The current era of technology and information has created the perfect opportunity for the media, advertisements, lobbyists, and political parties to present information suited to their needs through framing (Traub, 1977). Message framing involves presenting information in a positive (supportive) or negative (unsupportive) way. Many political issues are especially reliant on public rhetoric to provide information because citizens have no personal experience with the issue (Joslyn & Haider-Markel, 2002). Previous research suggests that framing information can greatly influence a person’s attitudes and actions regarding the relevant information, especially when the information is readily available and from a trusted source (Ferguson & Gallagher, 2007; Jasper, Goel, Einarson, Gallo, & Koren, 2001; Joslyn & Haider-Markel, 2002).

Most of the current college population was born during a time of rigorous political campaigns to prevent and punish drug use in America. The 1970 Comprehensive Drug Abuse Prevention and Control Act is the most thorough and least flexible federal drug act in the history of the U.S. (Schmalleger, 2009). This act established categories for drugs according to dangerousness (Schedule I being the highest class) and assigned penalties according to each category. Then the Anti-Drug Abuse Act of 1988 (which strived for a drug-free America by 1995), the Drug Abuse and Resistance Education (DARE) program, and three-strike rules in many states followed it (Schmalleger, 2009). Publicizing the risks and dangers involved in drug use promoted public support for these campaigns. Another consequence of these campaigns has been the appearance of opposing groups that provide contrary information denouncing drug control laws and demanding freedom of choice.

Growing up exposed to the war on drugs and to programs like DARE has made young adults an age group of interest concerning the perception of drug use. There has been a great deal of research concerning illicit alcohol use (excessive use and use by underage people) among college populations. According to a recent survey by The Core Institute, alcohol is the most commonly used controlled drug among U.S. college students, with marijuana as the second (Lewis & Clemens, 2008). The recent push for legalizing medicinal and even recreational marijuana has caused researchers to examine marijuana use in the U.S. and others. Osborne and Fogel (2008) conducted a qualitative analysis of why adult Canadians use marijuana recreationally even
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Though it is illegal in Canada as in the U.S. The researchers concluded that motivations for use did not involve issues of legality but included experiencing a pleasurable sensation both physically and mentally, trying something new, understanding why others use marijuana, introspection, and relaxation. Their respondents considered themselves responsible people who used marijuana recreationally, not habitually. The Canadian government and comparable democratic nations are researching how marijuana use becomes a social norm and what steps should be taken toward regulation and responsible use (Osborne & Fogel, 2008).

Social norms seem to be separate from the laws of drug prohibition in the U.S., Canada, and other nations. Lewis and Clemens (2008) evaluated how social norms, not legislation, might influence the prevalence and perception of substance use. The researchers defined a social norm as a situation in which “behavior is influenced by incorrect perceptions of how other members of our social groups think and act” (p. 20). They evaluated how the perceived drug use by close friends and by typical students correlated with the participants’ own use. Their results supported the idea that the more prevalent a behavior such as alcohol and marijuana use is perceived to be among friends, the more likely the participant is to use, even in defiance of drug laws. Lewis and Clemens suggested that their results might be skewed given participants’ exposure to biased information about marijuana use prior to the study, creating the existence of a perceived social norm.

The influence of social norms can also be compared across cultures. Jones and Claster (2003) compared differences in perceptions of marijuana users from two cultures: the Netherlands, where marijuana use has been decriminalized, and the U.S., where marijuana is a Schedule I substance (Marijuana, 2010). They suggested that the countries’ different drug policies create two different sets of social norms and, as a result, two generally different attitudes about marijuana use. As predicted, college students in the U.S. gave much more negative ratings of a supposed marijuana user than students in the Netherlands. The researchers attributed the difference to socialization. College students in the Netherlands have learned to accept marijuana use as a tolerable behavior, and students in the U.S. learned to have a negative view of drug use (Jones & Claster). Another interesting finding was that U.S. college students used more marijuana and used more often than students in the Netherlands (although not to a statistically significant amount). This study supports the idea that accurate information and tolerance might create a general acceptance of use, but not necessarily a higher prevalence of use.

