



Universiteit
Leiden
The Netherlands

**Cultural dissonance and consonance in mystical-type experiences:
commentary on 'Finding consonance: an integrative neurocognitive model
of human relationships with supernatural....**

Yaden, D.B.; Elk, M. van

Citation

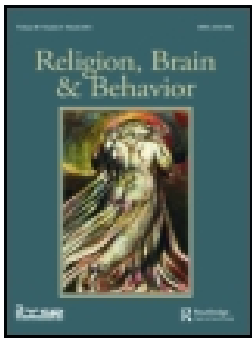
Yaden, D. B., & Elk, M. van. (2024). Cultural dissonance and consonance in mystical-type experiences: commentary on 'Finding consonance: an integrative neurocognitive model of human relationships with supernatural.. *Religion, Brain & Behavior*, 14(1), 58-61.
doi:10.1080/2153599X.2022.2143407

Version: Publisher's Version

License: [Licensed under Article 25fa Copyright Act/Law \(Amendment Taverne\)](#)

Downloaded from: <https://hdl.handle.net/1887/4178372>

Note: To cite this publication please use the final published version (if applicable).



Cultural dissonance and consonance in mystical-type experiences: commentary on “Finding consonance: an integrative neurocognitive model of human relationships with supernatural agents”

David B. Yaden & Michiel van Elk

To cite this article: David B. Yaden & Michiel van Elk (2023): Cultural dissonance and consonance in mystical-type experiences: commentary on “Finding consonance: an integrative neurocognitive model of human relationships with supernatural agents”, Religion, Brain & Behavior, DOI: [10.1080/2153599X.2022.2143407](https://doi.org/10.1080/2153599X.2022.2143407)

To link to this article: <https://doi.org/10.1080/2153599X.2022.2143407>



Published online: 06 Mar 2023.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)



Cultural dissonance and consonance in mystical-type experiences: commentary on “Finding consonance: an integrative neurocognitive model of human relationships with supernatural agents”

David B. Yaden ^a and Michiel van Elk ^b

^aDepartment of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, USA; ^bDepartment of Psychology, Leiden University, Leiden, Netherlands

Interest in experiences that can broadly be considered religious, spiritual, mystical, and self-transcendent is growing – largely due to recent advances in psychedelic research (Yaden et al., 2021). Interdisciplinary conceptual, theoretical, and empirical research on these topics is therefore increasingly relevant. We were encouraged to see the target article as it provides an interdisciplinary analysis of this topic and some testable ideas. The article focuses on the consonance and dissonance that can occur between one’s group level doctrinal beliefs and one’s personal experiences. The authors then propose a neurocognitive model of this dynamic tension and discuss relevant neuroscientific research.

Here we would like to first raise a word of caution regarding the empirical and theoretical basis of the proposed framework. Then we highlight the potential merit of the authors’ approach for the study of mystical-type experiences more generally, while calling attention to the importance of clear definitions of the types of experiences under scrutiny.

First, in their article the authors draw on an impressive number of empirical studies that provide tentative support for the proposed model. While interesting, there are reasons for concern. As pointed out in previous critical reviews, many studies in the neuroscience of religion and spirituality suffer from small samples and confounds (Schjoedt, 2009; Van Elk & Aleman, 2017). Additionally, more recent replication studies failed to provide empirical support for some claims regarding the neural basis of religiosity (Van Elk & Snoek, 2020) and for the reduced error-monitoring account of supernatural beliefs (Hoozeveen et al., 2020). These studies cast doubt on the plausibility of some of the claims put forward by the authors.

