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A Content Analysis of Salvia Divinorum Use on YouTube

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Introduction

Drug and alcohol use has been strongly linked to peer group associations. Adolescents and adults whose friends use drugs are far more likely to use drugs and share similar attitudes towards drug taking behavior (Piquero et al., 2005; Lee, Akers, & Borg, 2004; Monroe, 2004; Marshal & Chassin, 2000; Dinges & Getting, 1993). While peer groups remain the primary agent of socialization in terms of learning how to use drugs, researchers have recognized that channels of mass communication (e.g. movies, television, the Internet) may also play an important role. For the last several decades, studies have demonstrated that there is a positive relationship between mass media use and drug use. These studies asserted that adolescents were more likely to use drugs (and more likely to begin using at a younger age) when they viewed images of drug use on television, movies, music videos and in magazines (Greenson & Williams, 1986; Strasburger, 1989; Klein et al., 1993; Grube & Wlaacak, 1994; Wakefield et al., 2003).

Although the Internet contains vast amounts of information about the use of psychoactive drugs; very few studies have examined the relationship between Internet use and recreational drug use. The Internet offers various channels where information about drugs can be obtained. Internet users have access to a broad range of drug related websites, such as, pro-drug websites, government anti-drug websites, online vendors of psychoactive drugs, online drug encyclopedias, personnel blogs, and user created videos shared on such websites such as YouTube. This is alarming due to the established relationship between mass media and drug use. The rise in popularity of social media has sparked great interest among social scientists and should be alarming to anyone concerned about recreation drug use among adolescents.

The purpose of this study is to examine the use of the recreational drug Salvia Divinorum on YouTube. Launched in 2005, YouTube is a popular video-sharing website where users can upload, view and share video clips. YouTube is used to display a wide variety of video content including clips from movies and television shows, music videos, and user-generated content (such as video blogs and amateur videos). Most of the video content on YouTube has been uploaded by individuals, however, recently several media corporations, such as CBS and BBC, have begun to offer some of their content via the site, as part of a YouTube partnership program. YouTube averages approximately 20 million visitors per month and 100 million video clips are viewed daily on the site. In addition, over 65,000 videos are uploaded every 24 hours (Nielson/NetRaings, 2007). This research moves the study of drug use and the media in a new direction by assessing the popularity and consequences of Salvia use on YouTube.

Salvia divinorum

Salvia divinorum is a naturally occurring hallucinogenic drug from the mint family indigenous to Mexico and Central and South America. Salvia divinorum has a long history of medical and spiritual use by the Mazatecs, an indigenous people who live in the state of Oaxaca in southern Mexico. Mazatec tradition not only includes the cultivation and use of Salvia for spiritual purposes, but a variety of other natural hallucinogens, such as morning glory seeds and psilocybin mushrooms. The Mazatecs called the Salvia divinorum “ska pastora” meaning “leaves of the Mary shepherdess,” a

reference to the Virgin Mary (the Mazatecs' religion is a synthesis of traditional beliefs with Catholicism). After a period of fasting, the Mazatecs would chew the leaves of the plant, or drink a tea brewed from the leaves, to experience a brief introspective hallucinogenic high (Schultes & Hofman, 2001).

Salvia divinorum is simply known as "Salvia," but is also called "magic mint" or "Sally D" (Kelly, 2011). Initially, the leaves of the plant were smoked in a pipe or water pipe. Today, most users smoke "salvia extracts" purchased in head shops or over the Internet (Hoover et al., 2008). The extracts are concentrated preparations which are made by enhancing leaves with salvinorin A, the primary psychoactive ingredient in Salvia divinorum. The enhanced or fortified leaves are generally described by a number followed by an x (e.g. 5x, 10x) indicating the potency relative to the concentration of salvinorin A. Salvia extracts reduces the amount of drug that needs to be inhaled when smoked thus producing a more powerful experience. Smoking salvia extracts produces an instantaneous and intense high with a peak effect lasting approximately 5-6 minutes after which the effects subside over an additional 20-30 minute period (Gonzalez, et al., 2006).

The main active ingredient in Salvia is salvinorin A, which gives the drug its psychoactive and hallucinogenic properties. Similar to LSD, salvinorin A can be very powerful drug and the hallucinogenic effects vary from person to person. Data from interviews with users show that most people who use the drug experience vivid hallucinations within seconds of smoking Salvia and the drug produces a wide array of psychoactive effects, from relaxation and laughter to strong dissociative states, such as out-of-body experiences, changes in bodily form, distortion, and an inability to interact with one's surroundings, confusion and anxiety (Kelly et al., 2011; Pearl et al., 2010; Dalgarno, 2007).

