Examining the Protective Effects of Brand Equity in the *keepin' it REAL* Substance Use Prevention Curriculum

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Abstract

While branding appears to be an effective health prevention strategy, it is less clear how successful brands have protective effects. To better understand the role of branding in health prevention and promotion, it is necessary to examine how the persuasive mechanisms of branding function in health campaigns (e.g., modeling socially desirable behaviors). Using a cross-sectional data ($N = 709$), the current study uncovered the mechanisms explaining branding's effects on adolescent substance use in a school-based substance use intervention, *keepin' it REAL* (*kiR*) curriculum. Consistent with our predictions, a confirmatory factor analysis suggested that *kiR* brand equity had a higher-order, multidimensional factor structure. In addition, a path analysis revealed that brand equity affected adolescent substance use directly and through the predicted social cognitive processes including refusal efficacy and resistance skills. Thus it is concluded that *kiR* brand equity serves as a protective factor for adolescent substance use. Practical implications, research limitations and future directions are discussed.

Keywords

keepin' it REAL curriculum; brand equity; social cognitive theory; substance use prevention

Branded message design strategies have much potential to advance health prevention theory and practice. In recent years branding principles have been effectively applied to tobacco control (e.g., truth[sm] campaign) (Evans, Price & Blahut, 2005), physical activity promotion (VERB[TM]: It's What You Do campaign) (Asbury, Wong, Price, & Nolin, 2008; Huhman, Potter, Wong, Banspach, Duke, & Heizler, 2005; Price, Potter, Das, Wang, & Huhman, 2009), and substance use prevention ("The Anti-Drug" campaign) (Hornik, Jacobsohn, Orwin, Piesse, & Kalton, 2008; Jacobsohn & Hornik, 2008). Whereas efficacy has been established for these individual mass media interventions, little is known about *why* or *how* branding works in developing prevention messages for school-based interventions. Using the branding perspective and social cognitive theory as frameworks, this study examined explanatory mechanisms for the effects of branding in the *keepin' it REAL* school-based substance use prevention curriculum.

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Defining Branding

In the field of marketing and advertising, a brand is defined as a set of associations and properties that are communicated by a name, logo, sign, or symbol associated with a product or service (Keller, 1993; Keller, 1998; Calkins, 2005). By creating a brand, marketers and advertisers define how consumers think and feel the product when the consumers see its name, logo, sign, or symbol (Asbury et al. 2008). As consumers perceive greater advantages and benefits associated with the brand that they purchase, they are more likely to continue to "buy" or accept the product (Batra, Myers, & Aaker, 1996). The benefits promised by a brand are not necessarily functional in nature; they can serve as symbolic devices that allow consumers to project their self-image (Keller, 1999).

This approach has been used by companies seeking to promote legal substance use, with spillover into underage consumption. The tobacco industry has succeeded in influencing adult and adolescent smoking behaviors by associating cigarette brands with attractive images and highly valued outcomes, particularly those valued by teenagers (e.g., popularity among peers) (Evans & Hastings, 2008; Gordon, Biglan, & Smolkowski, 2008). The Marlboro brand provides a good example, having come to be associated with socially appealing imagery and characteristics such as independence, strength, and confidence. These associations define how consumers see themselves as well as how they want to be seen by others (Evans & Hastings, 2008).

While branding has traditionally been related to commercial products and services, recently researchers have shown that it can be applied to the promotion of health-related issues and behaviors (e.g., smoking). Evans and colleagues' comprehensive review of social marketing programs suggests that health behaviors and lifestyles can be branded by messages creating positive imagery and social models through advertising and promotional activities (Evans, Blitstein, Hersey, Renaud, & Yaroch, 2008). For instance, the truth[sm] campaign depicted positive images of youth as non-smokers who are cool and edgy while rebelling against tobacco industry control and communicated them through a series of public service announcements/ads. The images projected by the truth[sm] brand make use of the very images used in the tobacco industry's marketing efforts, but turn them to anti-smoking messages (Evans, Wasserman, Bertolotti, & Martino, 2002; Evans, Price, Blahut, Ray, Hersey, & Niederdeppe, 2004). Therefore, following the conceptualization of commercial brand, a public health brand can be defined as a set of beneficial associations in the mind of an individual that are linked to a health behavior or set of behaviors (Blitstein, Evans, & Driscoll, 2008).

