http://somatosphere.net/?p=15094

The Mercurial Life of Drugs: Psychedelics as models, risk factors, and treatments for mental disorders

2018-10-30 11:46:51

By Johanna Pokorny, Kris De Meyer, Philipp Haueis, Tara Mahfoud and Sam McLean

A Workshop Report by the Neuroscience and Society Network

Introduction

The Neuroscience and Society Network organised a workshop on 11-12 July 2018 at the Institute of Psychology, Psychiatry and Neuroscience (IoPPN) at King's College London (KCL) titled "The Mercurial Life Of Drugs: Psychedelics As Models, Risk Factors, And Treatments For Mental Disorders". In the workshop, we explored what makes psychedelic research unique, different and potent, and how do (or how might) researchers manage this.

Recent decades have seen a 'revival' of psychedelic research, and the interest seems to already capture the potency and potentiality of these substances—they are not just like any other drug. In this research, psychedelics and related compounds – LSD, psilocybin, cannabis, ketamine – are used in different, sometimes seemingly contradictory, ways. In some cases, they are potential risk factors for psychosis and other mental disorders (Arseneault et al., 2002; Henquet, Murray, Linszen, & van Os, 2005). The effects of psychedelics are also used as models of psychotic states associated with mental disorders (Langlitz, 2017). However, more recently, researchers have been exploring their therapeutic value, suggesting that they open up new possible directions for treatments for mental illnesses such as anxiety and depression (Carhart-Harris et al., 2016; Vollenweider & Kometer, 2010).

How these drugs treat, however, is still an open question: by what means do the drugs "work"? How do the drugs alter experiments, trials, and therapy? How does the therapist (and researcher) work with the psychedelic experience, both phenomenologically and environmentally? How is the therapeutic potential standardized, if at all? What are the ethics

of medicalising and potentially normalising psychedelics? These different uses and questions begin to suggest their 'mercurial' quality. There is something changeable, ambivalent but also potent and potential, about these substances in combination with humans, their brains and their surrounds.

The workshop also considered the 'surrounds' of research. Psychedelic drugs have complex and potent socio-political and cultural lives, associated with illegality, spirituality, counter- and underground cultures, all of which impact research. As a result, there is interest in their prohibition or regulation, but also in possibly changing these to reflect the drugs' new potential uses and shifting social attitudes. How do these social and political histories of management impinge on the contemporary life of these drugs? How are the different drugs categorized, legalized, normalized or medicalized? What policies are in place and how do these recognise the mercurial qualities of these drugs? What various interests might be otherwise involved, such as public, state and policy concerns, as well as private, pharmaceutical or other drug-procuring business? How might these interests collaborate or conflict? What are the possibilities of and limits to change?

The workshop consisted of two parts. In Part 1, we heard presentations from three speakers: 1) Nicolas Langlitz, an anthropologist from the New School for Social Research, discussed his ethnographic work with two labs involved in the revival of psychedelic drugs research; 2) James Rucker, a clinical scientist at the IoPPN, discussed the psilocybin trials in the treatment of depression that he is conducting at KCL; and 3) Rosalind Watts, a clinical psychologist at Imperial College London, detailed the narrative accounts of patients following psilocybin treatment. In Part 2, we divided into two working groups to discuss questions organized into three themes: Pathways, Policy, and Narratives. We came together for a plenary session to share ideas from the smaller group discussions and about possible research collaborations. In the wrap-up, we discussed these potential research ideas in more detail, as well as any interdisciplinary insights that emerged over the course of the workshop which might provide pathways forward.

