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Post-Intervention Effects of *Click City®: Alcohol* on Changing Etiological Mechanisms Related to the Onset of Heavy Drinking

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Abstract

Introduction—Alcohol consumption, including heavy drinking, is the fourth leading preventable cause of death in the United States. Youth who engage in heavy drinking are likely to experience a number of problems associated with their use. The annual prevalence of heavy drinking was 17% in 12th grade. These data suggest a clear need for conducting alcohol prevention activities among youth.

Methods—We designed the *Click City®: Alcohol* program for 7th graders, with a booster in 8th grade. Using innovative and rigorous methods, we developed and evaluated individual program components targeting theoretically-based etiological mechanisms before including them in the final program. Then, we conducted an efficacy trial in 25 schools in three counties in Oregon. Schools were randomized to either the *Click City®: Alcohol* (n=12) or Usual Curriculum condition (n=13).

Results—Students who used the *Click City®: Alcohol* program significantly decreased their intentions to drink heavily in the future and their willingness to drink and drive, as compared to students in the Usual Curriculum control condition, although effect sizes were small. Changes in the targeted mechanisms were in the expected direction and were significant for all but one mechanism, with moderate effect sizes.

Conclusion—Our short-term findings provide preliminary support for the efficacy of the *Click City®: Alcohol* program to change adolescents' intentions and willingness to engage in heavy drinking. If the results are maintained over time, the program has the potential to prevent the onset of heavy drinking among teens and reduce the associated health consequences.

Keywords

Alcohol; Prevention; Computer-based; School-based; Risk

Introduction

Youth who engage in heavy drinking are likely to experience a number of problems associated with their use (Jackson, Sher, & Park, 2006), including driving while drunk (Jackson et al., 2006). The prevalence of heavy drinking (i.e., having more than two drinks per day for males and one drink per day for females, or consuming 5 or more drinks of alcohol in a row for males or 4 or more for females) among adults over age 21 (6% and 17%, respectively) has remained virtually unchanged for the past decade, presenting a significant public health challenge (CDC, 2014). In 2015, over 17% of high school seniors reported having five or more drinks of alcohol in a row on at least one occasion in the past two weeks (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2016).

We developed and tested a school-based, alcohol use prevention program for 7th and 8th grade students, with a focus on preventing heavy drinking. The *Click City®: Alcohol* program aimed to overcome limitations of previous prevention programs, such as lack of implementation fidelity and a primary focus on resistance skills training (Flay et al., 1989; Peterson, Kealey, Mann, Marek, & Sarason, 2000; Ringwalt et al., 2003; Skara & Sussman, 2003; Tobler et al., 2000). *Click City®: Alcohol* is an internet-based program designed to be interactive and engaging, and to deliver program content in a standardized method requiring little teacher involvement. The program aimed to change several etiological mechanisms based on diverse theoretical perspectives (Andrews, et al. 2011a; Andrews et al., 2014) in order to prevent future heavy drinking, and drinking and driving.

Etiological Mechanisms Targeted in *Click City®: Alcohol*

The mechanisms targeted in *Click City®: Alcohol* were derived from distinct theories regarding the etiology of unhealthy behaviors. The cognitive theories of Ajzen and Fishbein (Ajzen & Fishbein, 1980; Ajzen, 1988, 1991) and Gibbons and Gerrard (Gibbons & Gerrard, 1995, 1997), which emphasize the cognitive precursors of unhealthy behaviors guided the inclusion of descriptive norms (perceptions of which behaviors are typically performed), and social images of alcohol users/non-alcohol users as mechanisms, and intention and willingness as outcome variables. Slovic's work in risk perception and decision research (e.g., Slovic, Peters, Finucane, & MacGregor, 2005), and Fillmore's work on the relation of behavioral disinhibition and alcohol consumption (Fillmore, 2003; Fillmore, 2009), were used to identify additional mechanisms, including the risk of addiction, the perception of cumulative risk, optimism bias, and lack of control over drinking. *Click City®: Alcohol* components were based on a health cognitions model that assumes the initiation of heavy drinking is not based on deliberate, planned behavior, but rather reactive behavior that is influenced by affective processes (Gibbons, Gerrard, & Lane, 2003; Slovic et al., 2005).

