Executive Summary

Over the past three years, the University of Virginia's Division of Student Affairs and Department of Systems and Information Engineering (SIE) have partnered to mentor students in creating effective social norms-based alcohol education materials while fulfilling required academic credits. These curriculum infusion efforts have focused on the Foxfield Races, an annual off-campus equestrian event that draws over 8,000 students from the University of Virginia (U.Va.) and surrounding colleges. While Foxfield offers many students an opportunity to celebrate the end of the school year, the all-day tailgate event is often the scene of excessive drinking and adverse consequences. Using collaborative peer leadership, the curriculum infusion project enhanced educational efforts to reduce hazardous drinking, accompanying negative consequences and the secondhand effects of drinking.

The graduation requirements for students majoring in Systems Engineering include the Capstone Program, in which students solve real problems for real clients while under the mentorship of faculty advisors. As part of the Capstone Program, four fourth-year students implemented and evaluated a social marketing campaign and created a curriculum infusion component for a system evaluation course. Evaluation data indicates that exposure to the campaign is significantly associated with declines in student drinking, more accurate perceptions of others' drinking, and decreased negative consequences incurred from drinking.

After several alcohol-related incidents at the 2005 Races, the local police department developed a coalition of law enforcement agencies and citizen advocacy groups to work with the Foxfield Racing Association to create a safer environment for race attendees and local residents. Existing initiatives prior to 2006 included increased law enforcement, a sober driver program, a Safe Ride Home cab program, emergency medical services at the race area and a tent with free water and snack foods for students. However it was not clear if (or how well) these interventions were working.

In 2005, a fourth-year SIE student developed and administered a web-based survey to measure drinking norms at the Foxfield Races in hopes of using the results to create a safer environment at future Races. In 2006, third-year students in a systems evaluation course fulfilled a case study assignment by analyzing the Foxfield survey data to help identify at-risk sub-populations. Four students in that course then created a Capstone team in 2007-08 to develop and implement a series of six posters, newspaper ads, electronic messaging board displays, handbills and imprinted cups. Messages focused on correcting misperceptions of drinking, increasing safe drinking habits, increasing knowledge of the location of the first aid tents, and encouraging safe transportation from the event. The team conducted data analysis, made two conference presentations and published two academic papers. These year-long curriculum infusion projects were co-advised by a faculty member in the SIE department and the director of the Center for Alcohol and Substance Education, a unit of the Office of the Dean of Students.

Award Description

Positive impact on student learning, transitions, retention, and/or success

The educational programs successfully impacted student drinking behaviors at the Foxfield Races and had a measurable impact on the students who created the programs. Members of the 2007-08 Systems and Information Engineering (SIE) Capstone team developed their skills by creating and implementing an evaluation tool, analyzing data, creating and implementing an educational campaign, publishing two academic papers and delivering two conference presentations. In their post-Capstone self-assessments, the SIE students agreed or strongly agreed that as a result of the project, they had a strong understanding of how engineered systems affect and are affected by societal systems and they had a strong understanding of what systems engineering entails. Three of the four students agreed/strongly agreed that the project helped them be adequately exposed to professional, real world activities related to systems engineering and they had a strong understanding of the limitations of systems engineering.

Furthering the curriculum infusion, the students in the Capstone team created a case study assignment for third-year SIE students in a statistics course that not only helped the younger students become aware of protective behaviors when drinking, but also engaged them in systems engineering topics. Based on verbal evaluations from students in the course, they found that providing a real situation to use new statistical skills on a topic that impacts their lives directly was engaging and assisted them in learning subject matter that otherwise did not hold much interest for them.

Relevance to institutional mission

The Foxfield project was developed to promote student health and safety, which is closely aligned with "…the intentions of Thomas Jefferson, to attend to [students'] total development and well-being; and to provide appropriate intellectual, athletic, and social programs" (U.Va. mission statement). Dissemination of the materials to other colleges reflects the University's mission "to cooperate with and assist other colleges, educational institutions, and agencies…by making available to them …the experience and counsel of its members so as to contribute to education in the Commonwealth and beyond."

The project actively supports the university's academic mission by providing multiple opportunities for students to receive academic credit and fulfill degree requirements in the SIE department. Since 2005, twelve students have worked on the project, five of whom used the project to fulfill their SIE Capstone Program requirement. Two students created independent study courses and five students created a group project for an SIE course.