Part 1: Presentations And Discussion

Neuropsychedelia: The Revival of Hallucinogen Research Since the Decade of the Brain

Nicolas Langlitz, Associate Professor of Anthropology, New School for

Social Research

Nicolas Langlitz introduced his ethnographic work on the psychedelics research revival in neuroscience, during which he observed what he suggested was a reconciliation of materialism with mysticism in the science. Importantly, Langlitz stressed, if we are to discuss a revival, then it implies there was a prior breakdown. There is a standard narrative of the breakdown that the drugs became politicized and associated with a counterculture. There is a lot to this narrative, he explained, but there was also a breakdown before the standard narrative begins concerning the categorization of LSD as an “experimental drug.” Langlitz drew attention to the shift in the emergence of stronger research ethics concerning “experimental drugs” occurring with the Thalidomide scandal, which led to the 1962 amendments to the US Pure Food and Drug Act. This amendment made randomized control drug trials (RCTs) a requirement to prove the efficacy of drug treatments, something Langlitz notes is a particular challenge for psychedelics research. This change did not prevent the research but made it difficult (alongside sources of funding drying up) and academic, industrial research in psychedelics declined. Conversely, underground research flourished. For Langlitz, this raised the question of the role of underground research in the knowledge economy of psychedelics research. Self-experimentation with psychedelics was very common (i.e. Albert Hoffman’s self-experimentation with LSD and psilocybin between the 1930’s and 60’s), but this grew out of favour in academic contexts with the 1962 amendments, with the ascent of IRBs, and insurance requirements for human subjects. In recent decades, however, the internet has led to an increase in self-experimentation in more underground research. With regards to the revival of psychedelics research since the 1990’s, Langlitz provided accounts of two institutions involved in the revival: 1) MAPS (Multidisciplinary Association for Psychedelics Studies) and 2) the Heffter Research Institute (a virtual research association).

Langlitz described how medicalization became a Trojan horse to get psychedelic drugs back in the mainstream. This revival allowed researchers to reinvigorate the tradition of taking the psychoneural effects of psychedelics as a model for psychosis. This dual use reveals what Langlitz called the contradictory nature of psychedelic drugs today: they are both a model of and a treatment for mental illness. Their status as a model, however, differs from how models are interpreted in historical epistemology and philosophy of science. Models are usually “transparent”, i.e. they are simplified or idealized representations that serve as cognitive aids to understand real world phenomena (e.g. a paper version of the double helix). Because of their representational status, and because they are usually better understood than the phenomena they represent, the models themselves are not studied by scientists. Using

psychedelics as a model for psychosis, in contrast, provides an “opaque” model. It uses one mind-brain state (hallucinogen inebriation) to study another (psychosis). By using a consciousness altering substance to study consciousness substrate, the model itself is also an object of ongoing investigation.

Langlitz also pointed out a further complexity of working with psychedelics especially in treatment: their variable impact on experience (what Aldous Huxley called “Heaven and Hell”), which points to the fact that experiences are contingent on many non-pharmacological variables (Timothy Leary termed this “Set and Setting”). Do contemporary research designs reflect the impact of set and setting appropriately? Or is pharmacologization—an essentialist focus on pharmacological effects—the only option for medical trials to succeed? Or should we conduct what anthropologist Anthony Wallace in 1959 termed “culture-controlled trials,” i.e. administering the same drug (dose) in different socio-cultural settings? For Langlitz, one shift away from pharmacologicalism was marked by recent references to the synergetic effects of drugs and their context in articles on the therapeutic uses of psychedelics. What would an inclusion of context in therapy amount to? Answering this question has practical consequences for therapeutic uses, which currently only include a “modest” degree of psychological support. Is this purifying the drug action? What about different kinds of support? asked Langlitz. From a wider anthropological angle on the “context” of psychedelics, Langlitz also noted a change in funding as it related to politics. Earlier studies had been funded by private philanthropists, and although the drugs had been shown to be associated with liberal attitudes and openness (and nature relatedness), alt-right supporters (e.g. Breitbart and the Mercer Family Foundation) have recently supported research on the therapeutic value of psychedelics and other drugs. Parallel to the contradictory nature of psychedelics being treatment and model, drug and drug therapies have an ambivalent or even contradictory existence in context where they simultaneously align with alt-right and liberal political interests.

