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One Size (Never) Fits All: Segment Differences Observed Following a School-Based Alcohol Social Marketing Program

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ABSTRACT

BACKGROUND

According to commercial marketing theory, a market orientation leads to improved performance. Drawing on the social marketing principles of segmentation and audience research, the current study seeks to identify segments to examine responses to a school-based alcohol social marketing program.

METHODS

A sample of 371 year 10 students (aged: 14–16 years; 51.4% boys) participated in a prospective (pre-post) multisite alcohol social marketing program. Game On: Know Alcohol(GO:KA) program included 6, student-centered, and interactive lessons to teach adolescents about alcohol and strategies to abstain or moderate drinking. A repeated measures design was used. Baseline demographics, drinking attitudes, drinking intentions, and alcohol knowledge were cluster analyzed to identify segments. Change on key program outcome measures and satisfaction with program components were assessed by segment.

RESULTS

Three segments were identified; (1) Skeptics, (2) Risky Males, (3) Good Females. Segments 2 and 3 showed greatest change in drinking attitudes and intentions. Good Femalesreported highest satisfaction with all program components and Skeptics lowest program satisfaction with all program components.

CONCLUSION

Three segments, each differing on psychographic and demographic variables, exhibited different change patterns following participation in GO:KA. Post hoc analysis identified that satisfaction with program components differed by segment offering opportunities for further research.

Alcohol consumption is an intrinsic part of the youth culture in industrialized countries and is considered integral to social interactions and celebratory events.[1, 2] Research indicates that youth often engage in “drinking” with the primary intention of becoming so inebriated as to experience a loss of control.[3] One in 5 Australians over the age of 14 years drinks at risky levels at least once a month[4] – defined as 6 or more standard drinks (10 g of alcohol) per occasion for males and 5 or more for females. One in 3 Australian youths directly experience alcohol-related violence by adulthood.[4] In the 15 to 34 year age group, alcohol causes more deaths and hospitalizations than tobacco and all illicit drugs combined.[5] Overall, alcohol-related social costs in Australia are estimated at Australian dollar (AUD) 15 billion per annum.[6] Public health initiatives addressing youth alcohol consumption have been based on the principle that prevention is more cost-effective than treatment.[7] There is an urgent need to address youth drinking cultures and school-based delivery offers an attractive and efficient means to reach a large number of adolescents.[8, 9]

School-based alcohol education programs have produced mixed results, with many showing modest effect sizes in the short-term and poor long-term outcomes.[9, 10] Efforts to improve long-term effectiveness have involved education programs being expanded to include several components delivered across multiple settings (communities, schools, and parents), and the incorporation of regular, follow-up “booster” sessions.[11] It is not yet clear if these resource intensive programs offer improved outcomes[12] and further research is required to disentangle more precise change mechanisms.[9]

A limitation of many alcohol and drug education programs is that they are designed for a general population using a 1-size-fits-all approach.[13] A 1-size-fits-all approach may limit program effectiveness as large numbers of the audience may be left dissatisfied, uninterested, or unchallenged.[14] Studies dating back to the early 1990s have indicated differential program effects[15] which challenged the effectiveness of 1-size-fits-all approaches.[16] Understanding differential success rates in education programs requires further research into the key components of target behaviors and their change mechanisms. A potential avenue for further investigation is identifying variation in program responses by student segments.

Social marketing is the adaptation of commercial marketing principles for social good and social marketing has been effective in addressing a broad range of issues in diverse areas including (but not limited to) breastfeeding, road safety, saving, recycling, and safer sex.[17-21] In contrast to allied health behavior change areas, social marketing is audience-centered and competitively minded as noted in the National Social Marketing Centre's benchmark criteria for designing social marketing programs.[22] Programs are developed based on audience research and competitor analysis ensuring social marketing gains necessary insights to meet the needs and wants of the target audience. Further, target audience feedback is used to inform program improvement.[23] In short, social marketing starts and ends with the target audience. According to commercial marketing theory this target audience or market orientation leads to improved performance (ie, greater levels of behavior change).[24, 25] Despite success in allied health behavior change areas, social marketing has received limited attention in alcohol education programs in school settings. The effectiveness of social marketing's application in an alcohol program in a school setting has been documented by Rundle-Thiele et al.[26] Despite success in allied health behavior change areas, social marketing has received only limited attention in the context of alcohol interventions delivered in school settings.

