying themselves or a playing a character they're known for. Include musicians playing the ad's music and celebrity voice-overs.
	Fictional spokesperson (no = 0, yes = 1)	Fictional celebrity spokespersons of the brand (e.g., Captain Morgan, "The Most Interesting Man in the World").
	Gender (count)	Count of the number of male and female characters who are identified as primary in some way (i.e. speaking role, miming scenes, monopolizing a single camera shot even if not a member of the focal group, etc.).
	Race (count)	Count of the number of White, Black, Hispanic, and Asian characters, applying the same criteria as for gender.
Youth-oriented genres[c,e] (absent = 0, moderate presence = 1, strong presence = 2)	Magic (0 = absent, 1 = moderate, 2 = strong presence) Fantasy (0 = absent, 1 = moderate, 2 = strong presence)	Portrayal of actions or events with supernatural or metaphysical properties (e.g., items appearing or disappearing out of the air). Not used if actions or events are simply unpredictable or unusual. Setting or theme that does not occur in real life (e.g., in the past or in space). Not used if setting is simply unusual.
	Violence (0 = absent, 1 = moderate, 2 = strong presence)	Portrayal of fighting or weapons. Not used for slapstick violence.
	Humor (0 = absent, 1 = moderate, 2 = strong presence)	Ad is humorous or attempts humor (e.g., irony, visual humor, slapstick, clownishness, sarcasm, tongue-in-cheek, wordplay), or if a character tells a joke.
Product appeals[c,d] (no = 1, yes = 0)	Physical benefits (0 = present, 1 = absent) Health (0 = present, 1 = absent)	Appeals to physical sensations (e.g., refreshing). Gives health-related information such as calorie content, grams of carbohydrates.
	Qualities (0 = present, 1 = absent)	Any reference to quality, taste, flavor, or perfection.
	Properties (0 = present, 1 = absent)	Any reference to physical properties of the product (e.g., color, texture, lightness).
	Composition (0 = present, 1 = absent)	Any reference to what goes into the beer (e.g., ingredients).
	Competitive (0 = present, 1 = absent)	Comparison of the advertised product with other types or brands of alcohol. Uses language to suggest beverage superiority or

Content codebook category	Code	Operational definition
		singularity (e.g., “world’s best tasting,” “the finest”) compared to other, similar beverages.
	Premium offers (0 = present, 1 = absent)	Ad offers something additional or a bonus with the purchase.
	Value (0 = present, 1 = absent)	Ad references the financial value of the purchase (e.g., good price, given the product’s taste or strength)
Reward appeals[c,d,g] (absent = 0, moderate presence = 1, strong presence = 2)	Positive emotional experiences (0 = absent, 1 = moderate, 2 = strong presence) Achievement/success (0 = absent, 1 = moderate, 2 = strong presence)	Ad implies that the product is being, is about to be, or could/ should be used for relaxation, happiness, having fun, increasing boldness, lessening inhibitions, or any other change from basal state. Ad implies that alcohol assists in goal achievement (e.g., financial, social, athletic, professional).
	Sexual connotation (0 = absent, 1 = moderate, 2 = strong presence)	Ad shows nudity, sexual activity, sexualized actors, or lewd or suggestive images or language, or when there is a clear implication of a sexual encounter (usually in the future) between models in the ad or between the viewer and another person.
	Romantic connotation (0 = absent, 1 = moderate, 2 = strong presence)	Ad depicts or implies romance or love between models in the ad or between the viewer and another person.
	Individuality (0 = absent, 1 = moderate, 2 = strong presence)	Ad has textual reference implying that the product is associated with consumers being their own person or taking control of their life or aspects of it.
	Camaraderie (0 = absent, 1 = moderate, 2 = strong presence)	Text and images combine to connote friendship, familiarity, and closeness with others, as well as party scenes.
	Social positioning (0 = absent, 1 = moderate, 2 = strong presence)	Ad shows an actor who is a valued member of a group or portrays themes of fitting in, being “popular,” impressing others, being famous, or being revered/the upper echelon of society. Or ad compliments, celebrates, or otherwise praises people who may have been or may be consuming the beverage.
Risk-related content[f] (no = 0, yes = 1)	Injury (0 = absent, 1 = present)	Ad depicts an activity that might reasonably be thought to increase risk of injury, including any type of motor vehicle operation or physical activities requiring alertness or coordination (e.g., mountain biking, kayaking, skiing, hiking, jumping into water) by people who may have been or may be consuming the beverage. Or the ad implies that physically risky behavior is expected or encouraged while consuming the product.
	Physical performance (0 = absent, 1 = moderate, 2 = strong presence)	Ad implies that alcohol will effect physical improvements such as greater strength, entertainment (better singing), sexual performance, etc.
	Adventure/spontaneity (0 = absent, 1 = moderate, 2 = strong presence)	Ad associates the product with personal qualities such as impulsivity, adventurousness, courage, or risk-taking.
	Inappropriate use (0 = absent, 1 = present)	Ad depicts or refers to consumers drinking alcohol at inappropriate times of day or refers to excuses for drinking, or otherwise implies prolonged consumption over a period of time or dependence on the product.