Psychiatry and Psychedelic Drugs

James Rucker, NIHR Clinician Scientist, King’s College London

James Rucker began his presentation by clarifying potential conflicts of interest. The psilocybin trials at KCL are funded by Compass Pathways, which have an interest in developing profitable pharmacological treatments for mental health conditions. Because of the clinical trial requirements and standards, there is a conflict between acknowledging the importance of context (or ‘set and setting’) for the experience and therapeutic effect

of psychedelics, and the requirements to licence the drug as a medicine – which Rucker noted is the most common way that drugs has been rescheduled historically. Psylocybin is currently listed as a Schedule 1 drug, which means it is listed as having no therapeutic value. This is in comparison with, for example cocaine and morphine, which are both listed as Schedule 2 drugs – meaning they have medical uses. The aim of the clinical trials is to investigate whether psychedelics such as psilocybin do indeed have medical and therapeutic potential.Regarding regulation, the biggest question is whether the drug (in this case, psilocybin) is harmful – it is important to answer this question in the context of the clinical trials.

Rucker then went on to present on the progress in research concerning psychedelics, which he provided a typology of, and prefaced this with statistics on their potential harm to health, which he argued is low.He divided harm into psychological and physiological types, noting that the UK Office for National Statistics has reported that only 6 death certificates in 22 years in the UK have mentioned classical psychedelic drugs (although this may be an under ascertainment due to information about the causes of death being incomplete or unknown), no withdrawal symptoms, no evidence of *in vitro* cellular damage, slightly increased heart rate and blood pressure, and complete tolerance in 72 hours. In terms of the psychological harm, Rucker showed that the deaths due to suicide on psychedelics is low, especially when comparing to other drugs (i.e. alcohol).

Rucker explained that he and his team are collecting RCT data at the IoPPN. Such trials contrasts with other research that is open label with no controls, which has the potential to be impacted by feeling that the drugs are new and exciting—the so-called “winner’s curse”. Rucker’s team is running randomized placebo trials that assume no difference between psilocybin and psychological support versus a placebo and psychological support treatment. Participants are randomized to each group, and the study is carried out in a double-blind manner. Rucker went on to explain that many treatments fail in Phase 3 trials (only 8% make it through this phase, and costs of trials up to and including this phase are, on average, $350,000,000). For trials of Schedule 1 substances, the costs may be even more because of the practical restrictions imposed by the law.Rucker’s suggestions for the future involved rescheduling the drug to open up research, especially on a specific psilocybin formulation. A psilocybin treatment could be cheaper than a course of CBT, he mentioned, and it could be focused on treatment resistant depression. If this were to go forward, Rucker pointed toward the need of specialist centres for the administration of psilocybin by therapists who went through a specific training program.

Patients' Accounts After Psilocybin for Treatment-Resistant Depression

Rosalind Watts, Clinical Psychologist, Psychedelic Research Group, Imperial College London

Rosalind Watts presented the outcomes, specifically patient narratives, from a trial with psilocybin treatment for treatment-resistant depression at Imperial College London. The study was carried out in 2015 with 20 participants, but the outcomes were so remarkable, she noted, that they were still discussing them. Patients were interviewed 6 months after the psilocybin sessions in order to follow-up on the longer-term effects of the treatment. Watts and colleagues thematically analysed these semi-structured interviews, and compared them with the effects of other treatments such as talk therapies and antidepressant medication such as SSRI's (selective serotonin reuptake inhibitor).

The patients described their depression as a disconnection from the world and their selves. They avoided emotion, specifically pain and sadness. Instead, they were trapped in negative rumination, which they described as a 'prison for the self'. Watts extracted two themes from patient narratives that underwent psilocybin treatment: first they felt an overall sense of reconnection in multiple aspects with the world – to others, their self and their senses; and second, they moved from an avoidance of negative emotions to acceptance and/or surrender of these emotions which the patients said had a 'freeing' effect. She provided many quotes evincing these two themes.

Watts explained a possible way in which this might happen is that the drugs act on habituated pathways in the default mode network of the brain which she said is de-activated during the psilocybin experience, allowing for the pathways to be less rigid. Psilocybin acts as a 'window of opportunity' where patterns of thought can change. In comparison to other treatments, patients suggested that antidepressants or even talk therapy potentially reinforce disconnection. Antidepressants may cut the peaks and troughs off of feelings while talk therapy is too short or directive (specifically when provided by the NHS because of the long waiting lists, lack of therapist training, and only 6 courses provided).