Branding Drug Resistance Strategies: The *keepin' it REAL* Curriculum

To date, branding has been applied to health messages utilizing mass media (e.g., advertisement or PSAs), yet little is known about the role of branding in prevention messages in school-based interventions. Schools are an important context for reaching adolescents with health messages because of their universal access to adolescents (Biglan, Ary, Smolkowski, Duncan, & Black, 2000; Slater et al., 2006). Given the critical developmental period of early adolescents, middle schools, in particular, are the sites of numerous prevention interventions (Skara & Sussman, 2003). The *keepin' it REAL* (*kiR*) curriculum is an evidence-based, substance abuse prevention program targeting middle school students that utilizes branding concepts and narrative techniques to develop health messages that teach strategies for resisting drug offers and other skills (Hecht & Lee, 2008).

The *keepin' it REAL* or *kiR* "brand" is apparent in a number of ways (Hecht & Lee, 2008). First, the *keepin' it REAL* brand was strategically created through narrative and formative research. 'REAL' is not only an acronym for the four resistance strategies (i.e., ways of

saying no to drug offers and resisting peer pressure) that emerged from a line of formative, narrative research (Hecht & Miller-Day, in press), but also an appealing brand image that communicates a "kids-eye worldview." The *kiR* brand image is that it is "real/REAL;" derived and based on real youth narratives and models told by youth with whom the audience can identify (Hecht & Lee, 2008). To build a positive image, the *keepin' it REAL* curriculum presented an appealing identity and social benefits through multiple components that involve and engage youth, including classroom videos, role plays, discussions, radio, television PSAs/ads, and billboards (Hecht & Lee, 2008). In addition, the brand name and logo are important elements of branding because they capture the central theme of the *kiR* curriculum and effectively connect it to the target audience. Focus groups of teachers and seventh grade students suggested content and form for the lessons and led to the adoption of the phrase, '*keepin' it REAL*' as the brand name and to the development of the brand logo (see Figure 1).

For the reasons described above, we believe that the implementation of the *keepin' it REAL* curriculum provided an ideal opportunity to assess the role of branding and test whether brand equity explains the success of the brand in school-based substance use prevention.

Factor Structure of *kiR* Brand Equity

From a strategic standpoint, the question arises, what is a strong brand? Aaker (1996) proposed the construct of brand equity to answer this question, postulating that equity will be high if messages create high awareness, many loyal consumers, a reputation for perceived quality, and/or positive brand associations. Consumers prefer high-equity brands since they can find it easier to interpret their benefits and values as well as feeling more confident and satisfied with their purchase and use (Aaker, 1996; Batra et al., 1996). As a result, marketers and advertisers attempt to build high brand equity by providing attributes or benefits or by associating positive values and images with the brand.

On the basis of previous studies of branding (Aaker, 1991, 1996; Blahut, Evans, & Price, 2004; Evans, Renaud, Blitstein, Hersey, Ray, Schieber, & Willett, 2007), *keepin' it REAL* brand equity is conceptualized as having four dimensions. The first dimension is awareness, which involves a set of knowledge and opinions about the *kiR* brand (Blahut, Evans, & Price, 2004; Evans et al., 2005; Evans et al., 2007). The second construct is defined as popularity among peers, an indicator of the brand position or merit (Blahut et al., 2004) that may be related to normative issues (Evans et al., 2007). Third, brand personality is defined as the human characteristic associated with the *kiR*, representing potential emotional and self-expressive benefits of the brand (Batra, Myers, & Davis, 1996; Blahut et al., 2004). Finally, loyalty is how willing consumers are to stick to a brand (Batra et al., 1996; Price et al., 2009). Studies on branding have consistently indicated that brand loyalty is powerful to sustain and enhance consumer relationships (Aaker, 1996).

Recent research suggests that brand equity has a hierarchical structure, consisting of multiple sub-dimensions, loading on a single higher-order factor (Blahut et al., 2004; Evans et al., 2005). Brand equity is viewed as the cumulative effects of awareness, leadership/popularity, personality, and loyalty; that is, if a message evokes these reactions it has high equity. From a measurement perspective, these four factors are considered lower order constructs with equity an overarching or higher order one. Thus the following hypothesis was posed regarding the conceptualization and measurement of brand equity:

> *Hypothesis 1: keepin' it REAL* brand equity has a second-order four-sub-dimensional structure consisting of awareness, popularity, personality, and loyalty.