In the last ten years, Salvia divinorum use has gained increased interest as a recreational substance among American teens and young adults. According to the Substance Abuse and Mental Health Services Administration (SAMHSA) report on hallucinogenic use, in 2006 approximately 1.8 million people aged 15 years or older used Salvia at least once in their lifetime (SAMHSA, 2008). Three factors have led to the rise in popularity of Salvia divinorum. First, Salvia divinorum is not classified as a Schedule I drug according to the federal government and there are limited legal risks involved with using the substance. Several states (including Florida) have passed laws criminalizing the possession and sale of Salvia divinorum. However, there is currently no federal law banning the substance. Second, because the drug is not illegal, it is not screened for in drug tests. Therefore, users including military personnel and student athletes can use the drug and still pass a drug test. Finally, in the last decade Salvia divinorum has become somewhat of an Internet phenomenon. There are hundreds of websites dedicated to the use and sale of the drug allowing anyone to order the drug via mail through the Internet. In addition to websites promoting Salvia, there are thousands of videos posted on the popular website YouTube that depict teenagers and young adults using the drug. The short effect duration of Salvia means that many YouTube videos contain a user's entire "trip" from start to finish. YouTube videos are an excellent resource for observing the drug's effects, a user's experience with the drug and the setting in which the drug is taken.

Theoretical Framework

Howard S. Becker's (1953) highly regarded work "using marijuana for pleasure" is one of the first theories to explain drug use as a social process perspective. Becker challenged the dominant theories of the time, which hypothesized that drug use can be best explained by individual traits or a psychological predisposition that motivates a person to engage in drug taking behavior. Becker believed that the motivation or disposition to engage in drug use do not precede the act itself, rather, they are learned through social interactions with other drug users. Drug taking behaviors are learned through intimate social interactions in which new marijuana users are instructed by more experienced users. In order for a person to continue to use marijuana for pleasure, they must pass through a three stage social process.

First, users must learn from more experienced users how to smoke the drug in a way that will produce real effects. In order to "get high" new users must learn the proper techniques of using the drug (e.g. how to roll a joint, how to use a pipe or bong, and how to hold the smoke in one's lungs). Users will not continue to use marijuana for pleasure without learning the techniques that will supply a sufficient dosage of THC for the effects of the drug to appear. Faupel (1991) reported a similar learning process among heroin users. In order to properly use heroin users must learn how to "cook" the heroin in water on a spoon, how to prepare or "tie-up" their veins, and how to "mainline" or insert the needle in the veins without going all the way through the wall of the vein. If heroin addicts fail to learn these techniques properly, they have to rely on other addicts to get them high.

Second, a new user must learn how to recognize the effects of the drug. According to Becker, many new users do not get high the first time they smoke marijuana. In some cases, many novice users are high, but do not know it. In this case, it is not enough for a user to simply use the proper techniques of smoking to "feel high"; he or she must be able to identify the symptoms of the marijuana high. Marijuana produces several physiological effects, however, if these effects are perceived by the user as simply being sleepy or hungry, the user will believe that the drug had no effect. It is through social interaction with experienced users that these symptoms are "pointed out" and learned.

Lastly, novice marijuana users have to learn to enjoy the effects of marijuana. The effects of marijuana are not always necessarily pleasurable. First time users may experience unpleasant side effects including: a misjudgment of time, dizziness, paranoia, and anxiety. Experienced users often help novice users "normalize" these experiences and focus on the pleasurable symptoms of the marijuana high. According to Becker, "the taste for marijuana is a socially acquired one, not different from acquired tastes for oysters or dry martinis" (Becker, 1953:239). If a novice user is to continue to use marijuana, he or she must conclude that the effects of the drug are pleasurable. All of this learning takes place through intimate social interaction in which experienced users act as mentors.

In a replication of Becker's work, Hallstone (2002) found that Becker's social-process based theory of marijuana has survived the test of time. However, Hallstone's data shows that present day marijuana users pass through Becker's three stages much more quickly and in different ways. A greater number of subjects in Hallstone's study recognized the effects of marijuana during their initial use than did the subjects in

Becker's study. Hallstone attributes his finding to the change in potency of marijuana over the last several decades. Through specialized growing techniques such as hydroponics, marijuana growers today are producing a much more potent form of marijuana with a higher THC content than was produced in Becker's day.