Watts emphasized the therapist's role in the therapeutic relationship. She said that we need to learn from the failures of psychiatry, to not over-regulate and standardize psychedelic therapy treatment. Watts suggested Acceptance Commitment Therapy (ACT) as providing a potential model that could ground therapy with psilocybin treatments. Overall, Watts was very positive about the potential that psilocybin might hold for patients with treatment-resistant depression but cautioned against

compromising on important elements of the therapy in order to speed up the medicalization of psychedelics.

Discussion

In the discussion following the presentations, the three speakers first responded to each other. Rucker began by explaining his own path to this research as a fascination in grasping the ineffable experiences and the altered states of consciousness produced by these drugs. When carrying out RCT trials, however, he has to take a scientific and more standardized approach which he acknowledged poses some limits to studying the more complex experiential effects of psychedelics. Watts explained that Langlitz' presentation prompted her to think about underground research and therapy and how they can learn from it. While being aware of it, she confessed that the link to this underground knowledge presents a gap in current research. Langlitz replied that during his fieldwork, he never really went deeply into the underground.

Langlitz has noticed a shift since he completed research on his book. When he was conducting fieldwork, there was little interest in using psychedelics as treatments for mental health conditions but that the treatment of anxiety and depression has since become central to discussions on psychedelics. Langlitz also raised three further issues: (1) the relation between the revival of psychedelics in treatment which coincides with a general 'crisis of innovation and pharmaceuticals' when it comes to (not) finding treatments for mental health conditions, (2) the role of set and setting in the research designs outlined by Watts and Rucker, and (3) the importance of self-experimentation in psychedelic research (especially in Germany where self-experimentation by medical personnel was seen as more ethical than experimenting on random people outside test subjects), but how this has now become vilified and seen as a liability (i.e. within context of legal concerns regarding relations between employers and personnel, and role of ethics committees).

Following comments (2) and (3), the discussion shifted toward the role of the therapist, their experience in the treatment process, and the legal and ethical commitments they undergo when treating patients with psychedelics. One question from the audience was whether and how a therapist can relate to the psychedelic experience if they have not had it. Rucker mentioned an article that discusses whether the therapists involved need to disclose prior use of psychedelics to the patients they are treating. Other questions were: what are the ethical obligations of the therapist when the patient re-experiences negative emotions of trauma? Should they control this process or let just let it happen, providing a safe

background against which the patient can work through their experience?

Besides ethical issues, another issue that emerged in the discussion is how the treatment 'works'. A clinical psychiatrist in the audience commented on Watts's presentation – emotional avoidance is an important aspect of depression that does not appear in CBT and is not treated by SSRI's; with psychedelics it seems to be the opposite, whereby patients are confronted with the emotions they avoid and are encouraged to reconnect with these emotions. This begs the question of whether the model used by pharmaceutical anti-depressive medication is wrong since it is said to 'dampen' feelings.

Another problem with psychedelics is that every treatment is individual—each patient "invents their own treatment" as Watts put it. She therefore expressed some consternation about phase 3 trials of the drugs. Does the efficacy of the drugs stand up to their regimentation in the standardization process? Currently, this question evades a clear answer because it is unknown whether the therapeutic value of psychedelics lies in their immediate impact on the brain (including the pharmacological effects on the brain and the psychedelic experience), or in the proximal effects (the "afterglow") on the patients. What is at stake in resolving these issues are how the therapeutic process after the drug treatment should proceed in integrating the acute psychedelic experience.

Rucker noted a section in Langlitz's book 'Neuropsychedelia' where the results of the psychedelics experiments depended on how the researchers treated the mice – this questions the assumption made by researchers about the lack of variability in the same species of laboratory mice. This variability, Rucker noted, does not sit well with RCT design but regulators have also accepted that a purely pharmacological approach has not worked for most mental health conditions. Rucker summed up that for now there is a need to gather evidence, especially concerning whether these drugs are safe and effective, and how much of their therapeutic value is due to their biological effects and the effects of the therapy itself.