Protective Effects of *kiR* Brand Equity

Evans and Hastings (2008) maintained that brand equity plays a central role in evaluating how branded health campaigns work. Prior consumer studies on branding consistently argued that strong brands are more familiar and have more favorable, strong, and unique associations with them, which leads to greater consumer preference and purchase (Batra et al., 1996; Cobb-Walgren, Ruble, & Donthu, 1995; Keller, 1993). In the field of social marketing and public health, recent research (e.g., Gordon et al., 2008; Evans et al., 2005, 2007) demonstrates that messages creating greater levels of brand equity are negatively associated with risky behaviors such as youth smoking. Likewise effective public health brand messages creating brand equity (i.e., awareness, popularity, personality, and loyalty) influence the audience in the desired action directly. Thus a causal hypothesis is implicitly engendered in this view: health messages creating brand equity leads to targeted behaviors. In this study we anticipated that the substance use prevention messages in the *kiR* curriculum will be successful in impacting adolescent substance use by creating brand equity. Intentions were used for a proxy for actual behaviors given the young age of sample who had less experiences of substance use than adult sample. Hence, the following hypothesis was posed:

> *Hypothesis 2: kiR* brand equity is inversely related to adolescents' intent to use substances.

Underlying Mechanisms of Branding: Social Modeling

This study employed social cognitive theory as a framework to examine the mechanisms explaining branding's effects in the *keepin' it REAL* curriculum. Social cognitive theory (SCT), the theoretical basis for much health communication prevention and promotion research, is a good fit to branding because it posits that social modeling promotes emulation and behavioral adoption through motivational processes (Bandura, 2001; 2004; Evans, Blitstein, & Hersey, 2008). Models, an essential element of branding campaigns, are presented to promote vicarious learning and influence knowledge, attitudes, and behaviors since people acquire particular beliefs, knowledge, or behavior by observing others' behavior (Bandura, 1986, 2004; Sheeshka, Woolcott, & MacKinnon, 1993). Messages presenting peer models can be used to build beliefs regarding efficacy for particular health behavior (e.g., avoiding smoking initiation) when the models and their behaviors are perceived as socially desirable or attractive through branding (i.e., benefits or incentive) (Evans et al., 2004; Evans et al., 2005). In effective branded messages, healthy behaviors are branded by attaching the behaviors to socially accepted images and models in order to encourage adoption of the healthy behaviors (Evans & Hastings, 2008). The underlying strategy featuring socially desirable imagery or models has been validated in avoiding smoking initiation, increased physical activity, and condom use (Evans et al., 2004; Huhman et al., 2005).

According to SCT, knowledge and skills are the precondition for behavioral change. Without knowledge and skills, people are unlikely to engage in behavioral change. However sufficient level of knowledge does not always guarantee behavioral change. Bandura (1999) argues that observed behaviors obtained through vicarious learning may not be enacted unless people form self-efficacy beliefs. In this study, this theorizing lead us to posit that the branding of refusal strategies and decision-making skills not only enhances knowledge of drug resistance skills, but also encourages beliefs of refusal efficacy through social modeling that, in turn, affects intentions and behaviors regarding substance use.

kiR Modeling

The *kiR* branded messages were developed to target the perception of efficacy and knowledge of resistance skills through modeling socially desirable behaviors by adolescents. As described earlier, the *kiR* curriculum branded the social skills of resisting drugs effectively to youth through behavioral modeling. As adolescents are exposed to the branded messages through a series of videos and participate in class activities and other events to reinforce the brand and provide practice, adolescents are likely to understand the meanings of the *kiR* (e.g., "saying no is cool") as well as form favorable, strong associations with the brand (e.g., "*kiR* is popular" or "*kiR* looks like real"). In turn, the familiarity and the associations with *keepin' it REAL* (i.e., brand equity of the *kiR*) and practice in their use are intended to lead adolescent to learn the skills needed to make healthy decisions as well as enhance beliefs of resisting drug offers from peers and families. Hence, greater level of brand equity and association are predicted to increase refusal efficacy and resistance skills. The following hypothesis was posed to test this relationship:

> *Hypothesis 3a*: The *kiR* brand equity is positively associated with refusal self-efficacy and hypothetical resistance skills.

Hecht and colleagues argue that preadolescents' refusal efficacy and resistance skills significantly affect their substance use intentions and behaviors (Hecht, Warren, Wagstaff, & Elek, 2008). Adolescents who believe that they can enact behaviors related to refusing substances and that those behaviors will lead them to their goal (refusal efficacy) and who demonstrate knowledge of skills to enact those behaviors (resistance skills) are less likely to use substances (Conrad, Flay, & Hill, 1992; Levin & Hart, 2003; Morrongiello & Dawber, 2004). To test this relationship the following hypotheses were posed:

> *Hypothesis 3b*: Refusal efficacy and hypothetical resistance are negatively associated with intent to use substances.