Description of *Click City*[®]: *Alcohol*

We designed *Click City*[®]: *Alcohol* to be a universal prevention program, used by all students. We created content and designed the user interface to be appealing to those students most at risk for heavy drinking (e.g., high sensation seekers, those who had a family member who regularly drank alcohol). The program consists of six lessons delivered in 7th grade, with a two-lesson booster delivered in the 8th grade. The 7th grade program includes 16 activities combined into 10 components. The 8th grade booster was designed to maintain program effects over time, and includes seven activities combined into six components. Each component of *Click City*[®]: *Alcohol* was developed to target at least one etiological mechanism. The program allowed students to confidentially share beliefs and attitudes regarding alcohol. The program was designed with iterative feedback from focus and user groups, consisting of students matching our target population. The user interface and activities were designed to be fun, engaging, and affect-producing, particularly for at-risk youth. The 7th grade program activities and their associated mechanisms are listed in Table 1.

Evaluation of Individual Components

Before inclusion in the final *Click City*[®]: *Alcohol* program, all components were empirically evaluated to verify that they changed their targeted etiological mechanism. The methodology used for these evaluations is described in detail in a previous publication (Andrews Hampson, Greenwald, Gordon, & Widdop, 2010). Only components found to be effective at changing their targeted mechanism were included in the final *Click City*[®]: *Alcohol* program.

Evaluation of Program Efficacy One Week after 7th Grade Program Participation

As part of a larger study to assess the efficacy of the *Click City*[®]: *Alcohol* program in 9th grade (two years after program implementation), we also conducted a short-term evaluation using the one-week assessment that followed the 7th grade program implementation. We compared change in outcomes among students in *Click City*[®]: *Alcohol* schools versus those in schools using their standard alcohol prevention curriculum (Usual Curriculum; UC). Because the prevalence of heavy drinking is low in 7th grade, we focused on changing mechanisms predictive of future heavy drinking. Since both intention and willingness have been shown to independently predict subsequent drinking behavior (Andrews, Hampson, Barckley, Gerrard, & Gibbons, 2008b; Andrews, Hampson, & Peterson, 2011b; Gerrard et al., 2006), our primary outcomes were change in intention and willingness to engage in heavy drinking, and drinking and driving, in the future. In addition, we evaluated change in our targeted etiological mechanisms. We hypothesized that students who received the *Click City*[®]: *Alcohol* intervention would have decreased intentions for heavy drinking and decreased willingness to drink and drive, and that there would be more change on the theoretical mechanisms, compared to those in UC schools. Finally, we compared the program effects for “at risk” (having a family member who regularly drank alcohol, having drunk an entire drink of alcohol prior to the 7th grade assessment, or scoring high on sensation seeking or sociability) students versus those “not at risk” (Griffin, Botvin, Nichols, & Doyle, 2003). Both sensation seeking (Malmberg et al., 2012; Peeters et al., 2014; Roberti, 2003; Zuckerman, 1994) and sociability (Hampson, Andrews, Barckley, &

Severson, 2006; Hampson, Tildesley, Andrews, Luyckx, & Mroczek, 2010; Jessor & Jessor, 1977) are predictive of future alcohol use. We hypothesized that the program would be more efficacious at decreasing intentions for heavy drinking in the future and willingness to drink and drive in at-risk students, as compared to those not at risk. Gender was also included as a moderator to ensure that the program was equally effective across both genders. This paper reports on the change in short-term outcomes and mediating mechanisms from baseline to one-week following the implementation of the program in 7th grade.

Methods

Study Design

We conducted the efficacy trial in 25 schools in three counties in Oregon. For long-term follow-up purposes, we had to recruit both the high school and its feeder middle schools. High schools were then randomized to either the *Click City[®]: Alcohol* or UC condition, which varied across schools. Feeder middle schools were automatically assigned to their high school's experimental condition. There were a total of 12 feeder schools with 1,304 students who received the *Click City[®]: Alcohol* intervention, and 13 feeder schools with 1,151 students who continued with their usual alcohol prevention program. This study was approved by the Oregon Research Institute Institutional Review Board (IRB registration #00000278).

Participants

Schools ranged in size from 218 to 680, with an average size of 476. The population that schools served was primarily middle class, with two serving a more upper middle class population as measured by percent on free and reduced lunch (<20%) and seven serving a more lower middle class population (>60%). At baseline, there were no differences in several characteristics of participants across conditions in any of the variables we assessed (i.e., demographics, family alcohol use, or sensation seeking).