Demonstration of success in addressing student needs and/or critical campus issues

Results of self-reported data from students who attended the 2008 Foxfield Races indicate that the alcohol education efforts were successful in reducing student drinking and negative consequences. Students who drank and remembered seeing campaign elements consumed fewer drinks than those who did not see any of the educational materials. Students who saw at least

four of the eleven campaign elements reported drinking less than the typical student at the Races. As exposure to prevention messages increased, students' estimated BAC showed a significant decrease and the percentage reporting adverse consequences declined. In 2008, 38% of students reported suffering at least one negative consequence compared to 46.9% of students in 2007. Approximately 8,000 students attend the Races each year, so this decline represents 700 fewer students experiencing adverse consequence in 2008. In 2007, 42.1% of students reported at least one negative consequence of another's drinking, which decreased to 34.4% of students in 2008 – an 18% decrease, or over 600 fewer students experiencing a negative consequence of another's drinking.

Secondary data substantiates the positive impact of the student project. Local buses provide roundtrip rides for $10.00, and free rides back to U.Va. In 2006, just over 500 students took the buses to the Races, while over 1,000 took a bus home. With increased publicity in 2008, 862 students took a bus to the Races (>70% increase) and 1,263 took a bus home (>25% increase).

Importance to one or more program areas included in this category

The curriculum infusion project focused on the Foxfield Races was designed to promote student health and wellness and reduce harm from excessive alcohol use. The project educated students on protective drinking behaviors, ways to identify alcohol poisoning, how to intervene with friends who had consumed too much alcohol, and resources available at the Races, including the presence of first-aid stations and free transportation home.

Collaboration with academic affairs and other departments

This curriculum infusion project has only been possible though an ongoing, intensive partnership between the Office of the Dean of Students' Center for Alcohol and Substance Education (CASE) and the SIE Department. The CASE Director and an SIE Associate Professor met with the Foxfield Capstone project student throughout the 2005-06 academic year to develop and implement the first survey of student behaviors at the Foxfield Races. Students in the System Evaluation course presented their analysis of the case study on the Foxfield data to the CASE Director in Spring 2007. This collaboration continued from Fall 2007 to the present through weekly meetings with the students involved in Capstone teams, independent study courses and class projects.

Originality and creativity

This project represents one of the first collegiate efforts to apply social norms marketing methodology to reduce student drinking at annual celebratory events. The project is also unique in the level of student involvement in every aspect of social marketing, media development and the deep level of curriculum infusion. This curriculum infusion project involves creative use of co-mentoring in which the CASE Director is the "client" for whom the students are working, while the SIE faculty member serves as the academic mentor.

Effective use of technology and other resources

Every aspect of this project required creative use of technology by the students. They created a web-based survey to collect anonymous data on student behaviors at the Races which formed the basis of a social marketing campaign. The campaign was pre-tested using student focus groups recruited through email listservs and selected using a web-based form. For final market testing, the students created a website where community stakeholders (e.g., Foxfield Racing Association, local police and emergency medical personnel) could view and approve the media. The students then revised and re-implemented the online survey to provide evaluation data.

The campaign strategy included an electronic component with displays on U.Va.'s electronic messaging boards and a scrolling PowerPoint presentation at a pre-Foxfield education session with 500 attendees. The media campaign messages were included in emails to students who bought race tickets online and in emails sent to U.Va. students by the Vice President and Chief Student Affairs Officer (VPSA). The VPSA also sent a version of the student safety email to her counterparts at all Virginia schools.

Innovative practical use of research and/or assessment and linking to learning outcomes

This project is completely integrated into the curriculum, with students receiving academic credit for their work and consequently assessed on learning outcomes for their course work based on established SIE department guidelines. The students created measureable outcomes for the educational campaign and gathered data to determine outcome achievement.

Evidence of sustainability

The project began in 2005 with one student and no funding. The number of involved students grew to four in 2007-08 and has increased to seven undergraduate and four graduate students. Last year, the Capstone students raised $12,949 from the Foxfield Racing Association, the U.Va. Parents Program, the Network Addressing Collegiate Alcohol and Other Drug Issues, a secret society and the Department of Student Health. This year, the project raised $12,350 from the Virginia Department of Alcoholic Beverage Control, the Parents Program, and Student Health.

