Deviant Behavior

Howard Becker in Hyperspace: Social Learning in an On-Line Drug Community

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Analyzing on-line drug communities provides important insights into the connection between computer-mediated communication and drug use in contemporary society. Drawing on social learning theory, we analyze conversations within the on-line community *DMT-Nexus*. We find that the on-line context affects the social learning process concerning drug use in distinct ways and identify how users gain relevant knowledge and interpretive strategies and acquire credibility. Based on these findings, we propose an expansion of Becker's social learning model of drug use reflecting the unique constraints and opportunities of on-line contexts including the importance of vivid textual descriptions and modes of communication.

The growth of on-line drug communities—informational websites and virtual communities including Web forums on drug use—has influenced new subcultural developments and global drug use trends (Bogenschutz 2000; Murguia, Tackett-Gibson, and Lessem 2007; Montagne 2008; Walsh 2011).[1] Contemporary drug users are more likely to rely on on-line sources for information about drugs than any other media sources (Murguia et al. 2007). Furthermore, information learned via the Internet can influence individuals' drug use practices (Boyer, Shannon, and Hibberd 2005; Boyer et al. 2007). More specifically, the development of the Internet as a space for communication among drug users has led to increased use of novel hallucinogens and newly developed designer drugs in Western societies (Bogenschutz 2000; Bruno, Poesiat, and Matthews 2013; Corazza et al. 2012; Delcua et al. 2012; Forsyth 2012; Halpern and Pope 2001; Tupper 2006; Vardakou, Pistos, and Spilipoulou 2011). As both a form

[1] The on-line community (dmt-nexus.me) examined within this study is easily accessed via the Internet, is indexed by major search engines such as Google, and provides only a space for conversation. However, the newly emerging so-called "dark web" black market websites provide actual access to purchasing drugs and other illegal items (see Chien 2011; Walsh 2011). In contrast, *DMT-Nexus* and most other "mainstream" on-line drug communities censor any talk that could facilitate the sale or distribution of illegal drugs in order to avoid legal issues. See the closing paragraph of this article for more on the "dark web" trend.

of media and a mode of communication (Morris and Ogan 1996), the Web is relatively unregulated in comparison to other forms of mass media and therefore more conducive to the development and spread of deviant or subcultural knowledge and meanings. Taken together, the extant research on on-line drug communities has established a growing connection between computer-mediated communication and drug use in contemporary society. How exactly such computer-mediated communication facilitates drug use, however, is as of yet not well understood.

Over 60 years ago, in the groundbreaking study "Becoming a Marihuana User" (1953), Howard Becker theorized not only that that drug use is socially learned, but also that the ways in which users respond to and experience drugs are generated in interactions with others. That is, according to Becker, it is not the chemical compounds of drugs such as cannabis or hallucinogens that cause continued use or that produce the behavioral and experiential effects that users associate with the drugs. Rather, continued drug use is a result of a social learning process. Given that Becker's theory was developed on the basis of face-to-face interactions among novice and experienced drug users, it is pertinent to ask how the social learning process is affected when interactions are virtual rather than face-to-face.

In this article, we turn to a growing on-line drug community in order to address two questions, both informed by Becker's pioneering study of drug use: First, how does the social learning process that facilitates and informs drug use operate in the context of an on-line drug community? Second, how do individuals learn to induce, interpret, and enjoy experiences with novel hallucinogenic drugs? Specifically, this study analyzes text-based interactions at the Web forum and on-line drug community *DMT-Nexus* (http://www.dmt-nexus.me), organized around the drug dimethyltryptamine (DMT).

SOCIAL LEARNING AND SUBCULTURAL DRUG USE

Knowledge and meanings gained through social interaction within drug subcultures shape the interpretation of drug-induced experiences and influence patterns of use (Becker 1953, 1967; Watts 1971). According to Becker (1953), the micro-level social learning process involved in becoming a cannabis user is as follows: first, learning to ingest the drug, secondly, learning to recognize its effects and finally, learning to appreciate those effects. Further expanding on this theory, in a later study, he theorizes that "the historical development of a subculture" (Becker 1967:163) is linked to a reduced likelihood of hallucinogenic drug use resulting in negative psychological states such as anxiety and dysphoria. The existence of a drug-positive subculture allows for positive interpretations to develop about drug-induced states and thus enables enjoyment and continued use (Becker 1967).