Procedures

We used a passive, written informed consent procedure, to ensure student anonymity. The average rate of passive consent across schools was 96.3%. All participating students in the 7th grade were assessed at baseline (one week prior to implementation of *Click City[®]: Alcohol* in their school), and one week after program completion. *Click City[®]: Alcohol* and UC schools were yoked for the timing of assessments.

Measures

The measures used in this study were based on measures validated and used in our previous studies (Andrews et al., 2008a, 2011a, 2011b, 2014) and pilot tested prior to use in this efficacy trial with 39 7th grade students. Estimates of stability are based on data from this pilot study and estimates of internal consistency reliability are based on the baseline assessment of the efficacy trial.

Primary Outcomes—Intention for heavy drinking in the future was measured by two items assessing the likelihood of heavy drinking in high school and following high school on a 4-point scale ($r_{t1t2} = .91$, $\alpha = .82$).

We assessed **willingness to drive after drinking** with three items, using a 5-point scale from not at all willing (1) to very willing (5) ($r_{t1t2} = .43$, and $\alpha = .62$).

Mechanisms—The measure of **descriptive norms** consists of two items assessing students' estimate of the number of students at school in their grade that have engaged in heavy drinking or gotten drunk, and the number of students their age in schools in their area who have engaged in heavy drinking or gotten drunk. This measure is reliable with 7th graders, and is predictive of intentions, willingness and subsequent alcohol use ($r_{t1t2} = .86$; $\alpha = .78$).

Adolescents rated **social images** with three positive adjectives describing what they “think kids who get drunk are like” on a five-point scale ($r_{t1t2} = .57$; $\alpha = .84$).

Students rated **normative social images** using the same three positive attributes as above for what they “think other kids their age think kids who get drunk are like”, on a five-point scale ($r_{t1t2} = .92$; $\alpha = .91$).

We assessed the **risk of** three short-term **negative consequences** “after drinking [one, three and five] drinks of alcohol” using a five-point scale. The nine items were summed ($r_{t1t2} = .81$; $\alpha = .92$).

Risk of two neurological consequences were each assessed using three items regarding heavy drinking “several times for one year”, “a couple of times a week for one year”, and “a couple of times a week for two years”, rated on a five-point scale. These six items were summed ($r_{t1t2} = .79$; $\alpha = .91$).

Risk of health consequences were each assessed with three items, “drinking a few drinks a week over one year”, “getting drunk a couple of times a week over five years” and “getting drunk a couple times a week over 10 years”. Each item was rated on a five-point scale ($r_{t1t2} = .81$; $\alpha = .92$).

Risk of drinking and driving was rated using three items, after “drinking one drink”, “three drinks”, and “five drinks”, using a five-point scale ($r_{t1t2} = .59$; $\alpha = .89$).

The **risk of getting addicted** was measured using three items. Items range from “heavy drinking/getting drunk several times for a period of one year” to “heavy drinking/getting drunk a couple times a week for a period of two years”, using a five-point scale ($r_{t1t2} = .57$; $\alpha = .86$).

Control over drinking used three items to assess a teen's control over stopping drinking and ability to resist having another drink after drinking two drinks, four drinks and getting drunk ($r_{t1t2} = .50$; $\alpha = .76$).

Personal risk of alcohol dependence was measured by a three-item scale using the stem, “What are the chances that you will spend a lot of your free time trying to obtain alcohol and drinking it after”...“heavy drinking/getting drunk several times for a period of one year” to “heavy drinking/getting drunk a couple of times a week for a period of two years”, using a five-point scale. Cronbach’s alpha was .91 at baseline. The scale was reliable ($r_{t1t2} = .57$; $\alpha = .86$).

Optimism bias regarding risk of dependence was measured by examining the association between personal risk and risk for others. Risk for others was measured using the same three-item scale as personal risk, but with the stem, “What are the chances that a teen will spend a lot of their free time trying to obtain alcohol and drinking it after...” ($r_{t1t2} = .57$; $\alpha = .84$).

Moderators—Drank an entire drink of alcohol was measured by two items with a dichotomous response format (yes/no). Responses were on a five-point scale. Participants were considered having drunk an entire drink if they answered yes to the lifetime question or had an entire drink at least once in the past 12 months. Stability was .48 for the first item and .87 for the second item.