An effective strategy and key principle[22] in social marketing is market "segmentation" which is a core commercial marketing strategy.[27] A segmentation study aims to identify, often via cluster analysis methods, groups of individuals who are likely to exhibit similar needs, preferences, motivations, and/or behaviors. According to Kotler[28] a segmentation study can comprise up to 4 bases: demographic, psychographic, geographic, and behavioral, to identify meaningful segments. Rundle-Thiele et al[29] indicate that whereas there has been mixed used of demographic, behavioral, psychographic, and geographic segmentation bases, the majority of studies use 2 or more segmentation bases. Once different segments are identified, a social marketer targets the group or groups (target marketing) that promise most behavior change potential.[21] In achieving different profiles of adolescents, it is possible that more effective programs can be tailored catering to each segment's needs and wants to build on the modest effect sizes of existing, generic approaches to school-based alcohol education programs.

It is proposed that school-based alcohol education programs tailored to the characteristics of targeted adolescents may be more effective than generic approaches. Against this background, the purpose of the current study was to identify if segments (groups) were evident at baseline on key factors across 2 segmentation bases, and whether the segments differ in terms of response to the program and satisfaction with measured program components. Interestingly, whereas some programs have begun to focus on ethnic,[30] high risk,[31-33] and sex,[34] to date, studies have not implemented a complete segmentation process to identify homogenous groups of adolescents within their study population.

In contrast to earlier studies, this research adopts key social marketing benchmark criteria of segmentation and audience research to ascertain whether unique groups exist and how these groups differ in their response to and satisfaction with a social marketing alcohol education program. This research assessed whether segments within the target population of 14- to 16-year-old adolescents were evident at baseline using 2 segmentation bases (psychographic and demographic). As part of the Game On: Know Alcohol (GO:KA) pilot study, demographics (age and sex) and psychographics (knowledge about alcohol), attitudes toward binge drinking (defined as more than 6 standard drinks in any one day), and intentions toward moderate drinking (defined as more than 2 standard drinks in any 1 day) were selected to evaluate pilot study effectiveness. Alcohol knowledge, attitudes toward binge drinking, and intentions toward no or moderate drinking are key modifiable constructs included in effective alcohol education programs.[9, 35, 36]

Social marketing, with its audience-oriented focus, provides a bottom-up research philosophy where insights gained from the target audience can be used to inform program improvement.[37] On the basis that satisfaction leads to loyalty (repeated behavior) in commercial marketing,[38] this study also undertook an examination of student satisfaction with program components to gain segment-based audience insights. The main purpose of the current study is to identify if segments (groups) are evident at baseline and whether the segments differ in terms of response to the program and satisfaction with the program components that they experienced during GO:KA. The analysis performed seeks to gain additional audience insight for subsequent program development.

METHODS

Participants

Three out of 4 schools approached participated in the GO:KA pilot study, following active informed parental and student consent. These schools were selected on the basis of geographical convenience, and were within a broader catchment of 92 Catholic schools in Queensland, Australia. A total of 382 students (mean age: 14.77) from inner-city metropolitan Catholic high schools took part in the pre-survey. A total of 343 students (183 males and 160 females) completed the post-survey, representing a 70.7% retention rate.

The Game On: Know Alcohol Program

The GO:KA program was designed by social marketing researchers using 8 social marketing benchmark criteria.[22] These criteria include behavior change, customer orientation, theory, insight, competition, exchange, segmentation, and methods mix. A complete description outlining how GO:KA was based on the 8 social marketing benchmark criteria is available in Rundle-Thiele et al.[26] GO:KA seeks to increase knowledge relating to alcohol, change drinking attitudes, and decrease intentions to drink alcohol.[26] Starting with formative and competitive research to understand student and educator preferences for alcohol education, GO:KA was developed to provide an interactive student-centered program involving both online and offline activities to maximize learning. The GO:KA program featured a combination of online games and practical activities in a 6-lesson program targeting 14- to 16-year-old adolescents. A total of 9 activities, 4 online activities (3 games and 1 quiz), and 5 experiential activities underpinned the pilot study design. The specific aims of the program were to (1) illustrate the effects of alcohol; (2) promote an understanding of units of alcohol measurement (standard drinks); and (3) provide strategies to drink alcohol in moderation and improve drinking refusal self-efficacy skills.