As hallucinogenic drug-induced states often entail a high level of suggestibility, the same drug, when used under different conditions and in different contexts, can induce highly disparate experiences (Becker 1980; Goode 2008; Watts 1971). Thus, to enjoy drug use, individuals must learn both how to use the drug (dosage, techniques) and how to interpret their drug-induced experiences as enjoyable (Becker 1963). Social learning within drug subcultures allows individuals to define their drug use and its effects as positive, valuable, or at least non-problematic (Becker 1967; Johnson 1980; Watts 1971), and also to avoid cognitive discomfort during usage (Anderson and Mott 1998; Becker 1963). Participation in drug subcultures can also help

minimize the stigma of deviance labeling and undermine the legitimacy of anti-drug propaganda (Blackman 2010; Walsh 2011). Pro-drug subcultural communities allow individuals to cultivate a base of knowledge, meanings, and self-identity conducive to drug use and enjoyment despite its deviancy, illegality, and potential for undesired consequences (Becker 1967; Johnson 1980; Watts 1971). In other words, drug subcultures facilitate the transmission of knowledge and meanings that enable both drug use and the ability to find drug-induced states pleasurable. They therefore have a profound effect on the cultural associations and patterns of behavior among drug users.

However, drug subcultures change over time in response to shifts in technology, mainstream culture, social policy, social structure, and other societal factors (Golub, Johnson, and Dunlap 2005; Johnson 1980). Therefore, in order to understand the ongoing process of "subcultural evolution" (Golub et al. 2005:218), sociological research on drug use must examine and address new forms of subculture as they emerge. On-line drug communities, as newly emergent forms of subculture, thus warrant in-depth analysis in order to better understand how they shape the social processes related to drug use in contemporary society.

Implications of On-Line Drug Communities for Social Learning

The advancement of the Internet and particularly Web 2.0 technologies[2] has led to the emergence and growth of on-line communities—membership-based virtual collectivities that use forums, user groups, blogs, or on-line bulletin boards for instantaneous communication on a potentially global scale. Past research illustrates that on-line communities function as spaces for their users to develop and share knowledge (Simpson 2003; Varga 2011) and request and provide social and emotional support (Chua and Balkunje 2013). They are generally devoted to a shared interest (King 2008) and on-line drug communities are those that center on drugs and drug use. Murguia and colleagues (2007:58) note that participants of on-line drug communities are "firmly embedded in two interconnected worlds": a physical one in which drug use occurs and a cyber one in which information is exchanged.

The traditional social learning model asserts that drug use is learned primarily through socially shared drug taking and "observation and imitation" (Becker 1963:48) between novice and experienced users. How, then, is learning accomplished via computer-mediated communication? Existing scholarship has demonstrated that the Internet is an important medium for spreading subcultural knowledge (Holt and Copes 2010), and also that the members of drug subcultures share experiences that are sometimes difficult to describe (Slattery 2005) with the help of metaphorical and symbolic language (Montagne 1988). Additionally, we know that on-line conversations between drug users regularly involve pseudonymity (Barratt 2011), a specialized argot, and other modes of communication to avoid self-incrimination. The argot of drug users provides a means for both covert information exchange and group membership signification and as such plays an important role in generating shared meanings (Agar 1974; Cromwell 1970; Johnson et al. 2006; Mieczkowski 1986).

However, exactly how such characteristics of on-line drug communities impact use and experiences is as of yet undetermined. Because computer-mediated communication does not

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[2] Web 2.0 technologies are Web platforms and other virtual spaces that foster real-time interaction and participation in content creation rather than simply content consumption (Thomas and Sheth 2011).

rely on the physical presence of individuals and the undertaking of shared drug use, the social learning process outlined by Becker cannot be applied directly. Therefore, research on on-line drug communities necessitates the development of an elaborated conception of the social learning process. In order to explore the issues posed by this emergent situation, in this study we analyze the interactions within an on-line drug community to examine the social learning process that enables the use of novel hallucinogens. Hallucinogens, like DMT, are especially ripe for analysis given the central nervous system's reactions to these drugs, which often have the effect of producing hallucination-laden "trips" (Goode 2008; Freye & Levy 2009), in comparison to the arguably more subtle subjective effects of cannabis as explored by Becker. The following section provides an overview of the on-line drug community, *DMT-Nexus*, and the novel hallucinogenic drug that the community is based around (dimethyltryptamine).

