

Science and Metaphysics

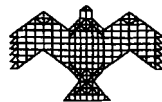
A discussion on
Consciousness and Genetics

Editors

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Consciousness expanded

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Abstract

Many kinds of human states of consciousness have been distinguished, including colourful or anomalous experiences that are felt to have spiritual significance by most people who have them. The neurosciences have isolated brain-state correlates for some of these colourful states of consciousness, thereby strengthening the hypothesis that these experiences are mediated by the brain. This result both challenges metaphysically dualist accounts of human nature and suggests that any adequate causal explanation of colourful experiences would have to make detailed reference to the evolutionary and genetic conditions that give rise to brains capable of such conscious phenomena. This paper quickly surveys types of conscious states and neurological interpretations of them. In order to deal with the question of the significance of such experiences, the paper then attempts to identify evolutionary and genetic constraints on proposals for causal explanations of such experiences. The conclusion is that a properly sensitive evolutionary account of human consciousness supports a rebuttal of the argument

that the cognitive content of colourful experiences is pure delusion, but that this evolutionary account also heavily constrains what might be inferred theologically from such experiences. They are not necessarily delusory, therefore, but they are often highly misleading. Their significance must be construed consistently with this conclusion.

This paper addresses the nature and operations of the relatively unusual, typically colourful states of consciousness that are of enormous spiritual significance to most people, including especially religious people. Other scholars are producing much needed neurophysiological theories and philosophical interpretations of consciousness in its ordinary operations – important efforts on which this venture depends. The limited aim here – and surely it is adventurous enough – is to give an organized description of the relevant experiences. Space permits only an outline of this organized description. For the sake of economy of expression I shall refer to the experiences in question as “vivid experiences”.

A comprehensive account of vivid experiences would require at least the following five components:

- phenomenology of vivid states of consciousness;
- neurophysiology of vivid states of consciousness;
- sociology of vivid states of consciousness;
- evolutionary interpretation of vivid states of consciousness; and
- philosophical and theological assessment of the significance of vivid states of consciousness.

This paper deals only with the first of these five components. This is valuable in itself, however, because an organized and comprehensive phenomenological description of vivid experiences is the precondition for effectively working on the other four issues.

My motivation for this study is three-fold. I am curious, of course. And I am often concerned by fanatical interpretations of vivid experiences that seem to produce socially undesirable effects. But I am also in search of an interpretation of vivid

experiences that is capable of helping the many people who are confused by such experiences come to terms with them. The three associated elements of inquiry, criticism, and pastoral concern may not be especially evident in this paper because the focus here is on description. Hopefully, subsequent work will be able to express more directly these equally strong elements of my motivation.

Vivid experiences are far more diverse than one might think. Mystics think first of mystical experiences, New Age enthusiasts of shamanic journeys or psi-related phenomena, traditional religious people of corporate worship or ritual experiences, and nature lovers of feelings of peace and awe while hiking or sitting beside a still mountain lake. There is no comprehensive phenomenology of the full range of such experiences. Rather, there are many partial phenomenologies directed by the interest and attention of the researcher. Here I present several such partial phenomenologies and also make an attempt to coordinate them into a richer account of vivid experiences by indicating the overlaps and relationships between the various fields of description.

Religious experiences

"Religious" experiences are the most diverse and elusive category to be discussed here. Religious involvement is associated with a host of experiences from the spectacular to the mundane, from the individual to the corporate, and from supportive to disruptive of ordinary social processes. The result of oversimplifying this diversity tends to be superficial or culturally slanted accounts of religious involvement and its significance for people. Yet any attempt to capture the diversity in a working definition seems futile. Defining religion is itself a famously difficult – by now, perhaps a humorously hopeless – task. The diversity of experiences associated with religious involvement is at least as complex.

For my purposes, the way to proceed is to make use of the vagueness of "religion" and simply refer "religious experiences" to the experiences people have by virtue of being religious or being involved in religious groups. This does no more than

distinguish religious experiences from non-religious experiences, of course, but at least it establishes a modicum of resistance to oversimplifying treatments of religion.