Related to social norm theory, the false consensus effect may also influence people’s perceptions of drug use. Wolfson (2000) defined false consensus as the “tendency for people to assume that others share their attitudes and behavior to a greater extent than they actually do” (p. 295). False consensus provides an inaccurate sense of social support for people engaging in an activity in which only a minority of people participate. Wolfson administered an anonymous questionnaire to determine the extent of marijuana and amphetamine use and how participants viewed people who used these drugs. The most relevant response was the participants’ estimates of how many of their friends and how many people in the entire student population used marijuana. Users of both drugs gave a higher estimate of marijuana users than did students who had used neither drug (Wolfson, 2000). Regardless of which group was more accurate, the differences in participant estimates were consistent with Wolfson’s definition of false consensus. These estimates also demonstrate the influence of using or not using drugs on perceptions.

Traub (1977) was also interested in comparing users’ and nonusers’ perceptions of marijuana use. With exposure to the mass media of the time, Traub expected that both users and nonusers would have a general and accurate understanding about the effects of marijuana. Both users and nonusers had some knowledge about the effects; however, nonusers’ knowledge was superficial and incomplete. Traub asserted that the difference was explained by more than personal experience with the drug. He suggested that the media and education presented incomplete or inaccurate information about marijuana use with the potential for a framing effect.

Traub and other researchers have interpreted framing as presenting information in a supportive or unsupportive way. Another aspect of framing is the balance of goals and risks. Ferguson and Gallagher (2007) conducted a study that evaluated goal- and risk-based frames and their influence on perception. The researchers presented information about the benefits and risks of a flu vaccine to evaluate how effective participants anticipated the vaccine would be. The perceived goals had more influence than the perceived risks when the...
outcomes. Participants reported that they would be more likely to get the vaccine when the result was successful with little consideration of the risks involved. Participants who read that the vaccine was less successful were more likely to be influenced by the risk frames (Ferguson & Gallagher, 2007).

Jasper et al. (2001) also evaluated how the type of frame might influence risk perception, a relevant perception in drug use behavior. He studied the effect of risk framing on pregnant women’s perceptions of using a drug during pregnancy. Women read either negatively framed information (1% to 3% chance of having a malformed child) or positively framed information (97% to 99% chance of having a normal child). Both pieces of information stated the same situation; however, the wording of the statements greatly impacted how women perceived the risk they were taking. Women who read a high probability of having a normal child were more likely to have a positive response to taking the drug, and women who read a possible risk (even though it was small) tended to have a negative perception of taking the drug. Jasper et al. discussed the possibility that women may have been more influenced by the risk framing because the information came from trusted sources (doctors and research specialists).

Joslyn and Haider-Markel (2002) further examined how framing influences personal opinion about a complex topic (social security) and a sensitive, highly publicized topic (physician-assisted suicide). They hypothesized that, because social security is a complex issue, participants would rely on professional opinions (the framed information) to form their opinion, but participants would have a pre-existing opinion on the topic of physician-assisted suicide because of the moral and highly publicized nature of the issue. As predicted, the frames were more likely to influence participants’ responses to social security than responses to physician-assisted suicide, consistent with previous research on issue-based framing. Similarly, participants may have a predetermined opinion of recreational marijuana use and may rely on an authority to form an opinion about medical marijuana use.

Previous research clearly suggests that framing information may influence people’s perceptions of drug use. More specifically, the bias, risks, and sources of information may also influence perceptions. I framed information about a highly publicized political topic and evaluated participant responses. Participants read information about both recreational and medicinal marijuana use. The information was framed in either a positive (supportive) or negative (unsupportive) way. I predicted that students who read the positive frame would have more positive attitudes toward marijuana use than students presented with a negative frame. Students who used marijuana would have a more positive attitude than nonusers in all conditions because their actions imply acceptance of the behavior. I also expected students to have more positive attitudes toward medicinal marijuana than recreational use due to the authority and technical aspects of medicine. Finally, I hypothesized that attitudes toward the use of a typical student would be more influenced by the frames than attitudes about personal use because of a preconception about personal drug use in the U.S.