If brand equity enhances perception of efficacy and resistance skills, which lead to reduce adolescents' intent to use substances, then it is also reasonably expected that:

> *Hypothesis 3c*: Brand equity has an indirect influence on adolescent substance use intentions through refusal-efficacy and resistance skills.

Method

Participants and Procedure

This study utilized a cross-sectional, self-report data from a larger intervention evaluation study (Hecht et al., 2008). Data were collected from 709 8th grade students in 23 middle schools in Phoenix, Arizona where *keepin' it REAL* curriculum was implemented during the 2007–2008 school year (September through May). All the participating students completed assent forms and their parents completed consent forms informing them of the voluntary and confidential nature of the students' questionnaire participation. The mean participants' age was 13.6 years old (*SE* = .60 years) and females were 56% of the participants. Approximately 80% of the students self-identified as Mexican or Mexican-American; 10% self-identified as African American; 8% self-identified as White or Anglo; 1% self-identified as Native American; less than 2% self-identified with some other racial/ethnic group.

Measures

Brand equity—Fifteen survey items were adapted from the truth[sm] brand equity scale developed by Blahut, Evans and Price (2004) to measure *kiR* brand equity. The original measure of the brand equity consisted of four dimensions as follows: brand awareness,

brand leadership/popularity, brand personality, and brand loyalty. The items were responded to using a 4-point agree-disagree scale ranging from 1 (strongly disagree) to 4 (strongly agree). The examination of Cronbach's alpha coefficients indicated that the four subscales exhibited high levels of internal consistency in the current sample. Cronbach's alpha coefficients for the first-order factors were 0.93 for awareness, 0.90 for leadership/popularity, 0.94 for personality, and 0.89 for loyalty, respectively.

Hypothetical drug resistance—Hypothetical rather than actual resistance was selected for this study because only 11% of the respondents reported receiving a substance use offer and focused on alcohol (rather than other substances) due to the expectation that these students would be more likely to face offers of alcohol, the most frequently used substance in the sample. This variable was assessed with 5 items measured on a 4-point scale ranging from 1 (definitely) to 4 (definitely not) (Hecht et al., 2008). The common stem consisted of "*If your friend offered you a beer at a party, would you...*" The stem was completed with "*...say 'No' without giving a reason why?,*" "*...give an explanation or excuse to turn down the beer?,*" "*...just leave the situation without accepting the beer,?*" "*...find some other way to not accept the beer?,*" or "*...avoid getting into that situation because you think beer might be offered there?*" The scores on the scale were reverse-coded so that higher scores indicated greater willingness to use one of the four resistance strategies to refuse an alcohol offer. Cronbach's alpha in the current sample was 0.69.

Refusal self-efficacy—Perception of efficacy was measured with three items responded to on the 4-point scale ranging from 1 (very sure) to 4 (not at all sure). These items were modified from those used by Kasen, Vaughan, and Walter (1992) to assess self-efficacy for refusing sexual intercourse. The items were, for instance, "*Are you sure you would say no if a family member or close friend offered you alcohol?*"(Cronbach's alpha = 0.69).

Intent to use substances—We measured intentions as a proxy for use given the young age of the sample and that fact that they reported few experiences of actual use at pretest. Intent has proven to be an accurate proxy for use in similar studies (Ary & Biglan, 1988; Sterling, Diamond, Mullen, Pallonen, Ford, & McAlister, 2007; Tyc, Hadley, Allen, Varnell, Ey, & Rai, 2004). The measure assessed adolescents' substance use intentions (alcohol, cigarette, and marijuana) based on previous work with older samples (Hecht, Graham, & Elek, 2006). The items (e.g., "*If you have a chance this weekend, would you use alcohol?*") were responded to on the 4-point scale indicating the degree of likelihood (1=definitely yes, 2=yes, 3=no, and 4=definitely no) of performing the behaviors. These items were reverse-coded (i.e., high scores reflected greater intent to use) for ease of interpretation (Cronbach's alpha = 0.70).

History of substance use—Three binary items represented history of substance use. The items asked students if they ever used alcohol, cigarette, and marijuana at least once in their lifetime (0 = never used; 1 = ever used).

Demographics include gender (male adolescents were coded 0, female adolescents were coded 1) and age.

Table 1 displays the summary statistics and correlation matrix for the survey items.