The Case of Dimethyltriptamine and *DMT-Nexus*

According to data from the Global Drug Survey (2012), 6% of U.S. respondents had used DMT in the past 12 months, which is a high proportion given that hallucinogenic drug use is generally infrequent (Goode 2008). DMT affects the central nervous system to induce an altered state of perception and consciousness and its subjective effects include "intense visuals, euphoria, [and] even true hallucinations (perceived extensions of reality)" (Freye and Levy 2009:219). A sense of alternate reality and "apparent communication with discarnate entities" (Meyer 1994:161) generally characterize DMT-induced experiences. At high doses, DMT use can induce experiences such as "loss of body-awareness" (Meyer 1994:171) and loss of identity or "ego death" (Hayes 2000; Meyer 1994). Like other hallucinogens, DMT is not a chemically addictive substance but rather one that requires the cultivation of an appreciation or "taste" for the experiences that it can induce (Goode 2008). Thus, its use is not well explained by pharmacological addiction models. Rather, DMT use is an acquired taste as it is not enjoyable or otherwise positively experienced without the appropriate context, knowledge, and meanings. Therefore, it provides an exemplary case for examining the role of social processes in influencing patterns of drug use within the context of on-line communication.

We do not know specifically how many of the DMT users have visited or participated in on-line drug communities, like *DMT-Nexus*. But we do know that participation in *DMT-Nexus* and similar sites has grown rapidly during the last few years. Although DMT is a relatively small niche drug, as of January 2014, there were over 458,000 posts on the forum altogether. While the site has been in existence for 5 years, the majority of the posts are dated at 2011 or later. Furthermore, the growth of *DMT-Nexus* reflects a more general trend. A cursory search engine search reveals that many other on-line drug communities have sprung up on the specific topic of novel hallucinogens (such as bluelight.org, shroomery.org, psychonaut.com) and DMT in particular (such as dmtsite.com). According to the site's "Attitude Page" (wiki.dmt-nexus.me/Attitude_Page), *DMT-Nexus* is "dedicated to expanding knowledge regarding DMT and related psychedelics, with a strong focus on the safety and respect necessary both in the use of these substances as well as in the form of developing the knowledge and sharing the knowledge within the community." In other words, it aims to facilitate non-problematic hallucinogen use.

METHODS

This study is largely concerned with how individuals participating in on-line drug communities share and develop knowledge and meanings conducive to drug usage. To explore this issue we use data derived from posts within the on-line drug community *DMT-Nexus* (dmt-nexus.me). Data collection took place between September 24 and 28, 2012. We utilized a random number generator in order to draw a randomized sample of 201 threads from three subforums (*First Steps in Hyperspace, DMT Experiences*, and *Quality Experiences*) specifically geared toward the sharing of experiential narratives. *First Steps in Hyperspace* is a subforum where novice users solicit advice from more experienced users, and share their experiences. *DMT Experiences* is a more general subforum for users to share and discuss DMT-induced experiences. *Quality Experiences* is a subforum that contains posts that community moderators have selected as high quality (well-written and meaningful) descriptions of DMT-induced experiences. Using posts from all three subforums made it possible to identify the different aspects and stages of the social learning processes. Each of the threads was exported from a Web browser and converted into a Portable Document Format (PDF) document that could then be qualitatively analyzed.

CODING AND ANALYSIS

We used *Nvivo9* qualitative research software for coding textual content from the PDF documents produced by the data collection process. Our coding process focused on recognizing and classifying the specific elements of the process whereby shared subcultural knowledge and meanings are generated (such as practices, interpretations, argot, explanations, and norms). We identified the themes capturing the knowledge and meaning categories produced at the site inductively (Denzin 1992; Pressler and Dasilva 1996; Prior 2008), while using Becker's (1963) stages of the social learning process and the wider literature on drug use and on-line communication as a general basis for categorical construction. We also analyzed the conversations within the threads based on the structure of forum-based websites; specifically, we analyzed threads consisting of original posts and responses drawing loosely on the concept of "adjacency pairs" in conversational analysis such as "'question—answer'; 'greeting—greeting'; and 'request—reply'" (Gibson 2009:7). Thus, in order to apprehend the conversational aspect of the site within our findings, we inductively coded reaction posts from other members in the community to the experiential accounts, information, and questions contained in original posts. After identifying and categorizing word clusters from the text within these documents, we then formulated a new theoretical framework composed of a series of social learning steps that explain and reflect these inductive categories.