Moreover, at points the description of the neural mechanisms involved appears too generic. For instance, the involvement of the default mode network (DMN) in psychedelic (Carhart-Harris et al., 2012, 2016) as well as non-drug experiences (Van Elk et al., 2019) is well replicated. However, this finding has resulted in overstated reverse inferences purporting to explain ego-dissolution and other acute subjective effects of psychedelics, so caution is needed as the DMN is involved in a broad range of functions. Also, the authors sometimes use imprecise terminology that does not fit well with mainstream cognitive neuroscience, such as the proposal that “internal working models of the Self-in-relation-to-supernatural-agent are taken off-line for updating, adjusting, and repair”. This way of describing brain functions is reminiscent of the mereological fallacy in which psychological attributes are ascribed to a brain region that only apply to the brain as a whole (Bennett & Hacker, 2003). Thus, more caution is needed when framing neuroscientific results.

Second, we agree with the authors that the interaction between one’s personal internal experiences (such as those termed religious, spiritual, mystical, self-transcendent) and one’s beliefs and

cultural context is an important scholarly debate. Generally, this debate is characterized in terms of “perennialism” and “constructivism”. Perennialists believe that there are certain kinds of experiences, such as mystical-type experiences, that involve basically the same set of subjective features across history, geography, and culture. The view emphasizes that humans share the same nervous system structure and thus such experiences are fairly similar, though they may be described differently (Hood, 2006). Constructivists (or contextualists), on the other hand, hold the view that such experiences are highly idiosyncratic across cultures and that the cultural context of traditions and beliefs shape the experiences themselves (Katz, 1978). The perennialist/constructivist debate continues to cycle through dialectics in the scholarly literature (see Taves, 2020; Yaden & Newberg, 2022), but relatively little empirical progress on the topic has been made for decades.

The target article points to an area where empirical progress could be made on this scholarly debate, by proposing to investigate the degree of dissonance and consonance between personal experiences and socially shared doctrinal beliefs. This proposal could be operationalized by way of quantifying the degree to which the subjective qualities of certain experiences reflect cultural beliefs and expectations regarding what type of experiences are perceived to be the socially prevalent norm within that context. For instance, in clinical research contexts, many patients report mystical-type experiences in response to psychedelic substances (Yaden & Griffiths, 2020), but it is debated to what extent these experiences are actively promoted by the research setting itself.

Much more work needs to be done however, to operationalize the concepts of consonance and dissonance between personal experiences and groups beliefs. As a first starting point, the kind of experiences under investigation must be clarified more precisely (Yaden et al., 2017). We note that the target article is not entirely clear about the kind of experiences that are under scrutiny. For example, the target article describes how people will have “everyday religious and spiritual experiences” and these are distinguished from “more visionary forms of experiences such as altered states of consciousness, dreams, and mystical experiences”. While this distinction is offered early on, it remains unclear throughout the article what kinds of experiences are the explanandum. It is also somewhat unclear as to why theistic experiences were so prioritized. Given the prominence of theistic beliefs in many countries in the world, theistic experiences are a worthy focus. However, it is also the case that the empirical data contain a broad range of experiences that do not fit with the criteria for theistic experience. The challenge for the cognitive science of religion is to explain a broad spectrum of experiences, rather than drawing a sharp line between theistic experiences and other related experiences.

In sum, the authors provide a compelling account of the neurocognitive basis of supernatural beliefs and experiences that considers the socio-cultural level. We suggest that the model should be informed more by replication studies on the neuroscience of religion and spirituality. We also argue that the model could speak to the debate between perennialism and constructivism. Lastly, we advocate more precision in the definition and demarcation of different types of experiences, which is a challenge for the whole field.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by Tim Ferriss, Matt Mullenweg, Blake Mycoskie, Craig Nerenberg, and the Steven and Alexandra Cohen Foundation.