Part 2: Discussion Sessions

Discussion Session 1: Pathways

- By what means do psychedelics and related compounds "work" as treatment?

- How is the therapeutic potential standardized, if at all?
- What are the ethics of medicalising and potentially normalising psychedelics?

We discussed that it is difficult to know whether 'they' (psychedelics) work or whether it is more complex and a combination of context and 'other'. Psychedelics make one sensitive to context, producing the psychedelic effect, however, the molecular mechanisms are not fully understood. For example, it is not known whether psychedelics work as filters or as amplifiers of sensation and perception. The question was raised whether the subjective effect of this could be disentangled from the therapeutic effect. Thinking of how to separate the pharmacological from the experiential components, the suggestion was made to recreate the experiential component only to observe its effects. If one could gather a detailed description of the subjective experience (such as in Watt's presentation), these could be put together for targeted suggestion using hypnosis, thereby eliminating the pharmacological effect of the drugs. Another proposal was to change the drugs (i.e. psilocybin vs. MDMA, etc.) and observe the differences. Microdosing might be another way of exploring the pharmacological effects without requiring a full-blown psychedelic experience.

We also discussed how the action in the brain might occur: on the physiological level of single or small populations of neurons, a corollary discharge and the feed-forward model were discussed, as well as *in vitro*experiments showing reduced precision in firing, i.e. a "broadening out" of the neuronal response that seems to match the broadening out of sensory, cognitive and emotional responsiveness that individuals experience. On the system level of whole networks, we discussed the possibility that the default mode network disintegrates, which may lead to greater communication between other systems, and a dissolution of the ego. Whether these current neuroscientific explanations are plausible depends on (a) the extent to which phenomenological properties like "broadening out" are isomorphically reflected in the neuronal response properties measured by electrophysiology and (b) whether the default mode network really has the psychological function of restricting communication and maintaining of ego boundaries, rather than a broader, physiological function of maintaining a homeostatic equilibrium between metabolism and neural activity. However, many acknowledged that it is difficult to study the physiological effects of psychedelics given our incomplete understanding of the relation between brain structure and function. Many also acknowledged that the theories mentioned above are a "leap of faith."

In terms of the ethics of medicalizing psychedelics, some suggested that several follow-up sessions should be held with patients to re-integrate

following the psychedelic experience and generally whether more psychological support needs to be provided to patients. The treatments and licensing might require special centres where context could be controlled but also with the flexibility toward the individual. The risk is that psychological support will become standardised when individualised patient support is needed. Some discussants saw it as an ethical duty (of psychiatric and medical researchers) to improve the mental state of patients. This duty should be pursued pragmatically, i.e. uncoupled from the "truth" that patients may uncover through the psychedelic experience. Yet such a principle does not sufficiently constrain the space of therapeutic actions. It leaves open the exact responsibility of the therapist if the patient does have a negative experience, how psychological support with treatment should look like and how long it should last.

Discussion Session 2: Policy

- How are psychedelics and related compounds categorized, legalized, normalized or medicalized?
- What policies are in place and how do these recognise the mercurial qualities of these drugs?
- What various interests might be otherwise involved, such as public, state and policy concerns, as well as private, pharmaceutical or other drug-procuring business? How might these interests collaborate or conflict?

Rucker provided a description of how drugs like psilocybin are procured from the various companies involved in their manufacture and preparation before they are passed to the scientists, as dictated by the licensing process.

There was also a discussion of the cost of funding research (which includes the cost of manufacturing the substance but also for making it administrable) as well as the politics of funders and their motivations. There was concern among some participants about whether and how funders' motivations affect research. A suggestion was to consider private-public partnerships, since the research might be prohibitively expensive otherwise. And while there is hesitation perhaps at partnering with Big Pharma, we discussed that large pharmaceutical companies do carry out the research based on FDA protocols, and that the key might be on emphasizing openness and transparency. However, one of the implications of patenting is that not all the drug qualities are divulged and this hinders how the psychological effects are studied.

