ARTICLE

Cultures of chemically induced hallucinations

Vaughan Bell considers what we can learn from how other societies approach hallucinogenic drugs

Drug-induced hallucinations are often discussed as if they can be entirely understood in terms of their chemical action in the brain. But the social role of hallucinogens varies greatly between cultures, and, conversely, culture has a large effect on hallucinogenic experiences and their significance. As a result, hallucination-producing psychoactive substances can only be fully understood by understanding their interaction with social context which has differed throughout history and across the world.

question

Why are some cultures so much more accepting of the use of hallucinogenic substances than others?

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Traditionally, discussions of culture and mind-altering drugs focus on remote peoples and exotic locations, but it is worth starting by underlining how unusual our own culture is in terms of its acceptance and use of hallucinogenic substances.

In the history of Britain, hallucinogens have had a remarkably minor role in the social fabric of society. This is despite the fact that hallucinogenic plants are common and widespread throughout the country. Perhaps the most striking historical absence is the seeming unawareness of the effects of the 'magic mushroom' (*Psilocybe semilanceata*) until 1799. This first report was written by the physician Everard Brande in an article for *The London Medical and Physical Journal* after he was called to treat a family who had been acting strangely after inadvertently picking the mushrooms for their breakfast stew in London's Green Park. Before then, it seemed these common fungi were considered as nothing more than uninteresting and inedible brown pests. Even more surprising is the fact that first record of our native psilocybin mushrooms being intentionally used for their effects, rather than being detected as cases of accidental poisonings,was not until 1970 (Letcher, 2007). In contrast, pre-Columbian societies of Central America used psylocybin mushrooms as a central part of religious practice and based significant parts of their culture around them, probably for several thousand years (Borhegyi, 1961).

The other grouping of hallucinogenic plants native to the British Isles include species from the *Solanaceae* family (including deadly nightshade, mandrake and henbane) and the fly agaric mushroom (*Amanita muscaria*). These are probably better described as deliriants rather than psychedelics, as they cause a marked confusion and clouding of consciousness due to their effect on the acetylcholine neurotransmitter system. Although the plants' medicinal value as a sedative has been known for millennia, the hallucinatory effects have generally been seen in negative terms (Müller, 1998). In Britain the plants were largely associated with poison, enchantment and witchcraft and made up part of witches' 'flying ointment'. This consisted of a mix of nightshade plants, grease and sundry ingredients, which was applied to the genitals and upper thighs using an applicator, likely a chair or broomstick. The effects included trance and hallucinations of flying and, according to their accusers, the experience of 'cavorting with devils' (Holzman, 1998). This was possibly the basis for the 'witch on flying broomstick' legend.

It wasn't until the Victorian era that drug-induced hallucinations were treated as a general source of curiosity in Britain.The advancement of anaesthesia led to experiments with substances like ether and laughing gas, while the Romantics discussed their opium-induced visions and the glimmerings of early psychedelic research began as investigators in the New World began to take interest in the local flora – psychologist William James's experimentation with the hallucinogenic peyote cactus perhaps being the most famous example. Nevertheless, from the perspective of many other cultures, Britain, and many of the countries where mainstream culture stems from British colonisation, must seem like places with a rather stark history of cultural lack of interest, if not active hostility, to hallucinogenic substances.

In contrast, there are many societies that have hallucinogenic substances as an

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integrated part of their culture and where they have a markedly different social significance. The Americas, and particularly the Amazon, are the global ground zero for hallucinogen-using cultures, not least due to the massive and diverse range of hallucinogenic substances that can be found within the flora and fauna of the region.

Grouped psychopharmacologically, three of most significant substances alter the serotinergic system and lead to broadly LSD-like effects: these include the ayahuasca brew (principal active ingredient: dimethyltryptamine or DMT), peyote and related hallucinogenic cacti (principal active ingredient: mescaline) and a range of hallucinogenic fungi (principal active ingredient: psilocybin).