[a] Adapted from Niederdeppe et al. (2007).

[b] Adapted from Morgan et al. (2003).

[c] Adapted from Lewis and Hill (1998).

[d] Adapted from Waiters et al. (2001).

[e] Adapted from Chen et al. (2005).

[f] Adapted from Rhoades and Jernigan (2013).

[g] Adapted from Buijzen and Valkenburg (2008).

References

Aitken PP, Leathar DS, & Scott AC (1988). Ten- to sixteen-year olds' perceptions of advertisements for alcoholic drinks. Alcohol and Alcoholism, 23, 491–500. [PubMed: 2469424]

American Marketing Association (2014). Branding. In Marketing dictionary online. Retrieved from https://www.ama.org/resources/Pages/Marketing-Dictionary.aspx

Anderson P, deBruijn A, Angus K, Gordon R, & Hastings G (2009). Impact of alcohol advertising and media exposure on adolescent alcohol use: A systematic review of longitudinal studies. Alcohol and Alcoholism, 44, 229–243. doi:10.1093/alcalc/agn115 [PubMed: 19144976]

Austin E, & Knaus C (2000). Predicting the potential for risky behavior among those "too young" to drink as the result of appealing advertising. Journal of Health Communication, 5, 13–27. doi:10.1080/108107300126722 [PubMed: 10848029]

Austin E, & Meili HK (1994). Effects of interpretations of televised alcohol portrayals on children's alcohol beliefs. Journal of Broadcasting & Electronic Media, 38, 417–435. doi:10.1080/08838159409364276

Bandura A (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Beer Institute (2011). Advertising and marketing code, May 2011 edition. Retrieved from http://www.beerinstitute.org/assets/uploads/BI-AdCode-5-2011.pdf

Borsari BB, & Carey KB (2003). Descriptive and injunctive norms in college drinking: A meta-analytic integration. Journal of Studies on Alcohol, 64, 331–341. doi:10.15288/jsa.2003.64.331 [PubMed: 12817821]

Buijzen M, & Valkenburg PM (2008). Appeals in television advertising: A content analysis of commercials aimed at children and teenagers. Communications, 27, 349–364.

Cable N, & Sacker A (2008). Typologies of alcohol consumption in adolescence: Predictors and adult outcomes. Alcohol and Alcoholism, 43, 81–90. doi:10.1093/alcalc/agm146 [PubMed: 17934194]

Carr A (2002). Avoiding risky sex in adolescence. Oxford, UK: Blackwell.

Center on Alcohol Marketing and Youth. (2012). Youth exposure to alcohol advertising on television, 2001–2009. Retrieved from http://www.camy.org/research/Youth_Exposure_to_Alcohol_Ads_on_TV_Growing_Faster_Than_Adults/index.html

Centers for Disease Control and Prevention. (2007). Types of alcoholic beverages usually consumed by students in 9th–12th grades—Four states, 2005. Morbidity and Mortality Weekly Report, 56, 729–756. [PubMed: 17657205]

Chen CM, Yi H, & Faden VB (2015). Surveillance report #101: Trends in underage drinking in the United States, 1991–2013. Washington, DC: U.S. Department of Health and Human Services.