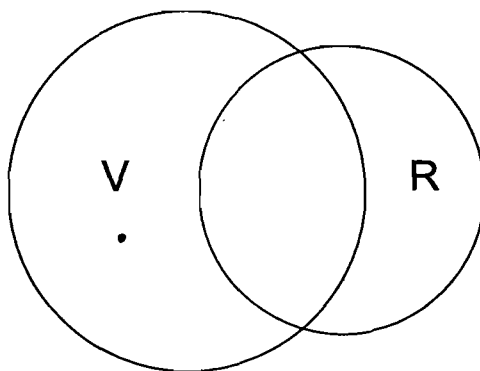


Figure 1. Overlap between vivid [V] and religious [R] experiences.

As the description of vivid experiences unfolds, it will become clear that some religious experiences are vivid and some are not. Likewise, some vivid experiences are not associated with being religious or with religious involvement. Thus, the relation between religious and vivid experiences is one of significant overlap, with vivid experiences probably being more diverse than religious experiences and neither being a subset of the other.

Vivid experiences

Vivid experiences can be thought of as constituted by two major overlapping classes of experiences: anomalous experiences and ultimacy experiences. Within these two classes are other types of experience that have received phenomenological attention and they will be discussed presently. First, though, I discuss the two major classes. Their relationship to each other and to religious experiences can be sketched as follows.

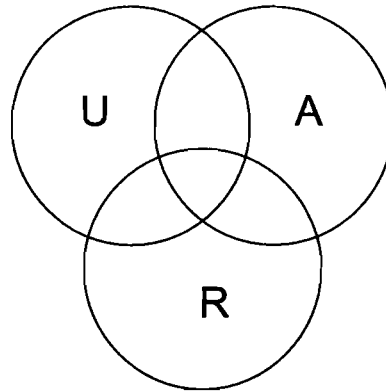


Figure 2. Relations between religious [R] experiences and vivid experiences, where the latter class is constituted by ultimacy [U] and anomalous [A] experiences.

Anomalous experiences

The term “anomalous experiences” refers to experiences that apparently violate the operations of the world, as these are understood in normal life. The word “abnormal” has unwarranted negative connotations but in some sense anomalous experiences are classifiable as such precisely because they are not normal – which is to say nothing about the normalcy or mental health of those who have them.

Though anomalous experiences are diverse, psychologists have studied many types. For example (Cardeña *et al* 2000) offers survey articles on a number of types of anomalous experiences, including hallucination, synesthesia, lucid dreaming, out-of-body experiences, alien abduction experiences, anomalous healing experiences, past-life experiences, near-death experiences, psi-related experiences, and mystical experiences. Other anomalous experiences include mental phenomena associated with drug-induced altered states, psychiatric disorders, extreme circumstances, ecstatic states, group frenzy, snake-handling, fire-walking, possession, as well as more marginally anomalous experiences such as dramatic self-deception and uncanny insight. There are also anomalous experiences associated with severe brain trauma.

The investigation of anomalous experiences is in its early days. Neurological studies have been conducted in some of these cases but not to any great extent. Experiences linked to brain trauma have received a great deal of attention in the neuropsychological literature because they help establish correlations between brain regions and functions. Only in the last couple of decades have careful investigations disclosed the devious magician-like techniques associated with some anomalous experiences, such as psychic healing and cold reading (see Randi 1982 and *Skeptical Inquirer* magazine). And survey data on the frequency and effects of such experiences have barely begun to be collected. Thus, it is difficult to draw stable conclusions about the causes and dynamics of anomalous experiences. Several vague and generalized comments can be made, however.

First, anomalous experiences are usually felt to be out of the control of those who have them. Even when they are sought after, which is sometimes the case with out-of-body or lucid dreaming experiences, typically the experiences themselves feel beyond the control of the subject.

Second, despite the first point, the study of anomalous experiences shows that some of them are reliably reproducible under the right conditions. For example, bright and fast-changing lights, loud and rhythmic music, a dynamic central personality, and an intensely supportive social atmosphere are recurring factors in cult conversions, group frenzy, anomalous healing experiences, and dramatic self-deception. Certain neurological conditions may be relevant also, making a person more likely to experience a whole range of anomalous experiences.

Third, anomalous experiences are emotionally and cognitively potent. They produce powerful convictions in those who have them, convictions about the nature of reality and the significance of key events within it. These convictions are driven home by equally powerful, confirming experiences that are often felt to be the most important experiences of a person's life, determining many other decisions and commitments of time and energy.