Instruments

An online repeated measures survey was completed by all participants prior to participating in the GO:KA program and post-delivery. Pre- and post-survey responses were on average 3 weeks apart with the GO:KA program taking place immediately after the first survey. The survey included demographic items of age and sex, and psychographic measures designed to capture knowledge about alcohol, attitudes toward binge drinking (defined as more than 6 standard drinks in any 1 day), and intentions toward moderate drinking (defined as 2 standard drinks in any 1 day). Attitude measures toward binge drinking were adapted from prior research[35, 39] and consisted of 5 bipolar items rated on a 7-point bipolar rating scale (α: 0.90) with −3 indicating a negative attitude toward binge drinking and +3 indicating a positive attitude. Behavioral intention measures were adapted from previous research.[35, 39] A total of 3 bipolar items were used to measure students' intentions toward moderate drinking (2 standard drinks) on a 7-point rating scale (α = 0.83) with −3 indicating negative intentions and +3 positive intentions. An alcohol knowledge index was created for this study following procedures used in prior studies.[35, 40] Alcohol knowledge was tested asking students 10 questions relating to low-risk alcohol consumption levels (6 items) and drink driving questions (2 items) and number of standard drinks in different alcoholic beverages (2 items). Answers were awarded with a score of 1 if the respondent gave an accurate answer. An overall knowledge score (maximum 10) was then calculated. Students' satisfaction with the GO:KA program

and its components was measured with 5-point Likert-scales where 1 = "very satisfied" and 5 = "dissatisfied" indicating whether students enjoyed a particular activity or not. Summary scores included online game satisfaction, practical activity satisfaction, and an overall total satisfaction score was calculated.

Data Analysis

Data analysis involved a 3-step process. First, segmentation was conducted using TwoStep cluster analysis and baseline measures that included demographic factors, namely age and sex, along with psychographic factors, namely drinking attitudes, drinking intentions, and alcohol knowledge to identify if homogenous sub-groups of students were distinguishable on the basis of pre-program data. TwoStep cluster analysis allows for categorical and continuous variables to be entered simultaneously.[41] Second, repeated measures analysis of variance (ANOVA), with post hoc group analysis, was conducted to identify pre-post changes within segments to understand whether there were significant differences between the segments. Finally, ANOVA was undertaken to determine whether satisfaction with GO:KA program components differed between the 3 segments.

RESULTS

Segmentation

The results of the TwoStep cluster analysis are shown in Table 1. TwoStep cluster analysis produced a sample (N = 371) with a silhouette measure of cohesion and separation of 0.2. The overall attitude measure was the most distinguishing characteristic with predictor importance scores of (1.0), followed by sex (0.66), 4 individual attitude items (0.71-0.18), intentions toward moderate drinking (0.1), and knowledge as the least important (0.01). A silhouette measure of more than 0.0 is needed for the within-cluster distance and the between-cluster distance to be valid. A 3-segment solution emerged.

In contrast to the second and third segments, the first segment (Skeptics) included a mix of males (61.7%) and females. This segment featured the lowest-risk drinking attitudes and intentions to drink alcohol at baseline. Segment 2 (Risky Males) represented males that had high-risk attitudes and high-risk intentions prior to taking part in the GO:KA program. This segment also had the lowest overall knowledge score at baseline. Segment 3 (Good Females) were younger females, who had low-risk attitudes toward excessive drinking and neutral intentions to drinking moderately. Segment 3 had the highest knowledge score.

Program Response-Based on Identified Segments

Repeated measures ANOVA was conducted following segment identification to examine group changes over time and post hoc analyses further examined potential differences between the 3 segments. Attitude, behavioral intention, and knowledge change for the 3 groups are reported in Figure 1 and Table 2.

Attitudes toward excessive drinking changed over time in the sample as a whole (Hotelling's T2 = 0.224, F = 62.171, p < .001) and group differences were also evident across segments (Hotellings T2 = 0.296, F = 41.201, p < .001). Notably, Segment 1 (Skeptics) had the most negative attitudes toward excessive drinking pre- and post-intervention. Segment 2 (Risky Males) and Segment 3 (Good Females) attitudes toward excessive drinking improved following participation in GO:KA (Figure 1), with Good Females having the largest attitudinal change.