Chen M, Grube J, Bersamin M, Waiters E, & Keefe D (2005). Alcohol advertising: What makes it attractive to youth? Journal of Health Communication, 10, 553–565. doi:10.1080/10810730500228904 [PubMed: 16203633]

Chen M, Grube J, & Gruenewald PJ (2010). Community alcohol outlet density and underage drinking. Addiction, 105, 270–278. doi:10.1111/j.1360-0443.2009.02772.x [PubMed: 20078485]

Cooper ML (2002). Alcohol use and risky sexual behavior among college students and youth: Evaluating the evidence. Journal of Studies on Alcohol, Supplement, 14, 101–117. doi:10.15288/jsas.2002.s14.101

Crone EA, Van Duijvenvoorde ACK, & Peper JS (2016). Annual research review: Neural contributions to risk-taking in adolescence—Developmental changes and individual differences. Journal of Child Psychology and Psychiatry, 57, 353–368. doi:10.1111/jcpp.12502 [PubMed: 26889896]

Distilled Spirits Council of the United States. (2011). Code of responsible practices for beverage alcohol advertising and marketing. Retrieved from http://www.discus.org/assets/1/7/May_26_2011_DISCUS_Code_Word_Version1.pdf

Donohew L, Lorch EP, & Palmgreen P (1998). Applications of a theoretical model of information exposure to health interventions. Health Communication Research, 24, 454–468. doi:10.1111/j.1468-2958.1998.tb00425.x

Eaton D, Kann L, Kinchen S, Shanklin S, Flint K, Hawkins J, . . . Wechsler H (2012). Youth risk behavior surveillance—United States, 2011. MMWR Surveillance Summaries, 61, 1–162.

Ellis AW, Holmes SJ, & Wright RL (2010). Age of acquisition and the recognition of brand names: On the importance of being early. Journal of Consumer Psychology, 20, 43–52. doi:10.1016/j.jcps.2009.08.001

Erikson E (1950). Childhood and society. New York, NY: W. W. Norton.

Fielder L, Donovan R, & Ouschan R (2009). Exposure of children and adolescents to alcohol advertising on Australian metropolitan free-to-air television. Addiction, 104, 1157–1165. doi:10.1111/j.1360-0443.2009.02592.x [PubMed: 19438841]

Finn TA, & Strickland D (1982). A content analysis of beverage alcohol advertising: II. Television advertising. Journal of Studies on Alcohol, 4, 964–989. doi:10.15288/jsa.1982.43.964

Fleming K, Thorson E, & Atkin C (2004). Alcohol advertising exposure and perceptions: Links with alcohol expectancies and intentions to drink or drinking in underaged youth and young adults. Journal of Health Communication, 9, 3–29. doi:10.1080/10810730490271665

Gallup. (2013). Gallup poll social series: Consumption habits, July 10–14, 2013. Retrieved from http://www.gallup.com/poll/163787/drinkers-divide-beer-wine-favorite.aspx

Gardner M, & Steinberg L (2005). Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: An experimental study. Developmental Psychology, 41, 625–635. doi:10.1037/0012-1649.41.4.625 [PubMed: 16060809]

Giedd JN (2008). The teen brain: Insights from neuroimaging. Journal of Adolescent Health, 42, 335–343. doi:10.1016/j.jadohealth.2008.01.007

Gould LF, Hussong AM, & Hersh MA (2012). Emotional distress may increase risk for self-medication and lower risk for mood-related drinking consequences in adolescents. International Journal of Emotional Education, 4, 6–24. [PubMed: 24358457]

Gunter B, Hansen A, & Touri M (2008). Alcohol advertising and young people's drinking: Representation, reception and regulation. Hampshire, UK: Palgrave Macmillan.