ORCID

David B. Yaden  <http://orcid.org/0000-0002-9604-6227>

Michiel van Elk  <http://orcid.org/0000-0002-7631-3551>

References

- Bennett, M. R., & Hacker, P. M. S. (2003). *Philosophical foundations of neuroscience*. Blackwell Publishing.
- Carhart-Harris, R. L., Erritzoe, D., Williams, T., Stone, J. M., Reed, L. J., Colasanti, A., Tyacke, R. J., Leech, R., Malizia, A. L., Murphy, K., Hobden, P., Evans, J., Feilding, A., Wise, R. G., & Nutt, D. J. (2012). Neural correlates of the psychedelic state as determined by fMRI studies with psilocybin. *Proceedings of the National Academy of Sciences*, 109(6), 2138–2143. <https://doi.org/10.1073/pnas.1119598109>
- Carhart-Harris, R. L., Muthukumaraswamy, S., Roseman, L., Kaelen, M., Droog, W., Murphy, K., Tagliazucchi, E., Schenberg, E. E., Nest, T., Orban, C., Leech, R., Williams, L. T., Williams, T. M., Bolstridge, M., Sessa, B., McGonigle, J., Sereno, M. I., Nichols, D., Hellyer, P. J., & Nutt, D. J. (2016). Neural correlates of the LSD experience revealed by multimodal neuroimaging. *Proceedings of the National Academy of Sciences*, 113(17), 4853–4858. <https://doi.org/10.1073/pnas.1518377113>
- Hood, R. W. (2006). The common core thesis in the study of mysticism. In P. McNamara (Ed.), *Where God and science meet* Vol. 3, pp. 119–138. Praeger.
- Hoogveen, S., Snoek, L., & van Elk, M. (2020). Religious belief and cognitive conflict sensitivity: A preregistered fMRI study. *Cortex*, 129, 247–265. <https://doi.org/10.1016/j.cortex.2020.04.011>
- Katz, S. T. (1978). *Mysticism and philosophical analysis*. Oxford University Press.
- Schjoedt, U. (2009). The religious brain: A general introduction to the experimental neuroscience of religion. *Method & Theory in the Study of Religion*, 21(3), 310–339. <https://doi.org/10.1163/157006809X460347>
- Taves, A. (2020). Mystical and other alterations in sense of self: An expanded framework for studying nonordinary experiences. *Perspectives on Psychological Science*, 15(3), 669–690. <https://doi.org/10.1177/1745691619895047>
- Van Elk, M., & Aleman, A. (2017). Brain mechanisms in religion and spirituality: An integrative predictive processing framework. *Neuroscience & Biobehavioral Reviews*, 73, 359–378. <https://doi.org/10.1016/j.neubiorev.2016.12.031>
- Van Elk, M., Arciniegas Gomez, M. A., van der Zwaag, W., Van Schie, H. T., & Sauter, D. (2019). The neural correlates of the awe experience: Reduced default mode network activity during feelings of awe. *Human Brain Mapping*, 40(12), 3561–3574.
- Van Elk, M., & Snoek, L. (2020). The relationship between individual differences in gray matter volume and religiosity and mystical experiences: A preregistered voxel-based morphometry study. *European Journal of Neuroscience*, 51(3), 850–865. <https://doi.org/10.1111/ejn.14563>
- Yaden, D. B., & Griffiths, R. R. (2020). The subjective effects of psychedelics are necessary for their enduring therapeutic effects. *ACS Pharmacology & Translational Science*, 4(2), 568–572. <https://doi.org/10.1021/acsptsci.0c00194>
- Yaden, D. B., Haidt, J., Hood, R. W., Jr., Vago, D. R., & Newberg, A. B. (2017). The varieties of self-transcendent experience. *Review of General Psychology*, 21(2), 143–160. <https://doi.org/10.1037/gpr0000102>
- Yaden, D. B., & Newberg, A. B. (2022). *The varieties of spiritual experience: Twenty-first century research and perspectives*. Oxford University Press.
- Yaden, D. B., Yaden, M. E., & Griffiths, R. R. (2021). Psychedelics in psychiatry—keeping the renaissance from going off the rails. *JAMA Psychiatry*, 78(5), 469–470. <https://doi.org/10.1001/jamapsychiatry.2020.3672>