Intentions toward moderate drinking did not change over time (Hotellings T2 = 0.02, F = 0.564, p > .05). However, post hoc analysis revealed significant group differences between segment 1 (Skeptics) and 2 (Risky Males), and segment 2 and 3 (Good Females) (Hotellings T2 = 0.039, F = 5.360, p < .001) over time. Segment 2 and Segment 3 had more positive intentions toward moderate alcohol consumption (Figure 2). Segment 1's behavioral intentions to drink moderately reduced, but remained the second lowest drinking intentions of all 3 segment solutions.

Segments by Individual Component Satisfaction.

1Likert-scale (1: very dissatisfied, 5: very satisfied).

Overall, knowledge about alcohol increased significantly over time (Hotelling's T2 = 0.09, F = 24.377, p < .001). No differences were observed between the segments (Hotelling's T2 = 0.01, F = 1.362, p > .05). Taken together, results suggest GO:KA increased knowledge in all 3 segments, improved attitudes toward excessive drinking in 2 segments (Risky Males and Good Females) and change behavioral intentions in only 1 segment, ie, Good Females.

Satisfaction With GO:KA

ANOVA was undertaken to examine group differences for satisfaction with the GO:KA program as a whole and its individual program components. Table 3 contains individual means, standard deviations, and significance levels. Segment 3 (Good Females) was the most satisfied with the program, followed by Segment 2 (Risky Males), and Segment 1 (Skeptics). Among the practical activities, “wearing beer goggles” had the highest satisfaction scores while the “Don't turn your night into a nightmare” received the highest satisfaction ratings among the online activities. Figure 2 contains segment satisfaction scores for individual program components.

DISCUSSION

The social marketing principle of segmentation remains largely untested in school-based alcohol education programs; yet, some research indicates that it may have a lot to offer in this context.[42, 43] A number of drug programs have targeted specific subpopulation groups based on ethnicity,[30] high-risk,[31-33] and sex.[34] However, none have conducted comprehensive demographic, attitudinal, and knowledge profiles prior to an intervention, and examined program response for different segments. The results of the current study suggest that this type of segmentation may be an effective building block in the development and delivery of alcohol education programs. The identification of 3 segments in a student population based on factors pertinent to alcohol consumption behaviors emerged in this study. Good Females showed the largest positive attitude

shift along with the most favorable satisfaction ratings for the GO:KA program. On the contrary, GO:KA received the lowest satisfaction scores from the Skeptics who did not resonate, indicated by lower satisfaction scores, with the program content. These segment differences indicate that 1 size does not fit all and that it is important to think about more tailored program solutions as one means to improve effect sizes.

Previous alcohol and drug education research has documented a lack of effectiveness to change behavior long term.[9, 10] Target audience-oriented program assessment based on satisfaction scores and segmentation analysis may bring further insights into what 14- to 16-year-old adolescents like or dislike. Social marketing programs focus on the target audience and tailor their program design to meet the needs and wants of their audience. According to marketing theory, individual segments require marketing strategies that specifically meet their needs and wants. A social marketing approach requires considering multiple bases (psychographic, demographic, geographic, and behavioral) in segmentation analysis with the aim to identify homogeneous subgroups among a heterogeneous student population. The social marketing principle of segmentation can be used to understand group differences in study populations. Student satisfaction can then be used to understand program satisfaction and preferences among the different segments. Together these insights warrant future research efforts that should be directed at comparing a 1-size-fits-all approach with differential program delivery. Social marketing and in particular segmentation and audience research in the form of student satisfaction, allows for a new process to gain insights into student response to delivered programs, representing a methodologically innovative approach that to the best of these researchers knowledge has not yet been applied in alcohol education context. The current evaluation suggests that differential programs may be required to achieve change in unchanged segments (eg, Skeptics).

Limitations

The study does have some limitations. Whereas the multisite study increases generalizability of results, participants were all students from inner-city, metropolitan, private schools drawn from a single religious denomination (Catholic). This focus potentially restricts application to other or nonsecular schools. Factors known to be associated with substance use, such as peer use, smoking status, previous drinking history, behavioral problems, and family history,[44] would have strengthened the segmentation analysis. More research is required to investigate how the segments identified in the current study may vary with the addition of constructs and contexts. The current study applied an important but narrow range of psychographic and demographic variables that have been identified previously as the most commonly used segmentation variables in commercial marketing.[29] Inclusion of geographic and behavioral segmentation variables is warranted to extend understanding. Cluster analysis identifies segments sharing similarities that are uniquely different from other groups. The addition of variables and extension into a larger sample is expected to alter group composition. More research should be conducted to validate segments across various populations.