Hingson R, Zha W, & Weitzman ER (2009). Magnitude of and trends in alcohol-related mortality and morbidity among U.S. college students ages 18–24, 1998–2005. Journal of Studies on Alcohol and Drugs, Suppl. 16, 12–20. doi:10.15288/jsads.2009.s16.12 [PubMed: 19538908]

Hurtz SQ, Henriksen L, Wang Y, Feighery EC, & Fortmann SP (2007). The relationship between exposure to alcohol advertising in stores, owning alcohol promotional items, and adolescent alcohol use. Alcohol and Alcoholism, 42, 143–149. doi:10.1093/alcalc/agl119 [PubMed: 17218364]

Jacobson M, Atkins R, & Hacker G (1983). The booze merchants: The inebriating of America. Washington, DC: Center for Science in the Public Interest (CSPI).

Jernigan DH, Ostroff J, & Ross C (2005). Alcohol advertising and youth: A measured approach. Journal of Public Health Policy, 26, 312–325. doi:10.1057/palgrave.jphp.3200038 [PubMed: 16167559]

Johnston LD, O'Malley PM, Bachman JG, & Schulenberg JE (2012). Monitoring the future national results on drug use: 2012 overview, key findings on adolescent drug use. Ann Arbor, MI: Institute for Social Research.

Jones S (2016). Alcohol-branded merchandise ownership and drinking. Pediatrics, 137, e20153970. doi:10.1542/peds.2015-3970 [PubMed: 27244812]

Jones S, & Donovan R (2001). Messages in alcohol advertising targeted to youth. Australian and New Zealand Journal of Public Health, 25, 126–131. doi:10.1111/j.1753-6405.2001.tb01833.x [PubMed: 11357907]

Krippendorff K (2013). Content analysis. An introduction to its methodology. Los Angeles, CA: Sage.

Lang A (2000). The limited capacity model of mediated message processing. Journal of Communication, 50, 46–70. doi:10.1111/j.1460-2466.2000.tb02833.x

Lang A (2006). Using the limited capacity model of motivated mediated message processing to design effective cancer communication messages. Journal of Communication, 56, S57–S80. doi:10.1111/j.1460-2466.2006.00283.x

Lang A, Zhou S, Schwartz N, Bolls P, & Potter R (2000). The effects of edits on arousal, attention, and memory for television messages: When an edit is an edit can an edit be too much? Journal of Broadcasting & Electronic Media, 44, 94–109. doi:10.1207/s15506878jobem4401_7

Lewis M, & Hill A (1998). Food advertising on British children's television: A content analysis and experimental study with nine-year olds. International Journal of Obesity, 22, 206–214. doi:10.1038/sj.ijo.0800568 [PubMed: 9539187]

Macnamara J (2005). Media content analysis: Its uses, benefits and best practice methodology. Asia Pacific Public Relations Journal, 6, 1–34.

Mandler JM, & Johnson NS (1980). Remembrance of things parsed: Story structure and recall. Cognitive Psychology, 9, 111–151. doi:10.1016/0010-0285(77)90006-8

Martin MC, & Kennedy PF (1994). Social comparison and the beauty of advertising models: The role of motives for comparison. Advances in Consumer Research, 21, 365–371. doi:10.1002/mar.4220100605

McClure AC, Stoolmiller M, Tanski SE, Worth KA, & Sargent JD (2009). Alcohol-branded merchandise and its association with drinking attitudes and outcomes in US adolescents. Archives of Pediatrics & Adolescent Medicine, 163, 211–217. doi:10.1001/archpediatrics.2008.554 [PubMed: 19255387]

Moore ES, & Rideout VJ (2007). The online marketing of food to children: Is it just fun and games? Journal of Public Policy & Marketing, 26, 202–220. doi:10.1509/jppm.26.2.202

Morgan SE, Palmgreen P, Stephenson MT, Hoyle RH, & Lorch EP (2003). Associations between message features and subjective evaluations of the sensation value of antidrug public service announcements. Journal of Communication, 53, 512–526. doi:10.1111/j.1460-2466.2003.tb02605.x

Nash A, Pine K, & Messer D (2009). Television alcohol advertising: Do children really mean what they say? The British Journal of Developmental Psychology, 27, 85–104. doi:10.1348/026151008×349470 [PubMed: 19972664]