Assessment Data

This project incorporated human-centered system design methodology and the social influence model throughout the development, implementation and evaluation of the interventions. The Capstone team examined baseline data collected in 2006 and 2007 to establish appropriate measurable outcome goals, create initial prevention messages, pre-test the messages using focus groups, revise and re-test the messages based on student feedback and create a web-based form to gather input and approval from community stakeholders. After project implementation, students re-administered the evaluation instrument and analyzed the data to determine goal achievement. Each of these assessment components is described below.

Baseline data

Results from a 2007 survey of 691 U.Va. students found that those who drank at the Foxfield Races had an average estimated blood alcohol concentration (eBAC) of 0.136, well over the legal limit of 0.08. Nearly half of all students who drank (46.9%) reported experiencing at least one negative consequence from their own drinking and 42.1% of all students experienced a negative consequence from another student's drinking. A survey of student behavior at the 2006 Races indicated that 3% of U.Va. students drove home after drinking. If these results are representative of all college students at the Races, then approximately 240 students drove home after consuming alcohol. These self-reported drinking behaviors provided strong evidence, in addition to the secondary evidence from Foxfield officials and local police, that interventions were necessary to promote a safer environment at the Races. Because the 2007 survey revealed that most students over-estimated the average number of drinks consumed by individual students at Foxfield, a social norms intervention, which educates students on accurate drinking norms and the extent of protective behaviors, was planned to correct misperceptions, decrease unhealthy drinking behaviors and increase protective behaviors.

Formative evaluation methods

The Capstone team developed social norms marketing messages using feedback from three groups: three sets of focus groups with U.Va. undergraduate participants, graduate student consultants, and stakeholders. In addition, stakeholders reviewed the posters and commented on their design and content via a web-based feedback system.

The Capstone team based the focus group procedures on human-centered system design methodology. The team conducted a pilot focus group with U.Va. graduate students enrolled in "Human Factors Research Methods" to review the initial posters, the focus group script, and the three-part survey. Based on the feedback from the pilot test, these materials were revised before the first formal focus group session.

The team then conducted six 90-minute focus groups with a total of 50 undergraduate students. Students were recruited through emails and flyers. Interested students completed a brief online survey to help create specific demographics in the focus group sessions. As the opening activity, participants reviewed the draft posters and completed a three-part written survey. In addition to open-ended questions, students rated the extent to which they agreed that each poster could be described by the following criteria:

• Attention-getting: the poster would stand out on a bulletin board full of advertisements

• Attractive: the poster is aesthetically pleasing

• Confusing: the message is hard to understand or has many ways it could be interpreted

• Informative: the message is educational

• Meaningful: the message shares important information

• Something you could relate to: the message has useful information that I can apply to my life

• Told you something new: the message reveals information I did not know before

The posters were revised after each round of focus groups based on the quantitative and qualitative data from the focus group.

One month before the Races, the students constructed a web-based survey to collect feedback from members of the Foxfield Races Strategy Group. The survey presented the most recent versions of the posters and asked the respondents to note their approval or disapproval of each one. If stakeholders did not give approval, they were asked to provide suggestions for improvement.

Focus groups and the stakeholder survey were successful methods for conducting process evaluation and illustrating how feedback from members of the intended audience and stakeholders modified the planned intervention. In the original design, the posters directly advertised lower-risk drinking norms. As a result of the process evaluation, quantitative drinking information is not provided, but the posters do highlight healthier drinking behaviors and safety interventions offered at Foxfield. Participants in the focus groups did not doubt the credibility of the messages and instead saw the posters as an easily accessible source of information about Foxfield. The focus group discussions brought up many important topics, the most common of which included transportation and safety services, a lack of confidence in social norms marketing techniques, and other recommendations to improve the race day experience.

Evaluation data collection methods

The day after the spring 2008 Foxfield Races, the Capstone team implemented a Foxfield student survey. The content was similar to the questions asked in the 2006 and 2007 surveys, which included demographics, drinking behaviors, transportation methods, negative consequences experienced and protective behaviors in which students engaged.

Three thousand undergraduates (375 males and 375 females from each of the four undergraduate class years) and 600 graduate students were randomly sampled. On the day following the Races, these students were sent an email requesting their participation in the survey. Follow-up emails were sent three and seven days later. The survey remained open for ten days starting on the day after the Races.

Of the 1,088 students who responded to the survey, 49 responses were discarded for reasons of compromised validity (e.g., incomplete or inconsistent responses). Responses from graduate students were also removed (n=164). The analyzed sample includes 875 responses, representing 29.2% of the 3,000 undergraduates sampled. Of these, 535 reported attending the spring Foxfield Races.