LEARNING TO USE DMT ON-LINE

Becker's (1953) social learning model of drug use includes learning to effectively ingest or consume the drug, learning to recognize the effects of drug consumption, and learning to appreciate these effects. As on-line contexts and novel drug use alter this process in meaningful ways, we have elaborated the social learning model in the context of on-line drug communities.

The three stages of Becker's (1953) model have been updated to highlight relevant findings of this study such as procuring or producing the drug, the ability to properly experience and moderate drug-induced states, and the interpretation and reframing of drug-induced experiences. Furthermore, the addition of a stage that both precedes and permeates all other stages and relates to unique aspects of on-line communities such as their reliance on computer-moderated communication is a key contribution of this model.

Computer-Moderated Social Learning Model of Drug Use:

1. **Learning to communicate and comprehend knowledge and interpretations**—Relevant knowledge includes the ability to use descriptive language for meaningful communication, modes of articulation, technological proficiency, community norms, and argot. It also includes the ability to access and comprehend the individual messages and overall conversations within a particular on-line space. Arguably, this stage of development both precedes and takes place throughout subsequent stages as drug users' communicative skills provide entré to an on-line community and continue to grow as they navigate the social learning process.
2. **Learning to access and consume the drug**—Relevant knowledge includes effective means of procurement, preparation, and consumption.
3. **Learning to recognize and experience drug-induced states**—Relevant knowledge includes the ability to recognize and modulate the intensity levels of drug-induced states, techniques for avoiding anxiety and negative experiences, and useful considerations about setting, context, intentions, and attitudes.
4. **Learning to interpret drug-induced experiences**—Relevant knowledge includes the ability to recognize and appreciate specific drug-induced phenomena, derive positive or useful meaning from drug-induced experiences, and techniques for reframing and integrating experiences into daily life.

A principle form of distinction that emerges in our analysis is not only the temporal frequency or regularity with which individuals consume DMT but also the overall amount of times that one has consumed the drug (hence the use of the term "experienced" throughout this article) and one's stock of relevant knowledge. Thus we define novice users as not only first time users or interested potential users but more broadly as those lacking sufficient experience and knowledge to effectively induce, recognize, and appreciate DMT-induced experiences.

The following presents the findings of the analysis of *DMT-Nexus* and illustrates the differences that emerge in comparison to Becker's (1963) social learning model and analysis.

Stage 1: Learning to Communicate and Comprehend Knowledge and Interpretations

Social learning related specifically to written communication is a particularly important aspect of on-line drug communities. That is, communication styles, descriptions, and self-presentation through text are of greater significance within the discussions and experiential narratives of *DMT-Nexus* than they are in off-line interactions between drug users, where behavioral styles and bodily movements are especially important. While we have placed it as "Stage 1" due to its precedence, it is important to point out that communication and comprehension is a vital aspect

to all social learning on-line. For new members of an on-line drug community like *DMT-Nexus*, the first task is to learn the specialized argot that participants use. For instance, as many of the actions and events described within users' reports are prohibited by law, their exposition and discussion is a potentially incriminating act. In order to mitigate this issue, forum users commonly write "SWIM" ("someone who isn't me") as a first-person pronoun in experiential narratives and novice users are encouraged to "learn to SWIM" in order to properly share their accounts. Argot serves as a means for both avoiding incrimination and communicating implicit meanings. Thus, users may state that they used "spice" (a common argot term for DMT specific to its on-line subculture) to "breakthrough" to "hyperspace" or that they "journeyed" to "the spirit realm" rather than outright stating that they smoked or vaporized DMT.

Alongside argot, the development of shared knowledge plays a key role in the communication between drug users. The most utilized types of knowledge in this context include knowledge about the drug and its history (e.g., information from pro-drug literature, indigenous understandings of ayahuasca use), scientific knowledge and expertise (e.g., cognitive and physical science, philosophy), and knowledge that links DMT use to the spiritual realm (e.g., religion and spirituality). In addition to DMT-specific knowledge, the kinds of knowledge and experiences that can be utilized to interpret and frame DMT-induced experiences are especially valued. The effective conversion of experiences into language for communication is an essential element of the social learning process within on-line drug communities. In *DMT-Nexus*, the positive responses to posts that are deemed of particularly high quality, that provide easy-to-understand explanations, and that are viewed as credible accounts of DMT-induced experiences, serve to validate the knowledge and interpretations contained within them. Such posts are composed by users who are able to describe and interpret their experiences with DMT in detail-rich and meaningful ways. For instance, one *DMT-Nexus* member describes the visual aspect of his experience as:

> Pixellated glyphs; undulating, twisting, rotating geometric shapes. Cellular strands like complex hyperdimensional rubik's cubes arranged into fractalised temples of data. Constant shifting, rearranging, representing. Information overload moebius-twisted and then folded in on itself.