There was also discussion of the environment for doing drug research,

which although it might be more open for recreational use of the drugs, doesn't necessarily translate into a research environment (e.g. Portugal), prompting researchers to acknowledge that the UK research environment is fairly good, despite more stringent laws. Medicalization might be the favourable route, especially considering there is increased interest in related topics such as meditation, yoga, etc. Yet, it is unclear whether medicalization alone can cause the change. In the case of cannabis in the US, for instance, political activism preceded and, in a sense enabled the medical route to be pursued. Also, initial focus might go to focusing on showing no harm, since this is a large policy concern. Answering that concern, however, may not directly translate into a change in public perception.

Public resistance against psychedelics may remain based on "moral flavors of thinking" that have nothing to do with the actual harm of the substance. People may reject drug-use based on moral attitudes centered around a perceived "purity of the body". Yet current developments also point towards a normalization of psychedelics. Does the support by novel groups (e.g. alt-right) indicate that the moral acceptance has moved from "pioneers" (people who value ideas) to "prospectors" (people who value self-esteem and experience." If we adopt such a social science framework of mapping the landscape of moral values, what would it take (besides RCTs and therapeutic application) to persuade "settlers" (people who value stability and local connection) that psychedelics are useful? A potential resource for such prospective actions could be to reread the Drug Futures 2025 report, a scenario planning manual, and see how these apply to 2025 as we approach this new date.

The question emerged as to in what capacity researchers can work in advocacy, to which the response was more in dissemination, importantly differentiating between opinion and evidence. Policy, it was pointed out, is also broader than just advocacy. Another possibility of political influence is to train scientists in communicating with policy makers, providing information to build policy suggestions, rather than directly with politicians, though there was some suggestion that this is what scientific research trials already do. In response to an informal poll if they would want to be involved in policy, almost all participants responded positively. There was, however, concern about the concrete activities, especially in terms of time-commitment. There was some hesitation about whether it was too early and more evidence needed to be collected.

Discussion Session 3: Narratives

- How do psychedelics alter experiments, trials, and therapy?

- How does the therapist (and researcher) work with the psychedelic experience, both phenomenologically and environmentally?

The discussion turned to the importance of set and setting in the trial, although some mentioned the fact that this is not unique to psychedelics. Some questioned whether there is something specific about psychedelics (pharmacologically) which makes set and setting more significant to the drug effects. Some were of the opinion that we need to know what the drug effects are before 'fiddling' with the context.

Another complication is whether placebo conditions really work in trials with psychedelics. There is both an "unblinding" effect by which researchers will know when the patient has no placebo, and of course patients themselves will be consciously aware of having taken a psychedelic. Yet, in some cases a real placebo effect exists as well, e.g. when a black tar liquid produced a full-blown ayahuasca experience in two subjects participating in a trial at the Brain Institute Natal in Northern Brazil. The fact that ayahuasca is practiced commonly in this area of Brazil may contribute to the effect (in terms of expectation). Hence there is interest in the importance, suggested by Langlitz's presentation, for introducing cultural context into design. Another contextual factor is the choice of music, and whether it should be standardized. The company Compass Ltd has standardised the music, for example, in their multi-centre trials. This was regarded by some as a point of tension between the needs of research and the needs of the patient.

We also discussed the process of informing participants not just for consent, but possibly as playing a role in their subsequent experience (a sort of context). This was a concern because many workshop participants felt that the cultural narrative affects both the therapist and the patient—can one ever be psychedelically naïve? In general, a systematic exploration of set and setting may be fruitful to understand which factors actually affect the research design (and which ones do not). The quality of life questionnaire or the mystical experience questionnaire are operational measures that could be used for this purpose. Further experimental refinements could be altering the dosage of the drug in trials in terms of the psychedelic or psycholytic effect (similar to dose response trials). Researchers could draw on data gathered by underground researchers which often describe the dose-dependent intensity of psychedelics in qualitative terms.