Regular drinking by a family member was assessed using three items, “Does your mother/stepmother (father/stepfather; brother/sister) regularly drink alcohol (at least once a week);” ($r_{t1t2} = .83$ for mother, .74 for father, and .83 for sibling). If any member drank regularly, this measure was scored positively.

Sensation seeking was measured by the BSSS-4, a 4-item sensation seeking scale, shown to correlate with the longer measures of sensation seeking (Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002). Stephenson et al. (2003) showed that the internal consistency reliability of this scale was good, and this measure of sensation seeking was related to alcohol use by teens. Alpha at baseline was .83.

Sociability was measured by three items from the Big Five Inventory (BFI; John & Srivastava, 1999). Hampson and colleagues (Hampson, Andrews, Barckley, & Peterson, 2007) showed that sociability as measured by teacher’s ratings mapped onto these items from the BFI (Hampson et al., 2010). At baseline alpha was .60.

Results

Analysis Strategy

To control for randomization by school, data were analyzed using a general linear mixed model, with participants nested within schools and schools nested within condition. Both students and schools were random effects. Repeated measures analyses, with participants nested within schools, were conducted using the SAS Proc Mixed procedure.

The sample consisted of 2855 7th grade students who completed either the baseline or one-week assessment ($n = 1304$ in intervention and 1551 in UC). Among these, 158 students ($n = 53$ in intervention, 4.1% ; $n = 105$ in UC, 6.8%) missed the baseline assessment, and 246 students ($n = 109$ in intervention, 8.4% ; $n = 137$ in UC, 8.8%) missed the follow-up

assessment. Missing data were imputed using full information maximum likelihood methods.

We examined the moderating effects of the following variables on intentions to engage in heavy drinking and willingness to drink and drive by including them as interactions with condition and time in the model: gender; tried an entire drink of alcohol; family drinking; sociability and sensation seeking. For these analyses, the continuous variables (e.g., sensation seeking) were categorized into three groups: (1) high (+1 standard deviation above the mean); (2) low (-1 standard deviation below the mean); and (3) moderate (between +1 and -1 standard deviations from the mean). The effect of interest was the interaction of the moderator with both condition and time (a three-way interaction). If the three-way interaction (moderator $\times$ condition $\times$ time) was not significant, this interaction and the two-way interactions (condition $\times$ time) were dropped from the model, along with the main effect of the moderator, and the model was re-evaluated.

Program Completion

Among the 1304 intervention students, 114 (8.7%) never used the program at all. Among the 1,190 students (91.3%) who used the program, 888 (74.7%) completed the entire program. The remaining 302 students (25.4%) completed most (75%) of the program.

Correlation of Mechanisms with Outcome Variables

The correlation between intention to engage in heavy drinking and willingness to drink and drive at T1 was .11, and at T2 was .19. The correlations of mechanisms with outcome variables are displayed in Table 2. The majority of the correlations were small ($<.20$), but combined, the mechanisms explained a large proportion of the variance in intention to engage in heavy drinking at both T1 and T2 (T1: Multiple $R = .39$, $R^2 = .15$; T2: Multiple $R = .39$, $R^2 = .15$).

Change from Baseline to One-Week Follow Up

Changes in the primary outcomes were in the hypothesized direction (Table 3). Students who used the *Click City®: Alcohol* program significantly decreased their intentions to engage in heavy drinking in the future, and their willingness to drink and drive, as compared to students in UC. However, effect sizes for these outcomes were small (Cohen, 1988). Changes in the targeted mechanisms were in the expected direction and were significant. For most mechanisms, these effect sizes were moderate. For students in the *Click City®: Alcohol* schools versus UC: (1) Descriptive norms decreased and social images and normative social images of youth who get drunk became less favorable; (2) Risk perceptions of consequences associated with alcohol use increased; (3) Risk perceptions associated with addiction and alcohol dependence increased, the perception of personal control over drinking decreased, and optimism bias regarding the risk of alcohol dependence decreased. There were no moderators of intentions to engage in heavy drinking in the future. Only sociability moderated the effect on willingness to drive after drinking. Those who were lowest in sociability were most willing to drive after drinking, and willingness decreased the most for this group (Table 4).