The high value assigned to the ability to describe and articulate subjective drug-induced experiences among members of the *DMT-Nexus* community relates to the commonly expressed perception that psychoactive drug-induced experiences, like those induced by DMT, are difficult to articulate, if not being entirely indescribable. For example, one user remarks in an experiential narrative that "[W]ith $300,000,000 and the finest film crew the world has ever seen, I could not replicate this moment, so there's no way I can do this justice with my feeble words."

Thus, positive and validating responses to experiential narratives are most commonly based on the resonance of the descriptions included. Contributors comment that particularly vivid posts are "a pleasure to read," and praise those who do a "[g]reat job in articulating your experience." It is clear from such comments that it is the composition of the text—the writing itself—that prompts praise, as this final comment illustrates: "Your writing flows so smoothly that I felt myself being lulled into a tranquil, blissful trance as I read it."

The ability to describe experiences and communicate knowledge within the context of an on-line drug community thus plays a role in both the transmission of information and the generation of status between users. As the diffusion of knowledge and meanings in drug subcultures generally flows from more experienced or knowledgeable users to others (Becker 1963), status

distinction is a key aspect of the social learning process. In off-line interactions, drug users typically assess each other's status based on performances of self within face-to-face interaction such as verbal communication, drug taking technique, and ability to enjoy drug- induced states (Becker 1963; Watts 1971). However, on-line drug community members assess each other's level of experience and knowledge based on self-presentations performed primarily through text. Thus, this aspect of the social learning process is of importance throughout the social learning process as the unique context of computer-mediated communication shapes the social learning processes in on-line drug communities in distinct ways.

Stage 2: Learning to Access and Consume the Drug

According to Becker (1953), the first stage in learning how to become a drug user is learning how to effectively consume the drug. Individuals must first gain access to the substance itself before using it. Becker (1963) finds that experienced or regular drug users often provide drugs to novice users via shared drug taking and that individuals often access drugs through social networking with other drug users or drug dealers. While the sale and purchase of DMT are often not discussed on the site due to legal concerns, the reliance of social networks for accessing drugs is corroborated by several accounts in *DMT-Nexus*: "[S]o my friend unexpect-edly brought dmt, i was interested about it for a couple of years, have read many books, trip reports etc. I couldn't miss this opportunity"; "I've been talking to a friend about my recent trips & he was expressing some interest so i told him next time i come round to his place i'll bring some DMT & said its completely up to him if he wants to try any."

DMT users may also choose to produce the drug themselves either as a measure of quality control or due to difficulty obtaining it through other channels. There are several subforums in *DMT-Nexus* (such as *DMT Extraction* and *General Extractions Help*) geared toward knowledge sharing about methods for extracting DMT from quasi-legal plant materials. As the process of extraction can be quite complicated, novice users often pose questions or solicit advice on the topic of extraction techniques to more experienced users. For instance, in response to a question posed on an extraction technique, an ostensibly experienced user suggests "remove from freezer after precipitation, pour solvent to another container (use a coffee filter to capture crystals that aren't stuck to the jar) then place upside down in the freezer, open, with a couple folded paper tissues under it."

Once an individual gains access to DMT, he or she must also learn techniques of consumption, including the preferred paraphernalia. The argot term "GVG" refers to the "Glass Vapor Genie," a device commonly used to vaporize synthetic DMT and other substances such as cannabis. According to many *DMT-Nexus* participants, using a "GVG" increases the efficiency of use and minimizes discomfort and damage to the lungs and throat in comparison to the harshness of smoked DMT. One user claims: "I have had absolutely no displeasure with the GVG… It honestly just tastes like warm floral air, even somewhat soothing."

Such accounts can influence other users' drug-taking choices. Another user states in the same thread: "So I have decided to believe the hype and get myself a GVG."