Becker found that most novice marijuana users learn how to smoke marijuana through direct instruction. While Hallstone's research generally supports this finding, his data shows that a greater number of novice users learn how to use marijuana through imitation and observation rather than direct social instruction. Hallstone attributes this finding to the historical changes in the marijuana scene that have widened the ways in which people can learn how to smoke the drug. Over the last fifty years, marijuana has become more accepted, more mainstream, and more widely used. Today, use of marijuana is shown in movies, magazines, and on the internet. Hallstone suggests that the inclusion of marijuana in popular media has somewhat altered Becker's learning theory. Many users today report, "seeing others use marijuana before they themselves ever tried it—thus learning by observation in a slightly different way than proposed by Becker" (Hallstone, 2002:828).

Although Becker and other social learning theorists have tended to focus on peer groups as the primary places where learning about drugs takes place, the idea that channels of mass communication (e.g. movies, television, the Internet) play an important role in the learning process is not a new idea. One of the most useful theories in explaining how mass communication plays an important role in bringing about initial awareness and knowledge of new ideas and practices is diffusion theory. Still popular in the fields of health policy and marketing, diffusion theory has had a recent resurgence due to the interest in how new communications technologies (such as the Internet) are affecting society. Diffusion theory (also known as diffusion of innovations theory), examines the process by which new ideas are communicated and adopted among members of a social system. According to diffusion theorists, an innovation is an idea or practice that is perceived as new by members of a social system. Diffusion refers to the process by which an innovation is communicated and/or shared with a social system. The diffusion of an innovation involves the mass media, communication technologies such as the Internet, and interpersonal communications (Rogers, 2003).

One of the primary aspects of diffusion theory is the notion that not all individuals in a social system adopt an innovation at the same time. Diffusion theory classified five different adopter categories measured by the relative time an innovation is adopted. These categories follow a mathematically based bell-shaped curve. The first to adopt a new idea or practice are the innovators (2.5%), followed by the early adopters (13.5%), then early majority (34%), the later majority (34%), and finally the laggards (16%). Obviously, people may be placed into different categories depending on the innovation. A farmer, for example, may be an innovator for a new biological or genetic innovation but a late majority adopter for a new communication technology (Rogers, 2003).

One of the most important predictors of whether or not someone becomes an innovator are their communication behaviors. Innovators tend to be information seekers with a high degree of mass-media exposure and links to other networks that stretch beyond their local social system. On the other hand, laggards do not share these same characteristics (Rogers, 2003; Scheffels & Lund, 2005). Coleman, Katz, & Menzel's (1966) classic study examined the diffusion of a new antibiotic drug among physicians.

The authors found that early adopters of the drug were younger (and perhaps more innovative), more likely to read professional journals, and more likely to attend medical conferences, as well as visit educational institutions. Studies of planned diffusion show similar results. Elwood & Ataabadi (1997) examined the effect of mass media in reducing HIV risk behaviors among injection drug users. In this study, subjects who were active in consuming mass media were far more likely to reduce their use of dirty needles than those who were not active. In addition, many of these innovators shared this with other drug users who were not active in viewing mass media.

With the advent of the Internet and other forms of mass media, there may be growing evidence that people will adopt new patterns of drug use that are consistent with diffusion theory (Ferrence,2001). Diffusion theory may be useful in explaining how new drugs are introduced and adopted. When a new drug is introduced as an innovation, mass media channels provide a method of creating knowledge and awareness about the drug. Communication channels, such as the Internet, serve as a link between those who have discovered a new drug and those who have not yet adopted it. Later, interactive media, such as YouTube and blogs, provide a context in which individuals can form attitudes about a drug (innovation) through discussion and comparing experiences.

Method

To obtain a sample for this study, a video search on YouTube was carried out by entering the keyword “salvia trip” in the search box to view the universe of user created videos. Because YouTube arranges videos over a one year period, the time frame for this study was May 1, 2010 to May 1, 2011. This keyword search created a population of 8,620 videos. Videos were filtered or arranged by relevance to the search term. The title and http address was recorded for each video. From this list, 178 videos were selected by using simple random sampling. Clips from television shows, newscasts, and documentaries were excluded. The total remaining sample included 162 videos.