National Institute on Alcohol Abuse and Alcoholism. (2006). Alcohol alert: Underage drinking. USDHHS publication no. AA67. Retrieved from http://pubs.niaaa.nih.gov/publications/AA67/AA67.htm

Niederdeppe J, Davis KC, Farrelly MC, & Yarsevich J (2007). Stylistic features, need for sensation, and confirmed recall of national smoking prevention advertisements. Journal of Communication, 57, 272–292. doi:10.1111/j.1460-2466.2007.00343.x

Palmgreen P, Lorch EP, Donohew L, Harrington NG, D'Silva M, & Helm D (1995). Reaching at-risk populations in a mass media drug abuse prevention campaign: Sensation seeking as a targeting variable. Drugs and Society, 3, 29–45. doi:10.1300/j023v08n03_04

Patrick M, Wray-Lake L, Finlay A, & Maggs J (2009). The long arm of expectancies: Adolescent alcohol expectancies predict adult alcohol use. Alcohol and Alcoholism, 45, 17–24. doi:10.1093/alcalc/agp066 [PubMed: 19808940]

Pechmann C, Levine L, Loughlin S, & Leslie F (2005). Impulsive and self-conscious: Adolescents' vulnerability to advertising and promotion. Journal of Public Policy and Marketing, 24, 202–221. doi:10.1509/jppm.2005.24.2.202

Pettigrew S, Johnson R, & Daube M (2012a). Introducing and applying a new Australian alcohol advertising code. Journal of Public Affairs, 13, 72–83. doi:10.1002/pa.1444

Pettigrew S, Roberts M, Pescud M, Chapman K, Quester P, & Miller C (2012b). The extent and nature of alcohol advertising on Australian television. Drug and Alcohol Review, 31, 797–802. doi:10.1111/j.1465-3362.2012.00439.x [PubMed: 22452292]

Petty RE, & Cacioppo JT (1986). The elaboration likelihood model of persuasion. In Berkowitz L (Ed.), Advances in experimental social psychology (Vol. 19, pp. 123–205). San Diego, CA: Academic Press.

Petty RE, Fazio RH, & Brinol P (2009). Attitudes: Insights from the new implicit measures. New York, NY: Taylor & Francis.

Pew Research (2016). Methods: About content analysis [Report]. Retrieved from http://www.pewresearch.org/methodology/about-content-analysis/

Pinsky I, & Silva MT (1999). A frequency and content analysis of alcohol advertising on Brazilian television. Journal of Studies on Alcohol, 60, 394–399. doi:10.15288/jsa.1999.60.394 [PubMed: 10371268]

Rajecki DW, McTavish DG, Rasmussen JL, Schreuders M, Byers DC, & Jessup KS (1994). Violence, conflict, trickery, and other story themes in TV ads for food for children. Journal of Applied Social Psychology, 24, 1685–1700. doi:10.1111/j.1559-1816.1994.tb01569.x

Rhoades E, & Jernigan D (2013). Risk messages in alcohol advertising, 2003–2007: Results from content analysis. Journal of Adolescent Health, 52, 116–121. doi:10.1016/j.jadohealth.2012.04.013

Rimal RN, & Real K (2005). How behaviors are influenced by perceived norms: A test of the theory of normative social behavior. Communication Research, 32, 389–414. doi:10.1177/0093650205275385

Ross CS, Ostroff J, & Jernigan DH (2014). Evidence of underage targeting of alcohol advertising on television in the United States: Lessons from the Lockyer v. Reynolds decisions. Journal of Public Health Policy, 35, 105–118. [PubMed: 24424494]

Ross RP, Campbell T, Wright JC, & Turk P (1984). When celebrities talk, children listen: An experimental analysis of children's responses to TV ads with celebrity endorsement. Journal of Applied Developmental Psychology, 5, 185–202.