Additionally, experienced users provide advice and encouragement to help novices master the preferred modes of consumption: "Use several metal screens otherwise the DMT [will] melt and fall down inside the pipe, nothing beeing [*sic*] vaporized"; "A lot of attention to technique is

needed at first i suppose. I imagine once you have it, you have it. Like riding a bike only way cooler."

Gaining the ability to access a drug and consume it allows drug users to induce a state of altered perception and consciousness. However, the ability to enjoy this state relies on the acquisition of further knowledge and meanings relating to the recognition, modulation, and interpretation of drug-induced experiences.

Stage 3: Learning to Recognize and Experience Drug-Induced States

Learning to recognize the effects of a drug and connecting them with drug use is the second stage in Becker's (1953) social learning process. Within the context of *DMT-Nexus*, this stage involves learning not only how to recognize but also how to properly experience DMT's subjective effects. The argot term "breakthrough" refers to an experience of full submergence into the so-called alternate reality that is associated with a strong DMT-induced state. This "alternate reality" is commonly referred to as "hyperspace," a term popularized by subcultural icon Terence McKenna (1993). Although the definition of a "breakthrough" experience is murky among DMT users, one user explains that "when you do actually fully breakthrough you'll know it." Some of the discussions in *DMT-Nexus* focus directly on how to produce a "breakthrough" experience. Advice on this topic ranges from proper dosage ("20–30mg is breakthrough dose when taken in single inhalation") to the right kind of intentions and attitudes:

> I do believe your attitude has a huge impact on your experience. I vividly remember the journey where I said to myself: "forget the anxiety, forget your fears, stop worrying about dosage and inhaling long enough, and just relax and experience something extremely beautiful and rare."

> I did not know it at the time, but I was being "locked out" of hyperspace because I was beginning to view the sacrament as an escape from reality, rather than a powerful medicine.

Conversations on how to achieve a "breakthrough" experience illustrate that the perception of a drug and its effects greatly influences the subjective experiences that it induces. That is, although some users describe the "breakthrough" in somewhat objective terms as though it entails gaining entry to a particular place or state of existence, it is evident from the discussion as a whole that the "breakthrough" is more about interpretation than a biological reality. Without interpretive guidance, in other words, it would be difficult for users to understand and derive meaning from their drug-induced experiences. In particular, positive interpretations enable drug users to justify their drug use and perceive it as beneficial. Thus the interpretation of drug-induced experiences plays a primary role in discussions in the *DMT-Nexus* community and facilitates the social learning process that underlies drug use.

Stage 4: Learning to Interpret Drug-Induced Experiences

In Becker's (1953) model, learning to enjoy the effects of the drug is the third and final stage in becoming a regular drug user. In the case of hallucinogens, like DMT, this involves finding ways to interpret and assign meaning to experiences that can be confusing and bizarre. Thus DMT users must not only learn to recognize and appreciate the sensation (or "high") of DMT-induced states but also learn to somehow make sense of whatever strange, even frightening, experiences that DMT induces. Due to the intensity and all-encompassing nature of high-dosage DMT-

induced experiences, novice users often report tremendous cognitive and even physical discomfort, as the following comments illustrate:

> I was terrified. My mind was screaming, "WHAT THE FUCK IS HAPPENING". what was left of my conscious mind was reeling with fear on a scale i never knew existed.
>
> [T]he most complete fear imagineable [sic].
>
> I felt utter despair and abject hatred.
>
> I had lost my mind for many hours and fallen into complete madness.

It is through interpretation that *DMT-Nexus* members create narratives that articulate and make sense of such confusing experiences. One of the most important and common interpretive tropes is that of "travel" or "journeying" to another, outer-worldly space. Users describe this travel destination as a "spirit world," a "place past reality," a "timeless, numinous, stunning, higher dimensional realm," a "visionary space," and a "realm beyond life/beyond death." With the help of the travel metaphor, in other words, users are able to ground their drug-induced experiences in something that is not only familiar but also meaningful. Moreover, like other kinds of travelers, DMT users refer to their trips as transformative in some ways, as in "I will never be the same" or "I came out better after taking DMT." Other users identify very specific rewards of their drug-induced journeys:

> As part of this [new] "all-in" mentality, i have been celebate [sic] for several months now. i don't even masturbate anymore. i am a vegan (about 75% raw) and i meditate daily.
>
> This one experience changed my life profoundly. It inspired my art, it inspired my thinking andd [sic] feeling. It made me a more "spiritual" person if you will, opened me up to a whole new world of possibilitys [sic].