The portrayal of Salvia on YouTube was analyzed through the use of content analysis. Content analysis is a technique for systematical studying any form of communication, whether written or spoken. When conducting a content analysis, data is analyzed through coding which can involve counting, rating, or examining data for common patterns or themes (Maxfield & Babbie, 1998). Use of content analysis allowed the researchers to address three research questions:

1. What are the characteristics of Salvia users observed on YouTube?
2. What are the effects or consequences of Salvia use as portrayed in Salvia related videos on YouTube?
3. What is the relationship between the portrayed effects of Salvia on YouTube and video popularity?

Several variables were used in this study to assess the characteristics of salvia users and the venue in which they smoked salvia. These variables include race and gender of the user, whether or not the drug was used in a group setting, and whether or

not the user used a “narrative approach” by talking to the camera before, during, or after using Salvia.

The effects and/or consequences of Salvia use on Youtube were analyzed through the use of open coding. Open coding is a method in which data is examined to look for certain common themes or categories. Once different categories have been identified, data or cases are placed into one of the each identified categories (Strauss, 1987). In this study, categories were established by watching each video and listing the dominate theme(s) portrayed in each video. Following this procedure, each video was rated for the presence or absence of each theme and the number of times each theme occurred. Researchers were unable to categorize six percent of the sample. These cases (videos) were excluded from the sample, leaving a total sample size of 151 videos. Open coding was performed by two coders, a male and a female. The inter-coder reliability for this variable, based upon 10 percent of the sample, and assessed by Krippendorff’s alpha equal to 0.88.

Video popularity was assessed by using three measures: (1) the number of times a video was viewed, (2) the number of text comments made by viewers concerning a video, and (3) a video’s star rating. Video ratings were operationalized by recording the star ratings earned by each video. Viewers logged into a YouTube account can rate a video on Likert-type scale, from 1 star (extremely poor rating) to 5 stars (extremely high rating). The star rating measure is displayed on the video page underneath the player window. All three measures of video popularity were recorded by both coders. Inter-coder reliability for all three measures was assessed by the use of Krippendorff’s alpha which based upon 10 percent of the sample was equal to 0.99.

Results

Table 1 shows the overall characteristics of Salvia related videos on YouTube. Descriptive statistics from our sample of 162 videos indicate the majority of Salvia users in YouTube videos were white (84%) males (72%). In eighty-four of the videos the drug was used in a group setting. This does not mean, however, that all the persons in the “group” used the drug. In eighty-nine percent of the videos, only one person in the video used the drug. In forty-percent of the videos the user used a “narrative approach” in which he or she talked to the audience through the camera.

Table 1: Frequency of Video Characteristics

<u>Characteristic</u>	<u>Frequency</u>	<u>Percentage</u>
User was Male	139	84
User was White	117	72
Drug Used in a Group Setting	139	84

This research also examined the portrayed effects of Salvia divinorum by an examination of YouTube videos. Open coding showed that two dominate themes prevailed in regards to users' experiences under the influence of Salvia: (1) expansive and (2) constricted. Expansive reactions or "trips" include feelings of euphoria, excitement, and discovery. During an expansive reaction, users were often seen laughing and enjoying themselves. Constrictive reactions to Salvia can be characterized by fear and paranoia. The users often experienced a panic reaction, feeling that some aspect of their hallucination is threatening them. In videos where individuals experienced constrictive reactions, bystanders or nonusers often referred to as "sitters", sometimes attempted to calm the user. Nonusers often "talked down" users by attempting to diminish the panicked reactions by reassuring the users that "everything is going to be fine" and reminding the users that the effects of the drug are not permanent and would wear off with time. Ironically, the nonuser "sitters" were often the ones who laughed the hardest at users experiencing a negative reaction to Salvia while simultaneously comforting the user.

After the initial open coding procedure, a dichotomous variable was created to quantify the effects of Salvia as either expansive or constrictive. Sixty-two percent of the users' experiences in the videos were categorized as expansive, while forty-eight percent were categorized as constrictive.

Our third research question was to determine whether or not the portrayed effects of Salvia were related to video popularity. Three measures were used to assess the popularity of Salvia related videos on YouTube: (1) the number of times a video was viewed, (2) the number to text comments made by viewers about a video, and (3) a video's star rating. The mean for the number of views of Salvia videos was 110,000, with a mode of 53,045, and a range of 2281,590. The mean number of text comments was 404.80, with a mode of 129, and a range of 927. The mean star rating was 4.41 with a mode of 4.2 and a range of 2.8.