Finally, we discussed whether the therapeutic aspect of the process emerges from the drugs or from the therapy component. And even if therapy is taken to be crucial, is the therapist actually taking action, or is s/he an enabler that encourages a therapeutic experience? How much should therapists be involved both during the session as well as in

integration, and under what therapeutic model should they work?

Concluding Discussion

Following the rationale of the King's Together Award, the workshop participants discussed ways in which researchers from different disciplines could collaborate to further investigate the mercurial qualities of psychedelics. One set of ideas concerned research on novel methods to research the relationship between pharmacological effects and phenomenological properties of drugs:

1. Measuring oxytocin levels pre- and post-treatment: in animal models, oxytocin shows antidepressant effects, which are possibly mediated through other receptor targets. Increases in oxytocin levels after treatment may therefore reveal mechanistic details about the therapeutic effect of psychedelics such as psilocybin.
2. While important for the type of research mentioned in (1), controlled settings are of limited value for developing thick, ecologically valid descriptions of the psychedelic experience. The proposal was put forward for pharmacology as a 'field science' that takes its context outside the clinic. An uncontrolled setting akin to fieldwork research would therefore be an important methodological alternative, such as collecting life experiences (of patients and recreational users) beyond the clinic setting.
3. Current RCT trials have no way to disentangle narrow pharmacological effects on specific receptors from system-wide, psychological effects of psychedelic drugs. While pharmacological effects can be studied *in vitro*, methods to isolate the subjective character of the psychedelic experience are difficult to develop. Hypnosis may be a useful technique to disentangle subjective experience from the pharmacological effect.

Another set of research ideas related to the mercurial quality of psychedelic research in a socio-political and philosophical settings were suggested:

1. Due to a current lack of evidence, the political efficacy of psychedelic research remains an open issue as of now. Organizations that promote psychedelic research rely on scientific reports delivered to policy makers as the main method of translating science into policy. Our discussion showed, however, that other models are also possible. Research could be targeted at intermediate groups (social workers?), and quantitative social

science research could identify which social groups (pioneers, prospectors, settlers) should be targeted by public education about psychedelic research.

2. The science of psychedelics raised the possibility of a bridge between materialism and mysticism, even though the former is often claimed to demystify the natural world. However, researchers working with psychedelics note that this is more complex. One broad question that emerges is about whether psychedelics research might further discussion about the relationship between mind and matter in medicine (though see note 3). A slightly different direction that this might take is the question in psychiatry of how to develop humanistic standards of care that take into account both the individual and their care and pass a level of standardization and due process that ensures their ethical practice.
3. Most participants in the workshop described the psychedelic experience as revealing insights that are universally shared because of our human nature. This idea stems from a particular form of 16thcentury Neo-Platonism, *perennial philosophy*, which researchers and the public inherited from Aldous Huxley. Surprisingly, alternative philosophical approaches to psychedelic experience are rarely probed in research. Given the wealth of contemporary positions in the philosophy of mind and cognitive science (e.g. functionalism, embodied cognition, Bayesian approaches), future research could develop alternative philosophical frameworks for psychedelic research which could inspire neuroscientific research in the way Huxley inspired psychiatric and neuroscientific research.

This event formed part of a wider programme of activity by the Neuroscience and Society Network (NSN) to develop and support collaborative exchanges between the neurosciences and the humanities and social sciences. The NSN is funded by King's Together which offers seed-funding for inter- and multi-disciplinary research projects with the aim of developing these into larger research programmes.