Not surprisingly, given the intensity of their experiences, a fair amount of discussion is devoted to the question of the extent to which their travels are "real" in some way, as opposed to simply chemically induced hallucinations. The following examples are illustrative:

> [A]s for whether it [is] real or not—I don't know, I don't think anyone can say for sure. It sure seems real when it's happening though.
>
> [T]he entities certainly feel very real, so to me they are!
>
> Whether or not they're external is one thing, but I feel rather confident in declaring that I don't believe that they are figments of the imagination.
>
> I tend to believe that these entities are very "real", while it's been hotly debated, I think the notion that they are just figments of our imagination is just infinite human arrogance.

And it is this sense of reality that encourages users to articulate their experiences in terms of things and entities that are symbolically real, even though not always entirely of this world. For example, they routinely rely on well-established cultural archetypes to describe the beings they encounter on their journeys. One described "a four-legged, 2-D animal-like entity" that made him think "of cats." Another reported encountering a "man and a woman" that looked like "an archetypical Adam and Eve." Yet others reported contacts "with 'greys' and other alien type creatures," a "dark character all in black [that] is laughing in my face, running back and forth all over me," and even "a being whom I call God." It is evident from the descriptions that users often regard such encounters as "real," that is, as something more than a hallucination and

temporary drug-induced psychosis. Rather, they are experienced as sources of wisdom or revelation: "I was 'told' by something that I was afraid of letting go and giving in. It wasn't an audible voice but a feeling that was imprinted on me"; "That's when it told me that the universe was made of love, and if I listened for it, I could be wrapped in this love too."

Given such interpretations, it is not surprising that many users come to view DMT-induced experiences as transformative and as revelatory sources about themselves and the world around them. Examples include: "I realized that the world is imagination"; "I knew right then that there was literally no such thing as death […]. I felt that there is only one thing, and it is an inner consciousness"; "One lesson coming through loud and clear is just how small I really am."

Such interpretations make it possible for users to translate otherwise incomprehensible and frightening mental activities into meaningful, positive, and transformative experiences.

But it is also evident from the discussion boards that even experienced users sometimes have difficulties integrating too many intense, strange, or negative drug-induced experiences into a functional worldview. Such experiences can result in dysphoria that permeates into everyday life. Individuals who fail to positively reframe and effectively integrate such experiences can suffer negative psychological and social consequences which become a barrier to further use. One user recalls: "eventually things got out of hand and it was causing me problems in the real world so i had to stop. It became harder and harder to hang on to reality. It just all got too weird to be healthy so i took 18 months off from dmt."

In *DMT-Nexus*, many conversations are geared toward helping individuals positively reframe and cope with potentially negative encounters with DMT. These conversations are often precipitated by requests for advice or the sharing of problematic experiences. Furthermore, such conversations are spaces for social learning which can enable the continuation of drug use: "Taking your time and not feeling rushed will make a big difference in being able to lock down what happened and assimilate it"; "Stay grounded, that[s] the best words of advice i can give anyone working with dmt. It's not hard to go a bit sideways with this stuff"; "If you feel you've gone too far, recede for a while. Don't take anything for a while. Your brain will reset itself over time, and level itself out."

As we have shown in this section, the recurrent interpretations of drug-induced experiences are deeply influenced by the experiential narratives found in on-line drug communities. Taken together, then, the on-line social learning process which enables individuals to become drug users includes knowledge and meanings relating to methods of drug possession and consumption, the modulation and interpretation of drug induced experiences, and community and subculture specific social and communicative norms and modes of expression.

CONCLUSIONS AND FUTURE RESEARCH

Past research has examined the growing connection between the Web and drug use (Boyer et al. 2007; Walsh 2011) and scholars have studied on-line drug communities to further our understanding of both individual drug users (Murgria et al. 2007), and macro-level drug use trends (Vardakou et al. 2011; Corazza et al. 2012; Delcua et al. 2012; Forsyth 2012; Bruno et al. 2013). Past research has also found that the Internet serves as a space for learning subcultural knowledge conducive to deviant behaviors such as Internet piracy (Holt & Copes 2010). However, the social territory of on-line drug communities has remained largely

uncharted by researchers despite its clear impact on contemporary drug use. To further such exploration, this study finds that on-line drug communities are sites for the social learning process that enables drug use. It advances the sociological literature on drug use by presenting a model of the social learning process that facilitates the use of novel hallucinogens with the help of on-line drug communities.