Table 2 displays the relationship between the portrayed reaction to Salvia and video popularity. T-tests were used to calculate the significance of observed differences in popularity between expansive effects and constrictive effects. The results show that videos that portrayed users having a negative or constrictive experience while using Salvia were much more popular than videos that portrayed users that experienced a pleasurable or expansive "trip". Constrictive related videos had more views ($x = 234,000$, $t = 7.33$, $p < .01$), more text comments ($x = 815.25$, $t = 6.72$, $p < .05$), and higher star ratings ($x = 4.76$, $t = 3.47$, $p < .05$) than those videos that portrayed users having a more positive or expansive experience with Salvia.

Table 2: Video Popularity and the Observed Effects of Salvia (N = 151)

<u>Video Popularity</u>	<u>Observed Reaction to Salvia</u>	
	<u>Expansive</u>	<u>Constrictive</u>
Mean Number of Views**	33,041	234,400
Mean Number of Text* Messages	157.14	815.25
Mean Star Rating*	4.44	4.76

**p< .01, *p< .05, T-tests were used as a test of significance.

Discussion

The findings of this research show that drug taking behavior still takes place in a small peer groups. The only difference is that now, peer groups can use the Internet to share their experiences with the general public. In this study, the majority of Salvia users on YouTube were white males who used the drug in a group setting. This does not mean, however, that all the persons in the “group” used the drug. In a majority of the videos, only one person used the drug, while others watched to determine what type of effect the drug would have on the user. In this sense, it would seem that using Salvia was similar to a dare or “test of bravery.” For many, using Salvia functions as a type of ritual in which adolescents could prove their courage; much like Native American adolescents sometimes proved their bravery by stealing horses from another Indian tribe. This may explain why negative or constrictive trips are much more popular on YouTube than expansive or pleasurable trips. Taking a chance on whether or not a user may experience a constrictive trip excites the risk of danger. Drug taking is a way of “playing chicken” so that adolescents can test their anxieties about taking drugs. Salvia use becomes entertainment for not only the user, but also for the user’s peer group audience and the general public who watches the YouTube videos.

In a sense, adults have become the other “tribe” for teens using Salvia on YouTube. The emergence of Salvia use on YouTube in the last decade has caused a media storm and widespread political reaction in the United States (Miller et al., 2009). There have been numerous negative television and newspaper reports about the drug having “deadly” effects. A particular focus of many media stories about Salvia was the coverage of the death of Brett Chidester, a 17-year-old Delaware student who committed suicide by carbon monoxide poisoning. Reportedly, some months before his death, Chidester had used Salvia. His parents believed that salvia-induced depression was to blame for his death, lobbied for a ban on the substance. A law (nicknamed Brett’s law) was soon passed in Delaware classifying Salvia as a Schedule I controlled substance in the state (Dorell, 2006). There have not any other documented cases of Salvia contributing to the death of a user, whether it be an overdose, an accidental death, or a suicide (Lange, et al., 2008).

Trends in drug use fluctuate over time and youth are often the innovators of changes in drug use. Traditionally, social learning theorists, like Becker, have tended to focus on peer groups as the primary places where learning about drugs takes place. While much of drug experimentation is still tied to intimate peer networks, the new information age of the 21st century has created more channels of communication in which youth can discover new drugs. Websites and YouTube serve as vehicles in which millions of youth learn about new drugs or watch other people use a new drug in his home. Information about psychoactive drugs on the Internet has created a profound interest in new alternative psychoactive substances. In the last few years we have seen an increase in the use of new “legal” drugs, such as “K-2” or “spice,” a new synthetic form of marijuana sold on the internet as herbal incense. Stimulant drugs such as cathinone and mephedrone are currently legally sold over the Internet as “bath salts” going by such names as “ivory wave” or “vanilla sky.” In some respect, the new interest in legal highs maybe a consequence of the information age. The Internet, especially websites like YouTube, provide channels that provide awareness about a new drug, as well a vehicle by which individuals can form attitudes about a drug through discussion and comparing experiences. Therefore, social scientists may be better served by explaining this phenomenon using theories that place more of a focus upon channels of communication, such as diffusion of innovations theory.

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