Method

Participants
There were 104 volunteer participants ranging in age from 18 to 28. The average age was 19.3 (SD = 1.7). I recruited participants from General Psychology courses at the University of Wisconsin-Platteville, which has a 95% Caucasian student body. Participants earned credit in these classes for their participation; an alternate assignment was available.

The between-subject factors included personal use of marijuana (never used vs. used once or more), whether the participants read information about medical or recreational marijuana use, and whether the information was framed positively or negatively. I randomly assigned participants to one of four conditions with 27 in the positive medical group, 27 in the negative medical group, 23 in the positive recreational group, and 25 in the negative recreational group. The within-subject factors involved questions about the marijuana use of a target. The factors included who was using marijuana (self, friend, or a typical student) and the target’s reason for using (medical or recreational).

Materials
I constructed four framed informational pages including positively or negatively framed facts about either recreational or medical marijuana use. The four informational pages were positive recreational marijuana use, negative recreational use, positive medical use, and negative medical use. One statement from the positive medical page was, “THC assists some AIDS patients with the loss of appetite that they commonly suffer.” The coun-

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The dependent variable was participant rating of acceptability. The three-way interaction of the target’s reason for use, the participant’s own marijuana use, and whether the information given to the participant was about medical or recreational information was significant, \( F(1, 92) = 3.99, \ p = .05, \ \eta^2 = .04 \) (see Figure 1). To interpret that interaction, I conducted post hoc tests of the two-way interactions. The two-way interaction of the target’s reason for using and the information received was not significant for people who had used marijuana once or more, \( F(1, 44) = 0.81, \ p = .37, \ \eta^2 = .02 \). The two-way interaction of the target’s reason for use and the information received was significant for participants who had never used marijuana, \( F(1, 48) = 4.86, \ p = .03, \ \eta^2 = .09 \). I then tested the simple main effects of the target’s reason for use. The simple main effect was significant for participants who had never used marijuana and who received medical information, \( F(1, 24) = 58.10, \ p < .001, \ \eta^2 = .71 \), and for participants who had never used marijuana and who received recreational information, \( F(1, 24) = 21.03, \ p < .001, \ \eta^2 = .47 \). The effect size was larger for nonusers who received medical information, suggesting that receiving medical information had a greater influence on acceptability than receiving recreational information.

The interaction of the target’s reason for use (medical or recreational) and the participant’s own use was significant, \( F(1, 92) = 19.28, \ p < .001, \ \eta^2 = .17 \) (see Figure 2). The simple main effect testing the target’s intention to use recreationally or medically was significant only for participants who had never used, \( F(1, 48) = 74.73, \ p < .001, \ \eta^2 = .61 \), with participants who had never used marijuana finding it more acceptable for the target to be using medically than recreationally. The simple main effect testing the target’s intention to use recreationally or medically was not significant for participants who had used marijuana once or more, \( F(1, 44) = .29, \ p = .60, \ \eta^2 = .01 \). This finding suggests that, for participants who had used marijuana in the past, the reason the target was using was not important. This pattern is consistent with my findings from the three-way interaction.

The main effect of the target’s reason for use was significant, \( F(1, 92) = 28.08, \ p < .001, \ \eta^2 = .23 \), with participants finding medical use (\( M = 3.25, \ SD = .07 \)) more acceptable than recreational use (\( M = 2.76, \ SD = .11 \)). However, this main effect is qualified by the previously reported three-way interaction and is largely the result of the percep-

storing statement from the negative medical page was, “THC fails to assist some AIDS patients with the loss of appetite that they commonly suffer.” A statement from the positive recreational page was, “Marijuana may not cause the same health risks as tobacco products.” The countering statement from the negative recreational page was, “Marijuana may cause the same health risks as tobacco products.” I gathered the information included in these pages from Cox (2007), “Reefer Madness” (2005), Gupta (2006), and two Web pages of the U.S. Department of Justice (“Medical’ Marijuana,” n.d.) and (“Marijuana,” 2010).

I designed a questionnaire to determine attitudes about marijuana use and to collect demographic information by incorporating ideas from Joslyn and Haider-Markel (2002) and Wolfson (2000). Questions included attitudes toward use of recreational or medical marijuana personally, use by immediate peers, and use by a typical college student. Participants completed scenarios such as, “If my doctor prescribed marijuana to me, my using it as prescribed is…” Participants rated the behavior on a scale from 1 (unacceptable) to 5 (acceptable). Participants also reported the frequency of personal use of marijuana, use by a friend, use by a typical college student, and provided their age and sex.