Fourth, anomalous experiences often have little to do with religion and spirituality. Of course, they do sometimes occur in the context of religious involvement – indeed, some religious groups

make unconscious use of the environmental factors that render people more likely to have anomalous experiences. They commonly occur in non-religious contexts, however, where they are usually (but not always) felt to have great spiritual significance. A common situation is the occurrence of anomalous experiences outside the context of religious involvement, followed by the construction of an idiosyncratic spirituality based on the cognitive and emotional impact of the experience and a search for like-minded people with whom the experience can be shared safely. These rather impressionistic remarks indicate the importance of further research in this area. Anomalous experiences are more common than many people who have not experienced them might estimate. Their impact on personal self-understanding and worldview is easily underestimated, accordingly. They are vital factors in any attempt to understand how people come by their convictions and why they make the decisions they do. They are a colourful part of the experiential fabric of human life.

Ultimacy experiences

If anomalous experiences are defined by objective unusualness, ultimacy experiences are defined by subjective judgments of ultimate significance. These are experiences that a person feels are of vital importance for his or her life. They bring orientation and coping power, inspire great acts of courage and devotion, underlie key life decisions, and heavily influence social affiliation. They overlap with anomalous experiences but anomalous experiences occur without the subjective judgment of ultimate importance and ultimacy experiences occur in recognizably normal fashion, so the overlap is significant without being dominant.

When the parsing of experience begins from subjective judgments of ultimate significance rather than objective judgments of unusualness, very different distinctions emerge. Most prominent is the need for a distinction between short-term and long-term ultimacy experiences. The obvious phenomenological difference between discrete states and extended experiences is directly attributable to neurology: short-term states are tied more directly to discrete brain episodes whereas extended experiences usually require a rich social context to sustain them. It is discrete ultimacy

experiences that overlap most significantly with the anomalous experiences just reviewed. Both types have recurring characteristics (see Wildman and Brothers 2000) that can be reviewed here.

Extended ultimacy experiences seem to be of two basic sorts: those that serve the need for orientation and those that facilitate personal transformation. Orientation ultimacy experiences are vital for the stability of human social life. The embedding of ultimate ethical and religious commitments in social patterns (see Durkheim 1915; Berger 1967) is a process that only achieves coherence and conviction for individuals when supported by orientation ultimacy experiences. People also need to change, to break free from oppressive social constraints, to transcend their culturally limited imaginations. Whether sought or not, transformation ultimacy experiences facilitate such change.

Both types of ultimacy experiences have the same recurring characteristics in different relative weightings. Both types are existentially potent. They are embedded in a social context to various degrees, which is particularly important in the case of orientation ultimacy experiences. They also involve the transformation of behaviour, personality, and beliefs. These changes are important in both types of ultimacy experiences; whereas transformation ultimacy experiences obviously require change, orientation ultimacy experiences more subtly require changes that serve to conform individuals comfortably to the regularities of a social environment.

Discrete ultimacy experiences have very different characteristics, which are to be expected given the association with short-term brain states. They involve any combination of the following factors: a wide variety of sensory alterations, dramatic alterations in the sense of self, feelings of presences, compelling cognitions, and potent emotions. Discrete experiences often occur at the beginning of a process of personal transformation and then sometimes recur within that process; this is one way in which discrete and extended ultimacy experiences are related.

Like religious experiences, vivid experiences are constantly in danger of being misunderstood through the reduction of ultimacy experiences to anomalous experiences or vice versa. Either of

these errors trivializes the complexity of human experience and leads to the underestimation of the significance of vivid experiences for healthy human beings. In fact, my impression is that almost everyone has ultimacy experiences of one sort or another even when they never get close to any anomalous experience. To put this point in another way, while an evolutionary interpretation of human experience could perhaps set aside anomalous experiences as, well, anomalous, ultimacy experiences have to be placed front and centre in any evolutionary account. The collapse of the distinction between ultimacy and anomalous experiences is potentially disastrous for a well-rounded understanding of human life.

Meditation experiences

The area of vivid human experiences profiting from the most extensive phenomenological, physiological, and neurological study has been and continues to be meditation experiences. South Asian and Buddhist traditions, particularly, include vastly elaborated distinctions of states of consciousness achieved in meditation.