Ayahuasca or yagé is one of the most well-known to anthropologists and is consumed by indigenous peoples throughout the Amazon and northern South America. It is made from a combination of the *Banisteriopsis caapi* vine and a locally sourced plant (often one of the *Psychotria* genus) that has high levels of DMT. *Psychotria* is ineffective when eaten on its own because DMT is naturally broken down by enzymes in the stomach, but when combined with *Banisteriopsis caapi* the active ingredient passes into the blood stream due to the high level of monoamine oxidase inhibitor in the vine. However, a significant quantity needs to be consumed orally as ayahuasca induces forceful vomiting, meaning several drinking/vomiting cycles are usually necessary to obtain the required dose.

Yagé preparation

The typical Western account of why ayahuasca is consumed usually focuses on 'getting in contact with the spirit world', but this fails to capture either the cultural worldviews in which ayahuasca consumption is situated or the motivations behind the ceremonies. The first thing to note is that Amazonian people can differ greatly in how they understand reality in relation to themselves. For example, the Cashinahua, Siona, and Schuar peoples all use ayahuasca as a tool for revelation but differ markedly in how they understand the experiences it produces. The Cashinahua understand ayahuasca as causing hallucinations that provide guidance (Kensinger, 1973), the Siona believe that it allows access to an alternative reality (Langdon, 1979), while the Schuar take all normal human experience to be a hallucination and take ayahuasca as a way of accessing true reality (Obiols-Llandrich, 2009). These different views of reality clearly have an impact on how any hallucinogenic drug would be understood.

The perceived causal link between reality and consciousness also plays a part in how the experiences are integrated into everyday life. Although ayahuasca rituals are often considered to facilitate 'healing' in a way we would understand it (ameliorating a specific state of bodily distress or disability, albeit by tackling one or more 'predatory spiritual beings' thought to be responsible for the malady: Langdon, 2007), the therapeutic process can extend to addressing problems of many different sorts. Among the Aguaruna of Peru, people take ayahuasca not just to understand the future, but to shape it through conscious control over the 'vision of future possibilities' (Brown, 1985). From this worldview, ayahuasca is a tool for practical problem solving rather just a way of gaining 'philosophical' insights that one applies in daily life, as spiritual revelation is often considered in our culture.

The implications of this are that any suggestion that the drug puts users 'out of touch with reality' would be widely rejected by indigenous users who see it as doing exactly the reverse. Similarly, discussing the effects of ayahuasca in terms of causing you to 'see things that are not really there' with the Schuar people is only likely to get you looks of bewilderment, while suggesting that the substance is purely 'recreational' or even 'damaging to society' is more likely to cause incredulous offence.

Hallucinogenic substances may also be valued for effects that extend beyond perceptual distortion. Indigenous Australians from Central Australia use the drug *pituri* of which a major ingredient consists of leaves of the corkwood tree. These contain both nicotine and scopolamine – the latter also being a potent anticholinergic drug which is also common in the *Solanaceae* (nightshade) family of plants. As well as having the capacity to induce hallucinations, *pituri* also acts as an anaesthetic, which is likely why it is used during male initiation ceremonies where adolescent males are circumcised and subincised – a procedure were the penis is 'split open' from below (de Rios & Stachalek, 1999). Interestingly, the drug is also thought to increase suggestibility, allowing the inception of key cultural norms

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transmitted during the ceremony that presumably might otherwise get missed due to distraction.

In many cultures there is also a wider association with hallucinogenic substances as a whole, relating to a common connection between altered states of consciousness and healing (Field, 1999). Anthropological studies have found this association across a number of traditional cultures where methods including drugs, physiological stress (e.g. fasting), intense sensory experiences and group ritual (e.g. chanting and dance) can lead to marked alterations in conscious experience, which are generally associated with their curative function due to the pleasurable and social bonding aspects of the experience (Shaara & Strathern, 1992).