Model Specification

To test the hypothesized models, structural equation modeling (SEM) analyses were performed using *Mplus* 5.2 (Muthen & Muthen, 2007). The full information maximum likelihood (FIML) method was used to address the missing data (Graham, Cumsille, & Elek-

Fisk, 2003). Recent missing data techniques such as FIML offer unbiased estimates of missing parameters in large samples, while retaining natural variability in the missing data and incorporating uncertainty caused by estimating data (Schafer & Graham, 2002). The primary fit indices used to evaluate the model fit of the hypothesized SEM model, were the root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), and comparative fit index (CFI). For both RMSEA and SRMR, smaller values indicate better fit. Following the convention of Hu and Bentler (1999), RMSEA < .06 and SRMR < .08 were considered favorable respectively. As for the CFI, values closer to 1 are preferred and, in particular, values of .95 or above were considered satisfactory (Kline, 2005; Hu & Bentler, 1999).

The modeling strategy of the current study was first, to develop the hypothesized higher-order factor model of the *keepin' it REAL* brand equity, then to test the hypothesized path model of the effects of the *kiR* brand equity on adolescent substance use. To test the higher-order factor structure, the fifteen brand equity measures used in this study were subjected to a second-order confirmatory factor analysis (CFA). For the hypothesized path model, brand equity was used in the analysis as exogenous variables, while hypothetical resistance skills, refusal efficacy, and intent to use substances were used as endogenous variables. As postulated, hypothetical resistance skills and refusal self-efficacy were entered as mediators in the model. The control variables (i.e., gender, age and prior substance use) were entered into the model as exogenous variables, from which paths were drawn to all the endogenous variables.

This study bootstrapped the indirect effects of brand equity on substance use intentions by repeatedly sampling cases with replacement from the data (i.e., 5000 bootstrap sample draws). The bootstrap method is known as useful means to alleviate statistical problems associated non-normal distributions of indirect effects because it does not hold any "a priori" assumptions about sample distributions (Hayes, 2009; Preacher & Hayes, 2008). We determined the statistical significance of the indirect effects using 95% biased-corrected confidence intervals (CI) estimated by the bootstrap method.

Results

Testing the Factor Structure of *kiR* Brand Equity

As discussed earlier, brand equity is conceptualized as consisting of multiple constructs. Aaker (1996) originally proposed 10 constructs but in later analyses Blahut et al. (2004) and Evans et al. (2005) reduced this number to four constructs of brand equity: awareness, leadership/popularity, personality, and loyalty. Preliminary analyses of the current data revealed that the four, first-order constructs were highly correlated one another (r = .69 to . 89), leading to question the discriminant validity. This is not surprising given that Blahut and colleagues argue that there is a hierarchical, second-order structure to the data. Highly-correlated constructs can be related through what they all share, common higher-order brand equity. Including these constructs as the constituent building blocks of the higher-order factor structure resolves the high inter-correlation because that is expected in a second-order model. As a result, we next examined the first- and second-order structure of the data.

Separate confirmatory factor analyses (CFA) were implemented to test the first-and second-order factor structure of the brand equity scale and then the model fit of these CFA models was compared. The analysis suggested that both the first and second-order models appeared acceptable on the basis of the model fit indices [First-order model: χ^2 (84) = 208.13; CFI = . 949; SRMR = .037; RMSEA = .069 (90% CI = .057 – .081); Second-order model: χ^2 (86) = 212.96; CFI = .948; SRMR = .038; RMSEA = .069 (90% CI = .057 – .080)]. To compare the model fit of these two models, a χ^2 difference test was employed. The test involved

subtracting the χ^2 and degrees of freedom of the comparison model from χ^2 and degrees of freedom of the nested model. The χ^2 difference test indicated that the model fit did not improve significantly from the second-order model (nested) to the first-order model (comparison): χ^2_{DIFF} (2) = 4.83. This is not only consistent with previous theory and research (Blahut et al. 2004: Evans et al. 2005, 2007), but also resolves issues of discriminant validity arising from the high inter-correlations in the first order model. For the reasons we chose the second-order model representing the hierarchical structure of brand equity.

Table 2 presents the loadings of the first and second-order constructs and their standard errors. In the second-order model, all factor loadings of the four subscales were statistically significant and the magnitudes of loadings ranged from 0.81 to 0.95. In addition factor coefficients loaded on the second-order construct were statistically significant and fairly high ranging from 0.75 to 0.99.