Discussion

The preliminary results suggest that *Click City[®]: Alcohol* is efficacious in reducing 7th grade students' intentions and willingness to drink heavily or drink and drive. As noted by MacKinnon (1994), programs implemented with young students may not produce an immediate change in the distal outcome (i.e., drinking), particularly if the outcome has a low prevalence at program implementation. The use of *Click City[®]: Alcohol* changed the majority of mechanisms (proximal risk factors). *Click City[®]: Alcohol* may have the potential to delay or prevent heavy drinking and driving while drunk among youth (MacKinnon, 1994).

In addition, we believe that the development and evaluation process used in this study presents a model for effective program design. Although the evaluation of components is recommended for the development of prevention and/or intervention programs (Flay, 2000), this rarely occurs. There is mixed effectiveness of school-based tobacco prevention programs when components are evaluated after implementation (Wiehe, Garrison, Christakis, Ebel, & Rivara, 2005; Skara & Sussman, 2003). We believe that using a systematic evaluation approach prior to program implementation will maximize program impact.

Click City[®]: Alcohol has several advantages over more traditional school-based prevention programs. (1) It is well-grounded in theory. (2) The program is web-based and is highly disseminable, with almost 100% of schools connected to the Internet (Bybee, Powell, & Trowbridge, 2008). Access to *Click City[®]: Alcohol* is easy for students, and administration of the program is simple for teachers. (3) A major advantage of *Click City[®]: Alcohol* is that it overcomes issues of lack of fidelity and adherence in implementing school-based prevention programs, as it is delivered entirely online, requiring the teacher only to perform administrative and student tracking functions. All students advance through the program in a linear fashion, and the teacher has the ability to schedule make-up sessions for students who may miss a given class. Almost 75% of students accessed the entire program, and the remainder were exposed to the majority of program content. (5) *Click City[®]: Alcohol* was designed to be engaging and interactive, thus encouraging students to actively participate in the program. The program also allows students to engage in "experiential learning", an important method of behavior change (Slovic, 2001). Several activities offer students the opportunity to feel what it's like to be addicted to alcohol or experience the consequences of drinking and driving.

Limitations

The findings presented in this manuscript are limited to short-term (one-week) follow-up data. Even though these data are limited, they demonstrate change in the targeted mechanisms as a function of the intervention. Although we present only short-term findings, we intend to follow this cohort through the 9th grade to determine whether change in intention and willingness to engage in heavy drinking is maintained over time. In addition, we will assess initiation of heavy drinking for those students who did not report drinking at baseline.

We were not able to assess the relationship between program use and change in intentions and willingness. Over 91% of the students completed all or most of the program, limiting the variability of engagement in the program. Observational data and teacher feedback indicated that students enjoyed participating in the program.

Conclusions

Our short-term findings provide preliminary support for the efficacy of *Click City®: Alcohol* to change adolescents' intentions and willingness to engage in heavy drinking. The program is designed to be easily implemented with high fidelity in schools. If our results are maintained over time, the program has the potential to prevent the onset of heavy drinking among teens across the United States and reduce the health consequences associated with heavy drinking.

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Table 1Click City®: Alcohol 7th Grade Program Activities

Activity/Mechanism	Description
Classmates Descriptive norms; normative social images	Students take a survey about their intention to use alcohol and what they think of people who drink a lot. Students see how their classmates answered the questions about their intention to use alcohol and what they think of people who drink a lot.
Alcohol 101 Risk of short- and long-term physical consequences	Students find out about the chemicals in alcohol, how it's made, the amount of alcohol in different drinks, and how people can get dangerously drunk drinking mixed drinks.
Sociapedia Normative social images	Students watch videos of teens drinking alcohol to find out what <i>most</i> kids <i>really feel</i> about teens who drink.
BAC Lab Risk of short- and long-term physical consequences	Students learn how alcohol travels through the body, and what affects their Blood Alcohol Content (BAC).
Driving Game Risk of short-term physical consequences of driving drunk	Students learn that it's dangerous to drink and drive because alcohol affects their judgment, slows their reaction time, and causes them to take risks.
Puppet Game Risk of addiction, lack of control, difficulty in quitting	Students play a game to experience what it's like to lose control as a result of drinking a lot of alcohol.
Real Stories (If I hadn't been drinking...) Risk of short-term consequences	Students learn that getting drunk can get them into bad situations with serious consequences.
Optimism Maze Optimism bias, addiction	Students play a game in which they try and get through a maze without getting drunk. They learn that it's hard for everyone, including them, to stay in control once they start drinking.
Addiction 201 Risk of short- and long-term physical consequences	Students participate in experiments in the science lab to learn how teens become physically and mentally addicted to alcohol.
Cravings Game Addiction, power of cravings	Students play a video game that simulates what it's like trying to get alcohol to satisfy cravings.
Make a Friend Social images	Students create a virtual friend. They watch scenes of drunk teens at theatre, park, and football game and talk about what they really think about kids who get drunk a lot and get drunk.
Time Machine Risk of long-term physical consequences	Students use a time machine to virtually travel through time to learn what happens to the body as a result of long-term heavy drinking.
Neurological Consequences Risks of long-term neurological consequences of heavy drinking	Students visit the science lab to learn the effects of long-term heavy drinking on a teen's developing brain.
Take a Stand Make a commitment ¹	Students have the chance to post a statement about how they feel about alcohol and to view their classmates' statements.
Expectancies Positive expectancies regarding drinking alcohol and getting drunk	Students participate as observers in an experiment in which a group of college students think they are drinking alcohol, but they really aren't.
Summary A review activity	Students complete a review quiz summarizing the key points and concepts of each activity in Click City Alcohol.