The design was not controlled and it would be desirable if future research included a measurement only condition. Our retention rate was 70%, which is comparable with other school-based studies. However, a higher retention rate would have strengthened conclusions drawn from these data. It is

possible that students that were at greatest risk were those not retained in the evaluation potentially inflating the positive outcomes observed in this study.

It is important to note that to date GO:KA has only been tested in an Australian context. Given the substantial differences in culture, society, and infrastructure, the applicability of GO:KA to other contexts in uncertain.[45] Additional research is recommended. GO:KA needs to be delivered and tested in other countries to consider whether the program can be equally effective in a broader range of contexts.

Conclusion

The findings of this study suggest that a 1-size-fits-all approach to school-based education programs may not be the most effective approach to reduce alcohol-related harm. Segmentation and audience research, borrowed from social marketing, can provide insights into program strategy development and can assist alcohol educators to identify the underlying motivations of each segment. It is likely that more tailored approaches will also be more enjoyable and engaging for more students. Understanding different segments and their program satisfaction provides unique insights into what students' like and dislike in alcohol education programs.

IMPLICATIONS FOR SCHOOL HEALTH

A practical limitation results in screening and allocating students to different program deliveries, which would require an approach whereby students take a survey for the purposes of being allocated into a segment prior to program commencement. The challenge of finding suitable and cost-effective ways to screen and deliver are of paramount importance if differential delivery of programs targeting segments is to be achieved. One way of addressing this implementation barrier is by utilizing technology for a more economical and larger scale distribution.[46] Computer technology is a key ingredient for future alcohol programs to target and consequently better meet the needs and wants of the young technology savvy generation and to allow for most effective data collection and large-scale implementation.[47] Students could first complete a test to identify their segment (or profile). Following segment identification a customized computer-assisted technology platform would deliver tailored alcohol education programs based on the segment identified. Schools may benefit from a computer-assisted program as it is likely to decrease time in classroom, be engaging and student centered.[48] Future research needs to investigate the causal link between program satisfaction and the degree of change to ascertain whether satisfaction with the overall program and/or its components delivers higher levels of change.

A review of the National Centre for Education and Training on Addiction conducted by Roche et al[8] recommended that alcohol education needs to be innovative, based on theory, interactive, and activity oriented. Schools are pressured to cover a broad range of concerns regarding young peoples' health such as obesity, mental health, violence, road safety, sexual health, body image, and other emerging issues that are relevant to modern society (gambling and cyber-bullying).[49] Alcohol remains a key social issue and is one of the most pressing issues in Australian and other Western societies, but often falls short due to competing curriculum demands. Developed by social marketers

GO:KA aims to support schools in their health and physical activity education programs to teach adolescents about alcohol and provide teachers and schools with an easy accessible program. The aim was to provide teachers with a resource that does not require them to take part in a comprehensive teacher training prior to program delivery. Reducing the workload for teachers is a key element in reducing previous documented fidelity issues that occur in wide-scale program dissemination.[47] Requiring few additional resources costing as little as $0 and as much as AUD $1000 (depending on the number of resources purchased and activities implemented by the school), GO:KA provides a platform for teachers to deliver an easy, fun, and interactive alcohol education program to students.

Whereas segmentation resulted in very distinct groups insofar as attitudes toward alcohol and knowledge are concerned, program(s) to address these differences do not exist at this stage. However, at time of final submission data collection for the formative research phase had been undertaken to inform segmented program development. You can stay informed by visiting and registering on our project homepage (http://gameon.rcs.griffith.edu.au.ezproxy.library.uq.edu.au).

Human Subjects Approval Statement

This study was approved by Griffith University Ethics Committee and is recorded under MKT/26/10/HREC.

Ancillary

REFERENCES

1 Shanahan P, Wilkins M, Hurt N. National alcohol strategy 2001 to 2003–04. Department of Health and Ageing. Available at: http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/Publishing.nsf/content/alc-strategy. Accessed October 29, 2013.