Procedure

Participants completed a packet including the consent form, one of the four informational sheets, the questionnaire, and an answer sheet. Participants read the consent form while the researcher read it aloud. Completing and turning in the questionnaire was interpreted as implied consent. Participants completed a packet including the questionnaire, and an answer sheet. Participants read the informational page and then completed the questionnaire. After completing the packet, participants read the debriefing while the researcher read it aloud. Time was allowed for any questions and contact information was included on the debriefing sheet.

Results

I conducted an analysis of variance with three between-subject variables, including how frequently participants used marijuana (never vs. once or more), information in frame (medical or recreational), and valence of frame (positive or negative) and two within-subject variables, including which target was using marijuana (self, friend, or a typical college student) and the target’s reason for using (recreationally or medically). The dependent variable in the debriefing sheet.

Participants also reported
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tions of participants who had never used marijuana.

The interaction of which target used marijuana (self, friend, or typical student) and the target’s reason for use was significant, $F(2, 184) = 17.74$, $p < .001$, $\eta^2 = .16$ (see Figure 3). The simple main effect testing the target’s intention to use recreationally or medically was significant regardless of which target was using marijuana ($F(1, 92) = 28.08$, $p < .001$, $\eta^2 = .23$), with medical use being more acceptable for use by self, use by a friend, and use by a typical student. Also, the effect size was large when questions concerned the participant’s own use ($F(1, 96) = 52.26$, $p < .001$, $\eta^2 = .35$); the effect size was medium when questions concerned use by a close friend ($F(1, 93) = 12.94$, $p = .001$, $\eta^2 = .12$); and effect size was small when questions concerned use by a typical student ($F(1, 95) = 7.99$, $p = .006$, $\eta^2 = .08$). This finding suggests that, although the effect was significant for all three targets, more of the variance was explained by the target’s reason for use concerning the participant’s own use than concerning the use by a typical student.

Which target used (self, friend, or typical student) and the participant’s own use (never vs. once or more) interacted, $F(2, 184) = 3.38$, $p = .04$, $\eta^2 = .04$ (see Figure 4). Tests of simple main effects clarified that, although which target consistently had an effect on perceived acceptability, the target had a much larger effect on the perceptions of participants who had never used, $F(2, 96) = 18.52$, $p < .001$, $\eta^2 = .28$, than on the perceptions of students who had used once or more, $F(2, 88) = 4.53$, $p = .01$, $\eta^2 = .09$. Further, the main effect of which target was using was significant, $F(2, 184) = 20.23$, $p < .001$, $\eta^2 = .12$, with participants finding it more acceptable when a typical student used ($M = 3.14$, $SD = .08$) or when a friend used ($M = 3.08$, $SD = .09$) than when they used themselves ($M = 2.79$, $SD = .09$).

I conducted chi-square analyses relating personal marijuana, alcohol, and tobacco use to the predicted use of a friend and to that of a typical student. Although some patterns were significant, I report these results with caution due to empty cells in the analyses. The relation of personal marijuana use as it related to the predicted use of a friend was significant, $\chi^2(4, N = 104) = 33.33$, $p < .001$. This pattern means that, compared to a student who used less frequently, students who used marijuana more frequently reported that a close friend also used marijuana more frequently. Personal use as it related to the predicted use of a typical student was not significant, $\chi^2(4, N = 100) = 9.18$, $p = .06$. Per-
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Personal tobacco use and the predicted use of a close friend were significantly related, $\chi^2(4, N = 104) = 26.98, p < .001$. Students who reported never using tobacco products reported more frequently that a close friend of theirs had also never used tobacco. Similarly, students who used tobacco once or more reported that close friends also used once or more. Personal tobacco use was not significantly related to estimates of a typical student's use, $\chi^2(4, N = 101) = 3.00, p = .56$. Personal alcohol use and the predicted use of a close friend were significantly related, $\chi^2(3, N = 103) = 25.52, p < .001$. Students who reported drinking more often were more likely to report that a close friend also drinks more often. Personal alcohol use was also significantly related to estimates of a typical student's alcohol use, $\chi^2(2, N = 100) = 6.65, p = .04$ (see Table 1).