Scull TM, Kupersmidt JB, & Erausquin JT (2014). The impact of media-related cognitions on children's substance use outcomes in the context of parental and peer substance use. Journal of Youth and Adolescence, 43, 717–728. doi:10.1007/s10964-013-0012-8 [PubMed: 24002678]

Sherman LE, Payton AA, Hernandez LM, Greenfield PM, & Dapretto M (2016). The power of the like in adolescence: Effects of peer influence on neural and behavioral responses to social media. Psychological Science. Advance online publication. doi:10.1177/0956797616645673

Siegel M, DeJong W, Naimi TS, Fortunato EK, Albers AB, Heeren T, . . . Jernigan DH (2013). Brand-specific consumption of alcohol among underage youth in the United States. Alcoholism: Clinical & Experimental Research, 37, 1195–1203. doi:10.1111/acer.12084 [PubMed: 23398328]

Siegel M, Naimi TS, Cremeens JL, & Nelson DE (2011). Alcoholic beverage preferences and associated drinking patterns and risk behaviors among youth school youth. American Journal of Preventive Medicine, 40, 419–426. doi:10.1016/j.amepre.2010.12.011 [PubMed: 21406275]

Slater MD, & Rouner D (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. Communication Theory, 12, 173–191. doi:10.111/j.1468-2885.2002.tb00265.x

Sloane K, Wilson N, & Gunasekara FI (2012). A content analysis of the portrayal of alcohol in televised music videos in New Zealand: Changes over time. Drug and Alcohol Review, 32, 47–52. doi:10.1111/j.1465-3362.2012.00477.x [PubMed: 22679924]

Smith L, & Foxcroft D (2009). The effect of alcohol advertising, marketing and portrayal of drinking behavior in young people: A systematic review of prospective cohort studies. BMC Public Health, 9, 51. doi:10.1186/1471-2458-9-51 [PubMed: 19200352]

Snyder LB, Milici FF, Slater M, Sun H, & Strizhakova Y (2006). Effects of alcohol advertising exposure on drinking among youth. JAMA Pediatrics, 160, 18–24. doi:10.1001/archpedi.160.1.18

Southwell BG (2005). Between messages and people: A multilevel model of memory for television content. Communication Research, 32, 112–140. doi:10.1177/0093650204271401

Stacy A, Zogg J, Unger J, & Dent C (2004). Exposure to televised alcohol ads and subsequent adolescent alcohol use. American Journal of Health Behavior, 28, 498–509. doi:10.5993/ajhb.28.6.3 [PubMed: 15569584]

Stephenson MT (2003). Examining adolescents' responses to anti-marijuana PSAs. Human Communication Research, 29, 343–369. doi:10.1111/j.1468-2958.2003.tb00843.x

Strasburger VC (2012). Adolescents, sex, and the media. Adolescent Medicine: State of the Art Reviews, 23, 15–33. [PubMed: 22764553]

Swahn MH, Bossarte RM, & Sullivent EE (2008). Age of alcohol use initiation, suicidal behavior, and peer and dating violence victimization and perpetration among high risk, seventh-grade adolescents. Pediatrics, 121, 297–305. doi:10.1542/peds.2006-2348 [PubMed: 18245421]

Viera AJ, & Garrett JM (2005). Understanding interobserver agreement: The kappa statistic. Family Medicine, 37, 360–363. [PubMed: 15883903]

Waiters ED, Treno AJ, & Grube JW (2001). Alcohol advertising and youth: A focus-group analysis of what young people find appealing in alcohol advertising. Contemporary Drug Problem, 28, 695–718.

Whalen CK, Jamner LD, Henker B, & Delfino RJ (2001). Smoking and moods in adolescents with depressive and aggressive dispositions: Evidence from surveys and electronic diaries. Health Psychology, 20, 99–111. doi:10.1037/0278-6133.20.2.99 [PubMed: 11315734]

Winpenny E, Patil S, Elliott M, Van Dijk LV, Hinrichs S, Marteau T, & Nolte E (2012). Assessment of young people's exposure to alcohol marketing in audiovisual and online media. Retrieved from http://ec.europa.eu/health/alcohol/docs/alcohol_rand_youth_exposure_marketing_en.pdf

Table 1.

Interrater reliability of CAY categories in sample ads.