The most comprehensive survey of meditation effects is that of Jean Kristeller (2001), who has developed a multi-modal developmental model to organize the relevant data. Kristeller distinguishes six types of meditation effects: physical, cognitive-attentional, emotional, behavioural, relation to self/others, and spiritual. For all of these types, she distinguishes between effects achieved early in the practice of meditation, those that require moderate meditation expertise, and those that tend to appear only in advanced practitioners. Together, the "modal" and the "developmental" axes constitute a two-dimensional grid upon which can be placed a host of recognized meditation effects (these effects are not shown in *figure 3*).

Apart from its intrinsic interest, Kristeller's model has significant value for clinical psychological and medical intervention. If impulse control or self-awareness is a problem for a client, for example, then a clinical recommendation of meditation may be appropriate because increased impulse control and heightened self-awareness are effects that can be expected quite early in the process of developing meditation skills.

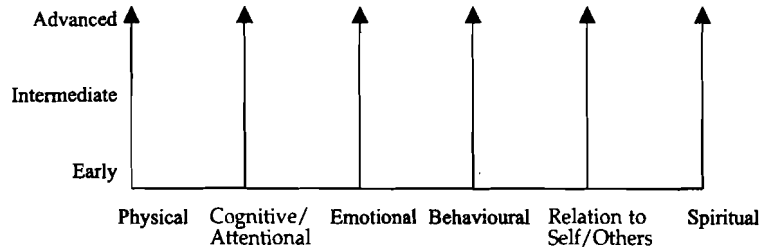


Figure 3. Schema for Kristeller's multi-modal developmental model of meditation effects.

Further research is needed to evaluate claims about the therapeutic effectiveness of meditation but there is no question that those who practice meditation report positive changes. Account also needs to be taken of the fact that some engaging in meditation report terrifying and personality-disintegrating experiences, and others seem immune to at least some of the reported effects. Such considerations are particularly important if meditation is to be conceived as a means of therapeutic intervention. The therapeutic dimension of meditation also needs to be more closely integrated with existing work on the physiology of meditation (see Fischer 1971) and new work on the neurophysiology of meditation (see, for example, Newberg and d'Aquili 2001).

The fact that meditation regularly produces specific experiences is important. This reproducibility underlies the interpretation of meditation as a technology of self-cultivation and, in turn, the formation of communities devoted to meditation practice in religious and medical traditions throughout the world. An evolutionary interpretation of vivid experiences must take account of this fact.

Profound experiences

Of the vivid experiences discussed to this point, it is ultimacy experiences that are most important for people's existential self-interpretation and orientation in the world. Ultimacy experiences are defined just so that the existentially most significant experiences are registered. It is of special interest for

understanding human spiritual formation, therefore, that a couple of subclasses exist within the class of ultimacy experiences: profound experiences and, within them, mystical experiences.

Theologians with a special concern for religious experience have long used metaphors to express the way experiences feel significant or profound for those who have them. Key metaphors of this type are depth, mystery, and horizon (used by Tillich 1951; 1957; 1963 and Rahner 1987) both influenced by Heidegger (1962). These metaphors have become sensitive phenomenological tools for describing profound experiences but the toolbox is incomplete. For example, attending to the spiritual insights of scientists in their work invites the introduction of another phenomenologically tuned metaphor, complexity. And the metaphor of scale enables us to distinguish the familiar mystical experience of oceanic calm from the experience of depth. These five characteristics of profound experiences can be associated with mental states as follows (see Wildman 2000).

- Depth (terror, joy, bliss, ...)
- Horizon (fascination, attraction, alienation, fear, disgust, hate, ...)
- Scale (awe, oceanic calm, vastness, emptiness, ...)
- Complexity (surprise, wonder, confusion, disorientation, irritation, ...)
- Mystery (ignorance, incomprehension, loss of control, ...)

These characteristics occur in various combinations in profound experiences, provoking different responses. For example, while depth invites surrender and scale induces worship, the other dimensions of profound experiences provoke interest in institution building, from different points of view: horizon for the sake of defence from the other, mystery for the sake of protection of the holy, and complexity for the sake of inquiry. Space does not permit further elaboration but this phenomenological toolbox is extremely useful for describing how human beings deal with their profound experiences. In short, profound experiences are the fundamental wellspring of inspiration for spirituality and religious expression in ritual and organization.

Mystical experiences

Another subclass of ultimacy experiences is also a subclass of profound experiences: mystical experiences. In fact, mystical experiences lie at the triple intersection of ultimacy, anomalous, and religious experiences. So mystical experiences can be understood as intense forms of profound experiences that are also anomalous and religiously relevant.