**Discussion**

The purpose of my study was to examine the potential influence of framed information on student attitudes toward marijuana use. The current college population has been exposed to government legislation and programs dealing with the drug culture as well as to activist groups who oppose the past and current drug laws. All of this information has likely had an impact on the knowledge and opinions of students, creating a collective social norm (Lewis & Clemens, 2008). My study attempted to examine the significance of this impact through framing information and comparing attitudes about marijuana use.

I hypothesized that students presented with a positive (supportive) frame would have more positive attitudes toward marijuana use than students presented with a negative (unsupportive) frame. My hypothesis was consistent with those of Jasper et al. (2001), Joslyn and Haider-Markel (2002), and Ferguson and Gallagher (2007). Although previous research found results consistent with their hypotheses, the results of my study did not support the effects of a positive or negative frame on student attitudes. The unsupportive results could be attributed to the very problem I attempted to address: the saturation of information regarding marijuana use. As Lewis and Clemens (2008) suggested, the data may be skewed due to participants' exposure to biased information prior to the study. Exaggerated information that was more clearly defined as supportive or unsupportive may have yielded significant results, but I avoided exaggeration to limit deception.

I also hypothesized that students who used marijuana would have a more positive attitude about use than nonusers, simply because their actions imply an acceptance of the behavior. This hypothesis was supported; students who reported using marijuana found it more acceptable for themselves, close friends, and also typical students to use. Although this finding is not particularly groundbreaking, it is important to note that the attitudes of current users were significantly established such that they were not affected by the negatively framed information.

I predicted that participants would have a more positive attitude toward medicinal marijuana use...
than recreational use. I based this hypothesis on findings and discussion by Jasper et al. (2001) in which pregnant women had a more positive perception of taking a prescribed drug when the risks were minimized, possibly because they trusted a doctor or an authority figure. In the current study, participants rated the acceptability of marijuana use when prescribed by a doctor and the acceptability of recreational use. Although the main effect of whether the target was using for medical or recreational use was significant, tests for the simple main effects showed that only students who had never used marijuana found medical use more acceptable than recreational use. This result was especially true when nonusers had received medical information. My finding may be consistent with the hypothesis in Jasper et al. (2001) about trusting an authority figure even though there was no significant interaction with the frames participants were given. A learned trust of doctors and the medical field could still have an influence on participants. Students who reported using marijuana once or more did not show a significant difference in acceptability between medical and recreational use. This result could be attributed to the fact that neither medical use of marijuana nor recreational use is legal in the state of Wisconsin so students who reported using marijuana are using illegally whether for recreational or self-prescribed medical purposes. As mentioned previously, students who have used marijuana once or more found marijuana use to be more acceptable than nonusers in both medical and recreational circumstances.

Finally, I hypothesized that attitudes about a typical student using would be more influenced by the framed information than attitudes toward personal use. This prediction was based on the concepts examined by Joslyn and Haider-Markel (2002) in which attitudes about a more sensitive topic (in this case personal use) would already be formed, whereas attitudes about a less sensitive topic (whether a typical student is using marijuana) would be less defined and more easily influenced. This hypothesis was not supported in the present study. Similar to the first hypothesis, stating the frames more extremely may have yielded significant results.

There were several interactions that were not predicted prior to the study. One was the interaction of which target was using marijuana and whether it was for medical or recreational purposes. The target’s intention to use recreationally or medically was significant regardless of who was using. This result supports the previous statement that medical use was more acceptable than recreational use. The difference in effect sizes for personal use, use by a friend, and use for a typical college student may mean that the acceptability of own use was more influenced by the reason the target was using than was the acceptability of other targets’ use.

Participants found it more acceptable when a typical student uses marijuana than when a friend uses or when they themselves use. This result is also in support of the hypothesis of Joslyn and Haider-Markel (2002) about how attitudes toward personal use are predetermined and use by a typical student may be considered less important or less unacceptable.