	First sample (n = 9)		Second sample (n = 13)		Overall (n = 22)	
Category	**Percent agreement**	**Cohen's κ**	**Percent agreement**	**Cohen's κ**	**Percent agreement**	**Cohen's κ**
All	90%	0.75	87%	0.72	89%	0.76
Production value	82%	0.33	94%	0.86	89%	0.73
Character appeal	96%	0.58	95%	0.75	96%	0.67
Genre	83%	0.30	90%	0.71	87%	0.56
Product appeals	92%	0.89	88%	0.75	89%	0.77
Reward appeals	84%	0.64	80%	0.60	82%	0.62
Risk-related content	91%	0.64	83%	0.61	85%	0.65
Gender/race	93%	0.85	96%	0.90	94%	0.87

Note. First sample refers to the first randomly selected sample of ads (10% of the whole sample) coded by two independent coders. Second sample refers to the second randomly selected sample of ads (15% of the remaining sample) coded by the two independent coders after the codebook was revised to address discrepancies in coding.

Table 2.

Descriptive statistics of CAY codes in ads ($n = 96$).

Category	Content element	Percent ads with code	Mean (*SD*)
Production value	Duration (count)	100	26.50 (9.30)
	Sound saturation (0, 1)	98.96	NA
	Edits (count)	97.92	15.39 (11.04)
	Pace (edits/duration)	97.92	0.56 (0.30)
	Story format (0–2)	30.21	0.33 (0.54)
	Animation (0–2)	22.92	0.33 (0.66)
	Loud and fast music (0, 1)	6.25	NA
	Second-half punch (0, 1)	6.25	NA
	Intense Images (0, 1)	0	NA
Character appeals	Race: White (count)	82.30	3.93 (3.90)
	Gender: Male (count)	80.21	3.19 (3.46)
	Gender: Female (count)	71.88	1.89 (2.16)
	Race: Black (count)	36.46	0.66 (1.12)
	Human or animal (0, 1)	18.75	NA
	Celebrity or unknown (0, 1)	17.71	NA
	Race: Hispanic (count)	16.67	0.26 (0.70)
	Real or animated (0, 1)	15.63	NA
	Race: Asian (count)	10.42	0.22 (1.0)
	Fictional spokesperson (0, 1)	8.33	NA
	Adult or youth (0, 1)	6.25	NA
Youth-oriented genres	Humor (0–2)	38.54	0.43 (0.58)
	Magic (0–2)	10.42	0.15 (0.46)
	Fantasy (0–2)	9.38	0.11 (0.38)
	Violence (0–2)	1.04	0.01 (0.10)
Product appeals	Qualities (1, 0)	39.58	NA
	Physical benefits (1, 0)	38.54	NA
	Properties (1, 0)	28.12	NA
	Composition (1, 0)	23.96	NA
	Competitive (1,0)	19.79	NA
	Health (1, 0)	12.50	NA
	Bonus offers (1, 0)	0	NA
	Value (1, 0)	0	NA
Reward appeals	Positive emotions (0–2)	87.50	1.38 (0.70)
	Camaraderie (0–2)	68.75	1.06 (0.83)
	Achievement/success (0–2)	63.54	0.96 (0.83)
	Social positioning (0–2)	51.04	0.86 (0.91)
	Individuality (0–2)	47.92	0.81 (0.91)
	Sexual connotation (0–2)	35.42	0.5 (0.74)
	Romantic connotation (0–2)	14.58	0.17 (0.43)

Category	Content element	Percent ads with code	Mean (*SD*)
Risk-related content	Physical performance (0–2)	41.67	0.58 (0.76)
	Adventure/spontaneity (0–2)	37.50	0.55 (0.78)
	Injury (0, 1)	32.29	NA
	Inappropriate use (0, 1)	15.62	NA

Table 3.

Descriptive statistics of ads by brand (n = 41).