Traditionally, the word "mystical" is reserved for experiences that are cultivated or experiences that occur spontaneously in the context of an ongoing effort to cultivate spiritual vitality of mastery. Phenomenologically, however, experiences other than these may be indistinguishable from mystical experiences. This is a reminder that taking names at face value may mislead and that it is prudent both to seek phenomenological descriptions for the experiences in question and to make allowance for the complex motivations and social realities that underlie naming conventions.

Mystical experiences have been the most studied of all ultimacy experiences. Many distinctions have been invoked to account for the diversity of experience evident in mystics' self-reports. These reports span from nature mysticism to mysticism of supernatural beings such as angels and demons, and from mysticism related

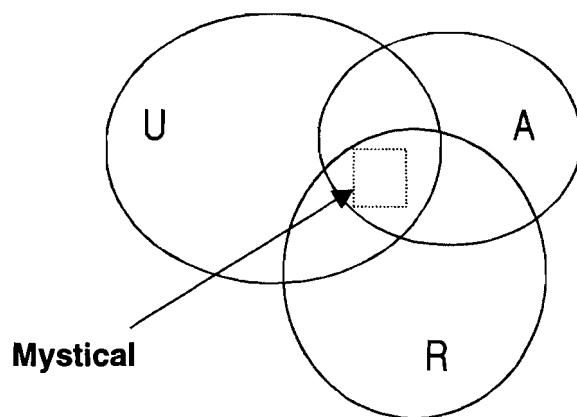


Figure 4. Mystical experiences lie at the intersection of three other classes: ultimacy experiences [U], anomalous experiences [A], and religious experiences [R].

to a personal divinity to mysticism that transcends all concrete imagery and names, so there is a lot to comprehend. Usually, some of this diversity is omitted, perhaps because mysticism is construed more narrowly, or perhaps to make the models of mysticism theologically more coherent.

Perhaps the most widespread distinction in use is the essentially theological contrast between kataphatic mysticism, which is characterized by concrete imagery and a personal relationship focus, and apophatic mysticism, which involves a refusal of imagery and construes divine union as absorption rather than intimate relationship. Whether the experiences of mystics divide as neatly as this distinction suggests is difficult to determine because the hermeneutical issues involved in interpreting mystics' self-reports are complex. At the very least, however, this distinction has proved useful as a rubric for interpreting the self-understanding of a couple of kinds of mystics.

The most infamous debate over mysticism has extended through most of the twentieth century. It concerns what can be inferred about mystical experience and reality itself based on apparent similarities and differences between mystics' self-reports across the chasms of culture and era. Constructivists hold that local contexts are the leading factor in mystics' accounts of their experiences, to the point that stable generalizations are extremely difficult to make (see Katz 1978). Opposed are those who defend the reality of a so-called "pure consciousness event" and who detect this event recurring in mystics' self-reports (see Forman 1990, 1999). At times, this debate seems to be conducted in the murky realm of unverifiable, unstable hypotheses, which is doubtless why it has persisted for so long. In our time, I suggest, the most productive questions about mysticism are the empirically tractable ones, such as the discovery of neural correlates for reliably reproducible mystical states of consciousness, and the elaboration of similarities and differences among mystical self-reports.

Most people do not have mystical experiences. Those who do tend to seek them out. The fact that such experiences are cultivated even while being so difficult to achieve is thought provoking and leads directly to questions about the value for people of such unusual experiences. Why go to such extraordinary lengths for

mystical experiences? The answers appear to be three: the experiences feel good, they produce desirable practical effects, and they inspire compelling beliefs about reality. At least, that is how mystics seem to view matters. These are compelling enough reasons for some to pursue mystical experiences, perhaps, but evaluation of the associated epistemological claims to truth and the moral claims to beneficial effects needs to be carried on using means in addition to the positive self-assessments of mystics. Perhaps an evolutionary framework for interpreting mysticism can aid such evaluation.

Conclusion

The description of vivid experiences is now as fulsome as space allows here. Combining all of the types of experience mentioned to this point, the diagram illustrating relations of membership and overlap among classes is now as follows.