This is not always the case, however, and here the line between 'hallucinogenic' and 'non-hallucinogenic' substances can become blurred – such as with the use of red harvester ants (*Pogonomyrmex*) by the Kitanemuk, the indigenous people of California. Red harvester ants have the most toxic venom by weight of any recorded insect and are known for their painful sting. The Kitanemuk initiation ritual ceremony involves swallowing balls of live harvester ants to the point where the initiate loses signs of consciousness and has intense visions for the purpose of acquiring a 'dream helper' (Groark, 2001). As harvester ant venom is not known to have any directly psychoactive compounds within it (Hoffman, 2010), it is probable that a significant part of the visionary experience comes from its effects as a toxin and the 'sensory overload' from pain.

Although there are clearly similarities between individuals' experiences with specific drugs due to the psychopharmacology of the substance (e.g. the experience of geometric patterns likely generated by destabilisation of edge-detecting neurons in the primary visual cortex: Bressloff et al., 2001), there is also a huge role for culture in terms of the shaping the hallucinogenic experience through expectation and interpretation. This may be through shared cultural beliefs or through the intervention of specific designated people within the culture – such as a shaman or medicine man who is often involved in giving personalised interpretations that go beyond lay understanding. However, this cultural shaping is not reserved to spiritual or religious contexts and it applies as much to our own drug culture as to the practices of isolated indigenous groups.

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Howard Becker (1953) describes how cannabis initiates have to take on both the practice of smoking and the psychological framing of the experience to learn how to 'get high'

In Howard Becker's classic study 'Becoming a marihuana user' (Becker, 1953) he describes how cannabis initiates have to take on both the practice of smoking and the psychological framing of the experience to learn how to 'get high'. This involves learning how to smoke in a way that will lead to efficient intoxication (e.g. holding smoke for longer in the lungs than you would with cigarettes), as well as learning to recognise the effects, connecting them with drug use, and learning to enjoy the perceived sensations. For example, many aspects of hallucinogenic drug use are not in themselves enjoyable – like the experience of visual trails after perceived motion – but can become so when incorporated into the concept of a 'good trip'. This is related to Zinberg's (1986) concept of the importance of getting the 'set and setting' right for successful psychedelic drug use with 'set' referring to the drug-taker's mental state and 'setting' referring to the environment in which the drug is consumed.

However, since Becker's study, hallucinogenic drugs have become more mainstream to the point where novice users are likely to bring a range of expectations and beliefs about what it means to 'get stoned' to their first try – meaning an experience that was usually framed through social initiation is now much more determined by cultural transmission through mass media (Sandberg, 2013). It is worth noting that it is not just the 'established media' that has a tendency to present drugs in terms of the orthodox 'harms and dangers' narrative. A recent study looked at some of the many YouTube videos created to document trips on the traditional ceremonial plant of the indigenous Mazatec of Mexico, *Salvia divinorum*, which is now widely marketed as a 'legal high' (Lange et al., 2010). Viewing the effects on other people is likely to shape expectations and, therefore, the experience of the drug, although the fact that these videos are almost entirely by suburban youth wanting to get 'messed up' means that they are likely to be no more narrow in their representations than mainstream media. Nevertheless, non-mainstream media websites such as Erowid and Bluelight are specifically designed for users to share both verified scientific and health information as well as folk knowledge about the taking and effects of drugs and do aim for a wider representation of effects.

It is worth noting that this same interaction between culturally derived expectations and experiences also happens with hallucinations associated with psychosis (Luhrmann, 2011). But while hallucinogenic drugs have long been considered for their use as pharmacological models of psychosis, their use as a model of how psychosis-like experiences are culturally moderated has never been explored, and this area may be ready for research.

Although there are clear differences with regard to the acceptance and significance of hallucinogenic drugs between societies, the effects of these substances for the individual can only be fully understood by placing them within the cultural context in which the individual lives. In this sense, all experiences with hallucinogenic drugs emerge from an interaction of psychopharmacology, individual psychology and culture.

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