2 Kirby T, Barry A. Alcohol as a gateway drug: a study of US 12th graders. J Sch Health. 2012;82(8):371-379.

3 Kubacki K, Siemieniako D, Rundle-Thiele S. College binge drinking: a new approach. J Consum Mark. 2011;28(3):225-233.

4 Australian Institute of Health and Welfare (AIHW). National Drug Strategy Household Survey: State and territory supplement. Canberra, Commonwealth of Australia; 2007.

5 National Health and Medical Research Council (NHMRC). Australian guidelines to reduce health risks from drinking alcohol. ISBN 1864963743: Commonwealth of Australia; 2009.

6 Collins D, Lapsley H. The Costs of Tobacco, Alcohol and Illicit Drug Abuse to Australian Society in 2004/2005. Canberra, Australia: Commonwealth Department of Health and Ageing; 2008.

7 Goetzel R. Do prevention or treatment services save money? The wrong debate. Health Aff (Millwood). 2009;28(1):37-41.

8 Roche A, Bywood P, Hughes C, Freeman T, Duraisingam V, Trifonoff A, et al. The role of schools in alcohol education. Final report to the Australian Government Department of Education, Employment and Workplace Relations. Commonwealth of Australia; 2010.

9 Foxcroft D, Tsertsvadze A. Universal school-based prevention programs for alcohol misuse in young people (review). Evid Based Child Health. 2012;7(2):450-575.

10 Babor T, Caetano R, Casswell S, et al. Alcohol: No Ordinary Commodity Research and Public Policy. Oxford, UK: Oxford University Press; 2010.

11 Nation M, Crusto C, Wandersman A, et al. What works in prevention; principles of effective prevention programs. Am Psychol. 2003;58:449-456.

12 McBride N. A systematic review of school drug education. Health Educ Res. 2003;18(6):729-742.

13 Botvin G, Griffin K. School-based programmes to prevent alcohol, tobacco and other drug use. Int Rev Psychiatry. 2007;19(6):607-615.

14 Snyder L, Hamilton M, Mitchell E, Kiwanuka-Tondo J, Fleming-Milici F, Proctor D. A meta-analysis of the effect of mediated health communication campaigns on behavior change in the United States. J Health Commun. 2004;9(S1):71-96.

15 Dielman T. School-based research on the prevention of adolescent alcohol use and misuse: methodological issues and advances. J Res Adolesc. 1994;4(2):271-293.

16 Offord D. Selection of levels of prevention. Addict Behav. 2000;25(6):833-842.

17 Donovan R, Henley N. Principles and Practice of Social Marketing: An International Perspective. Cambridge, UK: Cambridge University Press; 2010.

18 Hastings G, Domegan C. Social Marketing: From Tunes to Symphonies. New York, NY: Taylor & Francis; 2014.

19 Lefebvre RC. Social Marketing and Social Change: Strategies and Tools for Health, Well-Being, and the Environment. San Francisco, CA: Jossey-Bass; 2013.

20 French J, Merrit R, Reynolds L. Social Marketing Casebook. London, UK: Sage Publications Inc; 2011.

21 Lee N, Kotler P. Social Marketing Influencing Behaviors for Good. 4th ed. Thousand Oaks, CA: Sage; 2011.

22 National Social Marketing Centre (NSMC). Social marketing benchmark criteria. Available at: http://www.thensmc.com/sites/default/files/benchmark-criteria-090910.pdf. Accessed October 30, 2013.

23 Walsh D, Rudd R, Moeykens B, Moloney T. Social marketing for public health. Health Aff. 1993;12(2):104-119.

24 Helfert G, Ritter T, Walter A. How does market orienation affect business relationships? 17th Annual International Research Conference on Industrial Marketing and Purchasing (Oslo, Norway, 2001). Available at: http://www.impgroup.org/uploads/papers/194.pdf. Accessed October 30, 2013.

25 Narver J, Slater S. The effect of market orientation on business profitability. J Mark. 1990;54(4):20-35.

26 Rundle-Thiele S, Russell-Bennett R, Leo C, Dietrich T. Moderating teen drinking: combining social marketing and education. Health Educ. 2013;113(5):392-406.

27 Weinstein A. Marketing Segmentation: Using Demographics, Psychographics and Other Niche Marketing Techniques to Predict Customer Behavior. Revised ed. Chicago, IL: Probus Publishing Co; 1994.