References

Arseneault, L., Cannon, M., Poulton, R., Murray, R., Caspi, A., & Moffitt, T. E. (2002). Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study. *BMJ*,*325*(7374), 1212–1213. https://doi.org/10.1136/bmj.325.7374.1212

Carhart-Harris, R. L., Bolstridge, M., Rucker, J., Day, C. M. J., Erritzoe, D., Kaelen, M., … Nutt, D. J. (2016). Psilocybin with psychological support for

treatment-resistant depression: an open-label feasibility study. *The Lancet Psychiatry*, *3*(7), 619–627. https://doi.org/10.1016/S2215-0366(16)30065-7

Henquet, C., Murray, R., Linszen, D., & van Os, J. (2005). The Environment and Schizophrenia: The Role of Cannabis Use. *Schizophrenia Bulletin*, *31*(3), 608–612. https://doi.org/10.1093/schbul/sbi027

Langlitz, N. (2017). Opaque models: Using drugs and dreams to explore the neurobiological basis of mental phenomena. In T. Mahfoud, S. McLean, & N. Rose (Eds.), *Progress in Brain Research*(Vol. 233, pp. 53–72). Elsevier. Retrieved from http://www.sciencedirect.com/science/article/pii/S0079612317300146

Vollenweider, F. X., & Kometer, M. (2010). The neurobiology of psychedelic drugs: implications for the treatment of mood disorders. *Nature Reviews Neuroscience*, *11*(9), 642–651. https://doi.org/10.1038/nrn2884

Johanna Pokorny *is a doctoral student at the Department of Anthropology and a fellow at the Centre for Ethnography at the University of Toronto, Scarborough, Canada. In her research, she follows the laboratory life and scientific practices of a group of neuroscientists who study cultural concepts of self and theorize the brain as embodied, embedded, dynamic, and non-reducible.*

Kris De Meyer *is a Research Fellow at the Institute of Psychiatry, Psychology and Neuroscience of King's College London. His research spans the range from computational neuroscience to the role of neuroscience and psychology in society.*

Philipp Haueis *recently completed his doctoral thesis on concept formation and exploratory experiments in neuroscience at the Berlin School of Mind and Brain and the Institute of Philosophy at OvGU Magdeburg. This fall he will join the Philosophy department at University of Bielefeld as an assistant professor in philosophy of the life sciences. His research examines the development, structure and functional roles of concepts in experimental sciences, particularly the neurosciences.*

Tara Mahfoud *is a Postdoctoral Research Associate in the Department of Global Health and Social Medicine at King's College London, where she recently completed her PhD – an ethnography of brain modelling and simulation in the European Union's Human Brain Project.*

Sam McLean *is a Senior Teaching Fellow in the Department of Global Health and Social Medicine at King's College London. His research traces the ontological histories of life science concepts and objects. His doctoral studies examined addiction through the history of modern memory science and the philosophical implications. He is currently working on the relations of passion and knowledge in European Medieval thought and culture.*

AMA citation
Pokorny J, De Meyer K, Haueis P, Mahfoud T, McLean S. The Mercurial Life of Drugs: Psychedelics as models, risk factors, and treatments for mental disorders. *Somatosphere*. 2018. Available at: http://somatosphere.net/?p=15094. Accessed October 30, 2018.

APA citation
Pokorny, Johanna, De Meyer, Kris, Haueis, Philipp, Mahfoud, Tara & McLean, Sam. (2018). *The Mercurial Life of Drugs: Psychedelics as models, risk factors, and treatments for mental disorders*. Retrieved October 30, 2018, from Somatosphere Web site: http://somatosphere.net/?p=15094

Chicago citation
Pokorny, Johanna, Kris De Meyer, Philipp Haueis, Tara Mahfoud and Sam McLean. 2018. The Mercurial Life of Drugs: Psychedelics as models, risk factors, and treatments for mental disorders. Somatosphere. http://somatosphere.net/?p=15094 (accessed October 30, 2018).

Harvard citation
Pokorny, J, De Meyer, K, Haueis, P, Mahfoud, T & McLean, S 2018, *The Mercurial Life of Drugs: Psychedelics as models, risk factors, and treatments for mental disorders*, Somatosphere. Retrieved October 30, 2018, from <http://somatosphere.net/?p=15094>

MLA citation
Pokorny, Johanna, Kris De Meyer, Philipp Haueis, Tara Mahfoud and Sam McLean. "The Mercurial Life of Drugs: Psychedelics as models, risk factors, and treatments for mental disorders." 30 Oct. 2018. Somatosphere . Accessed 30 Oct. 2018.<http://somatosphere.net/?p=15094>