Testing the Protective Effects of *kiR* Brand Equity

A path analysis using ML estimation was carried out to test the hypothesized effects of *kiR* brand equity on adolescent intent to use substances, posited by hypothesis 2 and 3. The initial path model did not yield adequately good fit to the data [χ^2 (122) = 842.98; CFI = .867; SRMR = .083; RMSEA = .091 (90% CI = .086 – .097)], but the path model was improved by make two relatively minor changes using modification indices. First, modification indices suggested that the intervening variables (i.e., refusal efficacy and hypothetical resistance) should be inter-correlated, allowing the model to take into account the interdependence between the variable (Preacher & Hayes, 2008). Second, the disturbances of the indicators of refusal efficacy and those of use intentions were allowed to correlate based on modification indices. These inter-correlations were added one by one, the analysis then repeated on the modified model. After going through a series of modifications, we obtained the final path model, which fit the data well [χ^2 (118) = 395.61; CFI = .950; SRMR = .060; RMSEA = .058 (90% CI = .051 – .064)].

Consistent with the hypothesis (H2), the path analysis revealed that the direct pathway from brand equity (BE) to substance use intentions (SI) was statistically significant (for BE → SI, unstandardized β = −.27, *SE* = .06, *p* = .000). The analysis also found that the brand equity was positively related to refusal efficacy (RE) and hypothetical resistance skills (RS) (for BE → RE, unstandardized β = .21, *SE* = .08, *p* = .011; for BE → RS, unstandardized β = .27, *SE* = .09, *p* = .001), and that these variables in turn were negatively associated with intent to use substances (SI) (for RE → SI, unstandardized β = −.24, *SE* = .05, *p* = .000; for RS → SI, unstandardized β = −.14, *SE* = .05, *p* = .005). Thus H3a and H3b were supported.

The bootstrap test using 5000 bootstrap resamples revealed significant indirect effects on substance use intentions via refusal efficacy as well as via hypothetical resistance skills because none of the 95% biased-corrected confidence intervals included the bootstrap estimates of zero (null hypothesis of indirect effects): bootstrapped 95% biased-corrected CIs for the (unstandardized) effects of brand equity via refusal efficacy (BE → RE → SI) = −.120 − −.001; for the effects of brand equity via hypothetical resistance skills (BE → RS → SI) = −.121 − −.007. Thus, it was concluded that refusal self-efficacy (RE) and hypothetical resistance skills (RS) *partially* mediated the relationship between the brand equity and adolescents' intent to use substances, given the presence of the direct effects of brand equity on substance use.

Finally, the demographic variables introduced into the model were not significant predictors of adolescent substance use. An exception was a significant pathway for the effects of age on intent to use substances (for Age → SI, unstandardized β = −.09, *SE* = .04, *p* = .02). Prior

use of alcohol and marijuana also appeared significant predictors of substance use because the variables demonstrated statistical significance in the pathways to the endogenous variables (refusal efficacy, resistance skills, and use intentions). Overall, the predictors, mediators, and control variables in the model accounted for 59% of the variance in adolescent substance use intentions. Table 3 presents the unstandardized parameter estimates and their standard errors (see Figure 2 for visual summary).

Discussion

This study was designed to investigate the underlying mechanisms of branding in school-based substance use interventions and test the branding effects of the messages in the *keepin' it REAL* curriculum. The findings confirmed theoretically-derived expectations indicating that branded messages affected substance use intentions directly and through social cognitive processes. More specifically, adolescents with high brand equity in the *keepin' it REAL* curriculum exhibited a decreased level of substance use intentions. In addition, branded messages were associated with increased levels of drug resistance skills and refusal efficacy, and in turn resistance skills and efficacy were associated with reduced substance use intentions. Overall, it is concluded that *kiR* messages that build brand equity act as a protective factor for substance use prevention and the effects are mediated by the targeted skills and efficacy.

Although brand equity has been traditionally related to consumer products, our findings suggest that it can be extended to behavioral/social phenomena (Blahut et al, 2004). A *kiR* brand equity scale was developed and then analyzed to test the fit of the second-order, multi-subscale factor model. Consistent with prior studies such as Blahut et al (2004), the confirmatory factor analysis showed multidimensional aspects of branding in the *kiR* curriculum: awareness, leadership/popularity, personality, and loyalty. In other words, adolescents can have high brand equity if they have high awareness and reputation about the *kiR* curriculum as well as unique associations of the *kiR* brand. Thus we expect that the findings help clarify the conceptualization of branding in the context of substance use prevention.

More importantly, the path analysis reveals the mechanisms of branding through social cognitive processes. Refusal efficacy and resistance skills served as mediators of the relationship between the *kiR* branded message exposure and substance use behaviors. The *kiR* curriculum successfully created the kid-centric "REAL" brand through formative research and offered the promise (or symbolic benefits / incentives) by imbuing a set of refusal strategies and resistance skills with socially acceptable models and images about real kids from real narratives salient in adolescents' lives. We can conclude that the positive associations of the *kiR* brand messages enhanced the perception of efficacy and knowledge of resistance skills through modeling socially desirable adolescents and their behaviors (i.e. modeling how to refuse drug offers effectively). These findings promote our understanding of how branding functions in the school-based substance use intervention and advance theorizing about health message design.