Brand	Number of ads (%)	Mean CAY Index score (*SD*)	Popularity[a]	Brand type[b]
Heineken	2 (2)	18.32 (3.81)	1	Beer
Jack Daniels Whiskey	2 (2)	18.11 (0.71)	1	Liquor
Smirnoff vodkas	3 (3)	16.44 (2.77)	1	Liquor
Absolut vodkas	2 (2)	16.27 (7.37)	1	Liquor
Dos Equis	3 (3)	15.26 (0.67)	0	Beer
Grand Marnier	5 (5)	15.18 (3.04)	0	Liquor
Svedka Vodka	1 (1)	14.63	0	Liquor
Hennessy Cognac	1 (1)	14.54	1	Liquor
Captain Morgan Rum	1 (1)	14.34	1	Liquor
Mike's Lemonade	4 (4)	14.21 (1.78)	1	Beer
Corona Extra	1 (1)	13.25	1	Beer
Bud Light Beer	6 (6)	13.23 (2.68)	1	Beer
Russian Standard	2 (2)	13.16 (1.53)	0	Liquor
Miller Lite	4 (4)	13.04 (2.84)	1	Beer
Yellow Tail	1 (1)	13.01	0	Wine
Stella Artois	4 (4)	12.83 (3.55)	0	Beer
Newcastle Beer	1 (1)	12.68	0	Beer
Bacardi Rums	1 (1)	12.52	1	Liquor
Maker's Mark	3 (3)	12.45 (0.78)	0	Liquor
Avion Tequila	2 (2)	12.05 (2.26)	0	Liquor
Ketel One Vodka	1 (1)	11.99	0	Liquor
Budweiser	1 (1)	11.95	1	Beer
Michelob Ultra	4 (4)	11.71 (4.15)	0	Beer
Johnnie Walker	2 (2)	11.57 (0.88)	0	Liquor
Coors Light	3 (3)	11.37 (2.11)	1	Beer
Pinnacle Vodkas	3 (3)	11.05 (1.20)	0	Liquor
Disaronno Liqueur	1 (1)	10.90	0	Liquor
Baileys Irish Cream	2 (2)	10.85 (0.93)	1	Liquor
Blue Moon	4 (4)	10.00 (1.81)	1	Beer
Grey Goose vodkas	4 (4)	10.00 (1.63)	1	Liquor
Coors	1 (1)	8.80	0	Beer
Patron Tequilas	4 (4)	7.73 (1.78)	1	Liquor
Kahlua Liqueurs	1 (1)	7.37	0	Liquor
Southern Comfort	1 (1)	7.24	0	Liquor
Samuel Adams	7 (7)	7.09 (1.84)	0	Beer
Sauza Tequila	1 (1)	6.84	0	Liquor
Daily's Cocktails	1 (1)	6.74	0	Beer
Guinness Beer	2 (2)	6.17 (1.89)	0	Beer
Korbel Champagne	2 (2)	4.84 (0.72)	0	Wine

Brand	Number of ads (%)	Mean CAY Index score (*SD*)	Popularity[a]	Brand type[b]
Budweiser Select	1 (1)	4.55	0	Beer
Cavit Wines	1 (1)	3.01	0	Wine
Totals:				
By popularity:				
Popular brands, *N*(%) and *M*(*SD*)	45 (47%)	12.81 (2.9)	–	–
Less popular brands, *N*(%) and *M*(*SD*)	51 (53%)	10.65 (3.4)	–	–
Popular vs. less popular, *t*(df)		−3.28 (94)**	–	–
By alcohol type:				
Beer brands, *N*(%) and *M*(*SD*)	49 (51%)	11.49 (3.2)	–	–
Liquor brands, *N*(%) and *M*(*SD*)	43 (45%)	12.35 (3.1)	–	–
Wine brands, *N*(%) and *M*(*SD*)	4 (4%)	6.42 (4.5)	–	–
Alcohol type, *F*(df)		6.44 (2, 93)*	–	–

Note. Satterthwaite's degrees of freedom are reported when groups had unequal variances.

[a]Popularity groupings: 1 = popular (within the top 25 most consumed brands among youth), 0 = less popular (within the remaining 873 brands) based on prevalence of youth consumption data from the 2012 ABRAND survey (Siegel et al., 2013).

[b]Based on their alcohol content by volume, cordials and liqueurs were grouped with liquor, flavored alcoholic beverages and cocktail mixers were grouped with beer, and champagnes were grouped with wine.

*$p < .05$

**$p < .01$.