¹ Making a commitment is based on cognitive dissonance theory and the accountability of making a public commitment. It does not target any of the mediating mechanisms we measured.

Table 2

Correlations between Outcome Variables and Potential Mechanisms at T1

Risk Factors	Intention to Get Drunk	Willingness to Drive After Drinking
Health Cognitions		
Descriptive norms re heavy drinking	.45 **	.04 *
Positive social images of kids who drink heavily/get drunk	.28 **	.10 **
Positive normative social images of kids who drink heavily/get drunk	.23 **	.06 **
Expectancies associated with alcohol use	.45 **	.09 **
Risk perceptions of consequences associated with alcohol use		
Risk of negative consequences	.12 **	.04 *
Risk of neurological consequences	-.15 **	-.05 *
Risk of health consequences	-.10 **	-.04
Risk of drinking and driving	.01 *	.01
Risk associated with addiction		
Risk of getting addicted	-.06 **	.01
Perception of personal control over drinking	.07 **	.04
Personal risk of alcohol dependence	.29 **	.11 **
Optimism bias regarding risk of alcohol dependence	-.23 **	-.08 **

*
p<.05;**
p<.01;***
p<.001;

Means of Primary Outcomes and Mediating Mechanisms by Intervention Condition and Assessment; Effect Size and F Value for the Condition $\times$ Time Interaction

Table 3

Risk Factors	Usual Curriculum		Click City®		d	F(1,23)
	Pre	Post	Pre	Post		
Primary outcomes						
Intention to drink heavily	4.06	4.40	4.00	4.14	.15	10.31**
Willingness to drive after drinking	6.39	6.21	6.40	5.89	.13	12.20**
Health Cognitions						
Descriptive norms re heavy drinking/getting drunk	3.00	3.09	2.90	2.86	.08	7.95**
Positive social images of kids who drink heavily/get drunk	4.79	4.53	4.43	3.57	.24	58.36***
Positive normative social images of kids who drink heavily/get drunk	5.88	5.44	5.57	3.99	.45	128.04***
Risk perceptions of consequences associated with alcohol use						
Risk of negative consequences	22.99	22.20	22.88	25.22	.42	114.34***
Risk of neurological consequences	21.30	20.51	20.98	21.99	.31	88.51***
Risk of health consequences	31.12	30.15	30.70	32.13	.34	94.99***
Risk of drinking and driving	16.30	15.59	16.22	17.95	.40	146.71***
Risk associated with addiction						
Risk of getting addicted	10.91	10.42	10.84	10.99	.24	38.86***
Perception of personal control over drinking	5.30	5.54	5.39	4.94	.34	81.56***
Personal risk of alcohol dependence	5.10	6.19	5.00	7.60	.45	117.35***
Optimism bias regarding risk of alcohol dependence	4.53	3.19	4.37	2.56	.13	7.88*

* p<.05;

** p<.01;

*** p<.001;

Table 4

The Moderating Effect of Sociability on Willingness to Drive after Drinking

	Usual Curriculum		Click City®		F(1,23)
	Pre	Post	Pre	Post	
Low Sociability	6.35	6.28	6.89	5.87	16.06**
Moderate	6.40	6.17	6.35	5.93	3.24 ns
High Sociability	6.39	6.28	6.11	5.74	1.02 ns

p<.001;