However, our findings should be carefully interpreted within the limitations of this study. First the data used in the current study did not include a control group. Although the initial dataset from a larger intervention study had a control group; the control group did not respond to the branding measures for administrative reasons (i.e., they did not receive a message). In the absence of control group, the branding effects found in the study should not be regarded as program effects. This limitation should be investigated in the future research.

Another limitation is that the study relied solely on cross-sectional data and thus causality cannot be established with full confidence. While the temporal pathways in our model make theoretical sense the hypothesized directionality cannot be assumed even with these findings. We believe that longitudinal data would allow for investigation of causal relationship between branding and adolescent substance use. In addition, the study used intentions as the outcome variable and did not include self- reported behaviors. Intent to use substances was used as a proxy for use given the young age of the sample and that fact that they reported few experiences of actual use. An important next step is, therefore, to examine the protective effects of brand equity on actual use of substances with longitudinal data to consider temporal and causal sequences as substance use initiates over time.

Finally, there are, of course, other factors that may be in play here. This is particularly likely given that the modification indices suggested that some of the correlations between error terms be added to the final model. It is likely that these correlated errors are meaningful and indicate unmeasured variables. Social cognitive theory, for example, predicts that outcome expectancies (i.e., expectations of positive consequences of drug use) as well as social norms may be added to the model explaining the correlation between the error terms of efficacy and intent. That is, according to the theory, efficacy, norms, and expectancies are inter-related mediators of program effects, thus it may be that the two, unmeasured constructs are influencing these outcomes through their inter-correlation with efficacy. Future research is needed to address this speculation.

These findings provide several implications. First, the availability of a brand equity scale contributes to the development and evaluation of school-based health campaigns. Our analysis indicates that four dimensions (i.e., awareness, popularity, personality, and loyalty) result in overall second-order brand equity. Evaluation of health messages with the scale in formative research can help enhance brand equity. Similarly, the scale can then be used in program evaluation when a branding strategy has been applied. Our findings should encourage campaign researchers and practitioners to consider multiple aspects of brand equity in developing their branded messages as well as in assessing the role of branding in health campaigns.

Second, the findings that brand equity influenced adolescent substance use through social cognitive processes indicate that message designers need to be clear about how to influence target cognitions and behaviors through branded health prevention messages. *keepin' it REAL* was designed to impact social cognitive variables (i.e., refusal-efficacy and resistance skills) and behaviors by associating a set of resistance strategies and skills (i.e., REAL) with socially desirable models and positive imagery. These associations in the minds of adolescents are an essential part of branding in the school-based interventions. When adolescents understand the meanings of the *kiR* brand (e.g., I can say no, I can explain why) as well as they perceive the benefits / advantages (*kiR* is cool, *kiR* is fun) or the popularity (kids like *kiR*), their positive perceptions and associations with the brand (i.e., brand equity) promote motivational learning processes that lead to the intended behavior through peer modeling. The strategic development of branded health messages that target specific skills (here drug resistance strategies) and build brand equity seems to have promise in prevention theory and practice.

Conclusion

In summary, the current study uncovered the underlying mechanisms of branded messages in the school-based substance use intervention, *keepin' it REAL* through the application of Social Cognitive Theory. As predicted, brand equity consisting of higher-order, multidimensional components, lead to decreased adolescent substance use. In addition, these

effects were mediated via social cognitive processes (i.e., refusal efficacy and hypothetical resistance skills). Although this study contains several limitations, we believe that the findings contribute to our understanding of the effects of branded school-based substance use prevention messages and have implications for the development of effective campaigns utilizing branding principles.

Acknowledgments

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Figure 1.
Brand logo of *keepin' it REAL* curriculum. All rights reserved, Penn State University.
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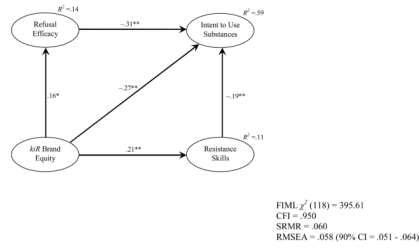
Figure 2.
Structural paths of influence wherein *kiR* brand equity affects youth substance use. All estimates in the figure are standardized regression weights. Effects of gender, age and prior substance use were statistically controlled but the pathways are not shown in the figure for reasons of clarity.
*p < .05; **p < .01.