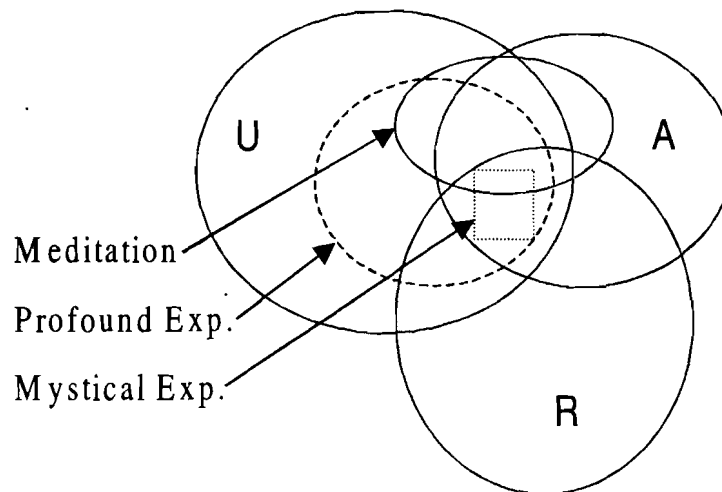


Figure 5. Relationships between religious [R] experiences, vivid experiences (where the latter class is constituted by ultimacy [U] and anomalous [A] experiences), meditation effects, and two subclasses of ultimacy experiences: profound experiences and mystical experiences.

This descriptive presentation of the diversity of vivid experiences suggests a number of conclusions. First, many people claim prosaic, humdrum experiential histories but typically this merely excludes mystical or other anomalous experiences, and perhaps the more extreme discrete ultimacy experiences. Many other experiences count as vivid and spiritually significant, however, and few people indeed are entirely bereft of vivid experiences so construed. Within tolerable limits of precision, therefore, and in anticipation of better survey data to confirm this, it is safe to conjecture that vivid experiences are normal and common, while the truly prosaic life is exceptionally rare and, correspondingly, difficult to comprehend.

A second conclusion bears on the need for neurological studies of religious experience. There has been some neurophysiological research on a few types of vivid experiences but most types remain neglected. The neuropsychological results to date are suggestive for a wider interpretation of vivid experiences, however, so there should be motivation to expand the reach and number of such studies. Such studies would be of two kinds. On the one hand, there is great value in "classical data" deriving from long-studied conditions such as temporal lobe epilepsy that produce colourful mental phenomena. Such data need to be enhanced and revisited to evaluate their relevance for interpretations of vivid experiences. On the other hand, and more recently, there have been studies that make use of various brain-scan technologies (Newberg and d'Aquili 2001). These studies suffer greatly from underfunding, which limits both sample sizes and the ability to perform digital summing and analysis of multiple scans, greatly hindering stable interpretation of the experiences being studied. Both types of research are important for reinforcing the phenomenological descriptions of vivid experiences and deepening knowledge of correlations between brain states and subjective reports.

A third conclusion bears directly on any attempt to give an evolutionary interpretation of vivid experiences. I think the evolutionary lens is the most salient for discerning the critical importance of vivid experiences in human social life but the actual description of such experiences is essential. The organized description of vivid experiences presented here should affect what counts as relevant and plausible in any evolutionary interpretation.

While a narrowly scientific theory of vivid experiences perhaps could rest content with marshalling the relevant data and placing it in an evolutionary context of interpretation, a comprehensive theory would have to venture more. For example, people make claims about the character of the world based on vivid experiences, claims that can be assessed – and ought to be when their moral implications are significant. Again, people’s lives and their social environments appear to be regulated by the consistent occurrence of relatively mundane vivid experiences and occasionally dramatically transformed by unexpectedly potent ones. The way vivid experiences work to regulate and transform is a matter not just for the social sciences and psychology to describe. The relevant questions include the following: Are the sensory readings and cognitive information associated with vivid experiences valid? Under what conditions are they reliable? When should they be regarded with suspicion? These are truth questions, in one way, and questions about causation, in another. As such, they call for disciplines that are competent to handle issues of truth and causation, and in relation to the topic of vivid experiences the right discipline is a philosophically sensitive form of theology. The most important conclusion of this paper is that any such evaluative attempts must take account of the variety of types of vivid experiences in order to resist oversimplification and the distortion that results from it. Whatever else they may be, vivid experiences are ubiquitous, diverse, and highly significant for human personal and social life.

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