28 Kotler P. Principles of Marketing. Englewood Cliffs, NJ: Prentice Hall; 1980.

29 Tkaczynski A, Rundle-Thiele S, Beaumont N. Segmentation: a tourism stakeholder view. Tour Manage. 2009;30(2):169-175.

30 Kulis S, Yabiku S, Marsiglia F, Nieri T, Crossman A. Differences by gender, ethnicity, and acculturation in the efficacy of the keepin' it REAL model prevention program. J Drug Educ. 2007;37(2):123-144.

31 Conrod P, O'Leary-Barrett M, Newton N, et al. Effectiveness of a selective, personality-targeted prevention program for adolescent alcohol use and misuse. JAMA Psychiatry. 2013;70(3):334-342.

32 Conrod P, Stewart S, Comeau N, Maclean A. Efficacy of cognitive-behavioral interventions targeting personality risk factors for youth alcohol misuse. J Clin Child Adolesc Psychol. 2006;35(4):550-563.

33 Newton N, Teesson M, Barrett E, Slade T, Conrod P. The CAP study, evaluation of integrated universal and selective prevention strategies for youth alcohol misuse: study protocol of a cluster randomized controlled trial. BMC Psychiatry. 2012;12(118):1-10.

34 Schinke S, Cole K, Fang L. Gender-specific intervention to reduce underage drinking among early adolescent girls: a test of a computer-mediated, mother-daughter program. J Stud Alcohol Drugs. 2009;70(1):70-77.

35 Fishbein M, Ajzen I. Predicting and Changing Behavior – The Reasoned Action Approach. New York, NY: Taylor & Francis Group; 2010.

36 Kelly A, Connor J, Toumbourou J. Substance use disorders in young people: evidence-based prevention and treatment. In: Caltabiano ML, Ricciardelli LA, eds. Applied Topics in Health Psychology. Chichester, UK: Wiley-Blackwell; 2013:333-347.

37 Domegan C, Collins K, Stead M, McHugh P, Hughes T. Value co-creation in social marketing: functional or fanciful. J Social Mark. 2013;3(3):239-256.

38 McDougall G, Levesque T. Customer satisfaction with services: putting perceived value into the equation. J Serv Mark. 2000;14(5):392-410.

39 Norman P, Conner M. The theory of planned behaviour and binge drinking: assessing the moderating role of past behaviour within the theory of planned behaviour. Br J Health Psychol. 2006;11(1):55-70.

40 Rundle-Thiele S, Ball K, Gillespie M. Raising the bar: from corporate social responsibility to corporate social performance. J Consum Mark. 2008;25(4):245-253.

41 Tkaczynski A, Rundle-Thiele S, Beaumont N. Destination segmentation: a recommended two-step approach. J Travel Res. 2010;49(2):139-152.

42 Mathijssen J, Janssen M, van Bon-Martens M, van de Goor I. Adolescents and alcohol: an explorative audience segmentation analysis. BMC Public Health. 2012;12(742):1-10.

43 Moss H, Kirby S, Donodeo F. Characterizing and reaching high-risk drinkers using audience segmentation. Alcohol Clin Exp Res. 2009;33(8):1336-1345.

44 Hawkins J, Catalano R, Miller J. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. Psychol Bull. 1992;112(1):64-105.

45 Tapp A, Spotswood F. Beyond persuasion: a cultural perspective of behaviour. J Social Mark. 2013;3(3):275-294.

46 Papastergiou M. Exploring the potential of computer and video games for health and physical education: a literature review. Computers Educ. 2009;53(3):603-622.

47 Vogl L, Teesson M, Newton N, Andrews G. Developing a school-based drug prevention program to overcome barriers to effective program implementation: The CLIMATE schools: Alcohol module. Open J Prev Med. 2012;2(3):410-422.

48 Lustria M, Cortese J, Noar S, Glueckauf R. Computer-tailored health interventions delivered over the web: review and analysis of key components. Patient Educ Couns. 2009;74(2):156-173.

49 Australian Curriculum, Assessment and Reporting Authority (ACARA). Health and physical education year 9 and 10. Sydney: ACARA. Available at: http://www.australiancurriculum.edu.au/Browse?a=HPE&y=10&layout=2&browseLayout=2. Accessed August 14, 2014.