Although the findings of Wolfson (2000) supported the hypothesis that there exists a false consensus among drug users, in my study that hypothesis was supported only regarding alcohol use. Personal alcohol usage was a significant predictor of estimates of the use by a close friend and by that of a typical student. This result means that students who use alcohol tended to report higher usage among their friends than the reports of nonusers of alcohol. The same is true of the predictions of a typical student. I also found that, regardless of personal use, no participant estimated that a typi-
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creating some bias. Secondly, there was no control
ings from a predominately Caucasian, Midwestern
study. Firstly, it may be difficult to apply the find
effect.

their close friends or to a possible false consensus
attributed to the idea that people use tobacco with
frequency of use in a close friend. Similar to the
using, the more likely they were to predict a higher
was significant. The more participants reported
personal use to the predicted use by a close friend. This relation
ship could be consistent with Wolfson’s (2000)
the predicted use of a close friend. This relation
however, a significant relation of personal use to
they had used only marijuana once. There was,
striking, with 51% of students reporting that they
use of marijuana. These numbers were not as
further inquiry into the use of alcohol (especially
underage) in university settings.

I expected a similar disregard for the illegality
of marijuana use when examining the frequency of
the use of marijuana. These numbers were not as
striking, with 51% of students reporting that they
had never used marijuana and 20% stating that they had used only marijuana once. There was,
however, a significant relation of personal use to
predicted use of a close friend. This relationship
could be consistent with Wolfson’s (2000) study about false consensus, or it could simply mean that participants who use marijuana do so with their close friends. A future study could add an additional question asking the participant to predict the use of a close friend with whom they have never used before. This question could apply to alcohol, marijuana, and tobacco use to gain clearer support (or lack of support) for the false consensus effect.

The relation that I predicted between personal
tobacco use and the predicted use by a close friend
was significant. The more participants reported
using, the more likely they were to predict a higher
frequency of use in a close friend. Similar to the
findings with marijuana use, this finding could be attributed to the idea that people use tobacco with
their close friends or to a possible false consensus effect.

There were some limitations in the present study. Firstly, it may be difficult to apply the findings from a predominately Caucasian, Midwestern school to other campuses across the U.S. without creating some bias. Secondly, there was no control
group to compare to the four experimental groups
each given a different informational page). It could be that receiving any information at all, regardless of the nature of it, may have impacted participant attitudes toward marijuana use. Thirdly, participant attitudes could have been predetermined due to their varying levels of exposure to the programs and laws discussed earlier. A question about the participants’ level of drug education could have helped eliminate this variable. One area of statistical bias could be in the chi-square analyses of predicted use in which several cells were empty. Therefore, I report those results with caution.

One issue that was common to my study and
the previous research concerns how to classify a person’s usage level. I classified someone who had
never used a substance as a nonuser. If participants
had used a substance once or more, I assigned them
to the once or more category. I had hoped to add a third category for the unique group of people who had tried marijuana once but did not
become regular users. In a future study, it could be
beneficial to have enough participants to compare
these three different groups.

Despite several limitations, my findings
contribute to the understanding of the current drug use on college campuses. It is clear that current
college students have grown up with mixed messages. Through government legislation opposing
drug use or activists opposing drug laws, students
have established their opinions about how acceptable the use of alcohol, tobacco, and marijuana
are. Further research examining what shapes these attitudes (possibly including framing) could aid in
establishing future drug legislation, diminishing
campus use, or simply providing accurate information about drug use that would be received and
accepted by college students.

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Anna Marie Allen is a recent graduate of the University of Wisconsin–Platteville where she majored in psychology, criminal justice, and Spanish and played for the women’s varsity soccer team. Originally from Salina, Kansas, Ms. Allen also spent a semester in Seville, Spain, through the University of Wisconsin–Platteville’s study abroad program. Her interests in U.S. drug laws and punishments were derived from her studies in criminal justice. Guided by her psychology adviser, Dr. Joan E. Riedle, Ms. Allen completed an independent research project concerning students’ perceptions of marijuana use and how those perceptions may be altered by the information students receive. She hopes to continue her study of drug legislation and explore other areas of the law in her current graduate program at the University of Denver–Sturm College of Law.