In order to address emergent trends such as the rise of novel hallucinogen use and on-line communities, we have expanded and modified the model of social learning developed by Howard Becker. To become a regular drug user via an on-line drug community a novice user must learn how to communicate and comprehend the knowledge and meanings within the on-line community, properly procure and ingest the drug, modulate drug-induced experiences through attitude and dosing, positively interpret and reframe drug-induced experiences, and integrate them into the reality of everyday life. The data and analysis within this study reveals how the characteristics of on-line communication significantly shape the social processes of learning and interpretation that take place among a group of users of DMT within their on-line community.

While the findings of this study demonstrate that many of Becker's (1953, 1963, 1967, 1980) insights on processes of collective meaning making and social learning within drug subcultures also apply to on-line drug communities, they also suggest some important modifications. In the absence of face-to-face interaction and shared drug taking, drug users communicating on-line must rely on other methods through which to gain relevant knowledge and interpretations; such methods include posing questions, receiving advice, and reading and commenting on the experiences and interpretations of others. Additionally, the reliance of public or semi-public on-line communities on computer-mediated communication facilitate the creation of specialized expressions (such as "SWIM") and argot (such as "spice"), which are not fungible to off-line contexts. Thus the development of a highly specialized system of linguistic communication is an essential aspect of the social learning process of drug use in on-line contexts. Finally, in the case of hallucinogens, like DMT, the interpretive challenges are especially acute given the intensity and wide range of potential subjective experiences. It is for this reason that the generation of experiential narratives that can help users understand and describe that which is at a fundamental level largely indescribable is such a crucial step in the on-line social learning process. Without such grounding narratives it is highly unlikely that novice hallucinogen users will move on to become more experienced, knowledgeable, and regular users.[3]

The on-line community shared by DMT users is interlinked with the off-line social world of each user. In contrast to off-line social networks of drug users and drug subcultures, on-line drug communities uniquely provide a highly accessible and centralized store of information about drugs and drug use that can be verified and validated through the experiences and knowledge shared by a multitude of users and participants. While implications such as this and the uniqueness and nontransposability of certain forms of on-line articulation can be drawn, the present study cannot fully address the on-line–off-line connection due to a lack of rigorous and systemic data on the off-line and face-to-face interactions among DMT users. Thus future research should utilize a mixed methods approach that can effectively integrate data about the

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[3] In the case of hallucinogenic drugs such as DMT, regular usage in terms of high frequency or daily usage is largely uncommon (see Goode 2008). However, our analysis of *DMT-Nexus* did reveal evidence of many users who claimed to consume DMT fairly regularly (i.e., more than once a month).

on-line and off-line worlds of drug users. Moreover, why individuals seek out on-line drug communities and how they discover them are pertinent topics for future analysis.

This study contributes insights about the social learning process within on-line drug communities. However, it specifically focuses on a community of hallucinogen users. There are likely differences in the valued knowledge, interpretational strategies, and meaning making in on-line communities based on drug type. Cursory examination of the heroin subforum within the general on-line drug community drugs-forum.com suggests that harm reduction advice may be more commonly shared by heroin users on-line than positive interpretations of the heroin experience. Users within on-line communities based around other chemically addictive drugs such as cocaine may share narratives that serve as warnings of addiction, justifications for use, or maps of stages of addiction and abuse over time. Further research is warranted to extrapolate these issues in depth and flesh out the heterogeneity of on-line drug communities.

As a final note, while websites that facilitate the flow of information between drug users have become more commonplace, the Web is also increasingly becoming a place for not only discussions about drugs but also their commodification (Walsh 2011). While the on-line drug community analyzed in this study does not aim to facilitate the sale of drugs, they are often solicited and sold on-line within the so-called "dark web." On-line illicit drug marketplaces exemplified by the now defunct *Silk Road* on the anonymous Tor network, essentially an EBay for illegal drugs, and its current progeny provide access to a wide variety of drugs and other contraband shipped via mail using the untraceable digital currency bitcoin (Chien 2011). The emergence of highly organized virtual black markets makes the Internet not only a source of information about drugs, social support, and other intangible resources but also a source of drugs themselves. Furthermore, the "hidden" nature of such sites along with the extreme potential for incrimination and conflict with legal authorities presents a slew of important issues that significantly influence the way on-line communication relates to illicit drug use and distribution in contemporary society warranting intensive sociological research.

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