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Table 1

Bivariate Correlation Matrix and Summary Statistics

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. BA	—											
2. LP	.69**	—										
3. BP	.70**	.85**	—									
4. BL	.69**	.86**	.91**	—								
5. RE	.36**	.12*	.17**	.15**	—							
6. RS	.33**	.21**	.20**	.23**	.42**	—						
7. SU	-.51**	-.36**	-.33**	-.34**	-.56**	-.42**	—					
8. Gender	.08	-.02	.05	.03	.05	.06	.00	—				
9. Age	.06	.10	.11	.11	-.03	-.03	.07	-.08*	—			
10. PAU	-.13	-.12	-.08	-.10	-.16**	-.17**	.34**	.09	-.06	—		
11. PCU	-.15*	-.04	-.03	-.06	-.21**	-.14**	.28**	-.02	-.05	.36**	—	
12. PMU	-.22**	-.11	-.06	-.15*	-.30**	-.21**	.43**	-.10*	.01	.26**	.43**	—
M	3.08	2.75	2.83	2.75	3.13	2.69	1.59	0.53	4.55	0.44	0.15	0.16
SD	0.86	0.89	0.91	0.91	0.96	0.96	0.68	0.50	0.60	0.50	0.35	0.37
Skewness	-0.91	-0.36	-0.55	-0.42	-0.90	-0.27	1.08	-0.13	1.03	0.25	2.02	1.82
Kurtosis	-0.26	-0.70	-0.39	-0.54	-0.41	-0.97	0.66	-1.99	4.53	-1.94	2.10	1.30

Note. BA = Brand Awareness, LP = Leadership / Popularity, BP = Brand Personality, BL = Brand Loyalty, RE = Refusal Efficacy, RS = Hypothetical Resistance Skills, SU = Intent to Use Substances, PAU = Prior Use of Alcohol, PCU = Prior Use of Cigarette, and PMU = Prior Use of Marijuana. Gender (0 = male, 1 = female), prior use of alcohol, cigarette, and marijuana (0 = never-use, 1 = ever-use) are dummy-coded variables.

*
  p < .05;

**
  p < .01.

Table 2

First- and Second-Order Factor Structure of keepin' it REAL Brand Equity Scale

Item Statements	1st-order					2nd-order
	Brand Awareness	Leadership/Popularity	Brand Personality	Brand Loyalty		Brand Equity
Saying no is cool	.81 (.004)					
Drug is risky	.86 (.003)					
I can say no	.87 (.004)					
I can explain why	.90 (.002)					
I avoid situations	.85 (.003)					
kiR is popular		.92 (.002)				
kiR is like me		.87 (.003)				
Kids like *kiR*		.85 (.003)				
kiR is interesting			.92 (.002)			
kiR is fun			.95 (.001)			
kiR is cool			.94 (.002)			
kiR looks like real			.82 (.003)			
I talk about *kiR*				.83 (.003)		
I like having *kiR*				.91 (.002)		
School keeps *kiR*				.87 (.003)		
Brand Awareness						.75 (.004)
Leadership/Popularity						.93 (.002)
Brand Personality						.97 (.001)
Brand Loyalty						.99 (.002)
α for Scale	.93	.90	.94	.89		

Note. Factor coefficients in the table are standardized and the numbers in the parentheses are their standard errors.

Table 3

Full Information Maximum Likelihood (FIML) Parameter Estimates

Parameter	Refusal Efficacy	Resistance Skills	Use Intentions
Direct Effects of Predictors and Covariates			
Brand Equity	0.21^* (.08)	0.27^{**} (.09)	-0.27^{**} (.06)
Gender	—	—	—
Age	—	—	0.09^* (.04)
Prior Alcohol Use	—	-0.18^* (.09)	0.18^{**} (.07)
Prior Cigarette Use	—	—	—
Prior Marijuana Use	-0.61^{**} (.13)	-0.33^{**} (.13)	0.46^{**} (.10)
Direct Effects of Intervening Variables			
Refusal Efficacy			-0.24^{**} (.05)
Hypothetical Resistance Skills			-0.14^{**} (.05)
Indirect Effects of Predictors via Intervening Variables			
Brand Equity via Refusal Efficacy			-0.05^* (.02)
Brand Equity via Resistance Skills			-0.04^* (.02)
Sum of Indirect			-0.09^{**} (.03)

Note. Path coefficients are unstandardized estimates and the numbers in the parentheses are their standard errors. Dashes in the top panel indicate non-significant pathways.

* $p < .05$;

** $p < .01$.