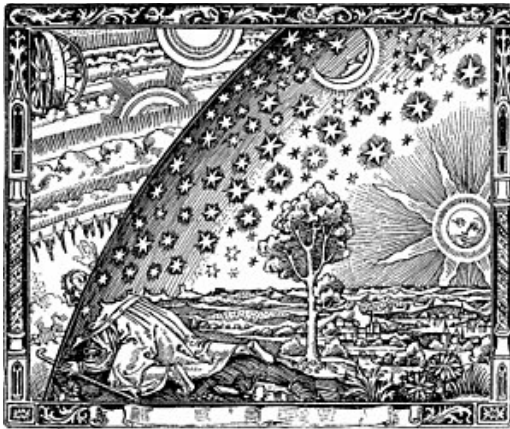


# Let Us Say What We Mean: Towards Operational Definitions for Techno-Spirituality Research

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**Figure 1.** Unknown artist's conception of the search for mystical experience or scientific knowledge. Public domain image.

## KEYWORDS

techno-spirituality; operational definitions; transcendent experience; spiritual experience; transcendent user experience; HCI research

## ABSTRACT

Recent years have seen a dramatic increase in HCI research on the use of technology in spiritual practices and environments. Some of these works cover spiritual/transcendent experiences associated with these contexts, but strikingly few of them describe in any way the experiences they studied or aimed to support, let alone give definitions of the terms they use for those experiences. Even fewer papers cite any literature on the relevant experiences. We have to ask: How do the authors understand the experiences their work is aiming to observe, invite, or support? How do they know when and whether they have observed, invited, or supported the kinds of experiences they target?

*How do they know what they are studying?*

This paper discusses the presence and absence of definitions of terms for spiritual/transcendent experiences in HCI research, and of citations of relevant literature. It speculates about possible reasons for the oversight, proposes some definitions aimed at filling the gap, and suggests an approach to operationalizing some of the proposed definitions.

<sup>1</sup> This paper derives much of its content from my PhD research at Northumbria University, Newcastle upon Tyne, UK.

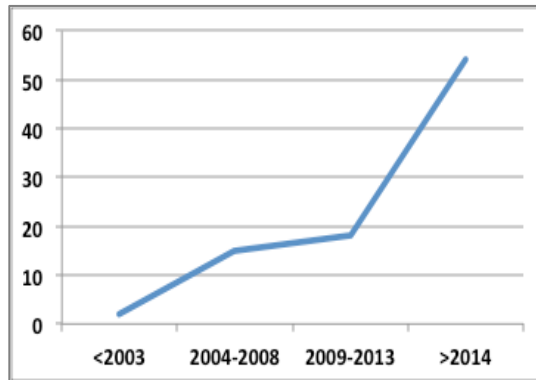
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**Figure 2. Increase in ACM Digital Library holdings for <techno-spirituality OR self-transcendence OR “spiritual experience” OR “transcendent experience”> since 2003**  
(Google Scholar search, site:dl.acm.org, 6 January 2019)

**Some varieties of transcendent experience, and other names for them**  
(drawn largely from [28], [38], [46])

- Mystical experience (deepest form, involving a sense of unity with the transcendent)
- Peak experience
- Religious experience
- Spiritual experience
- Optimal experience
- Numinous experience
- The peace that passeth all understanding
- Samādhi
- Cosmic Consciousness
- Satori
- Flow experience (lightest form, focused on activity, not always transcendent)

## INTRODUCTION

Recent years have seen a dramatic increase in the amount of HCI research on the use of technology in spiritual practices and environments (see Figure 2 for the growth in ACM contents). As I discussed in my PhD thesis in 2017 [7] — and it is still true in 2019 — few HCI papers on experiential techno-spirituality describe in any way the subjective experiences they studied or aimed to support, let alone define the terms they use for those experiences. Often these papers call it a “spiritual experience” and leave it at that. Perhaps not so strikingly, given the dearth of attention to spirituality that we still find in the SIGCHI literature, very rarely do they cite any literature on the relevant experiences. So we have to ask: How do the authors know what experiences their work is aiming to observe, invite, or support? How do they know when and whether they have observed, invited, or supported the kind of experience at which they aim?

How do they know what they are studying?

It seems quite strange for HCI research, grounded as it is in experimental psychology, to be less than rigorous in providing operational definitions of the constructs it uses. I find this especially surprising in light of the fact that HCI research has been providing operational definitions throughout the decades of its existence (e.g., [5][13][23][29][30][39][43]).

## THE NEED FOR OPERATIONAL DEFINITIONS IN TECHNO-SPIRITUALITY RESEARCH

Spiritual practices and environments often elicit experiences that are difficult to define. Although these kinds of experiences come in various forms and go by many names [28] (see sidebar), for simplicity’s sake I use “transcendent experience” (TX<sup>3</sup>) as the umbrella term. Transcendent experiences are complex and variable [38], in large part because they are highly dependent on the individual and what he or she brings to them [28]. They are not necessarily religious.

Arguments about related kinds of experiences can offer useful illustrations. McCarthy et al. [33], writing about enchantment, argue that when we seek to improve user experience, we must characterise key aspects of the target experience. They describe enchantment as “a complex concept” (p. 369) that needs clarification — “an experience of being caught up and carried away, in which, although we are disoriented, perception and attention are heightened” (p. 370).

In contrast, Boehner, Sengers, and Warner [6] contend that we should not attempt to define aesthetic experiences for design purposes, arguing that doing so would constrain them and might well lead us to overlook the very thing that drew us to these experiences in the first place:

In abstracting from specific embodied contexts, many of the ineffable aspects of the aesthetic experience—those escaping formal articulation—may be either overlooked or designed away. (12:3)

Boehner et al. [6] are arguing against HCI’s tendency to “codify, generalize, and formally model” (p. 12:3) experiences to support design. “Is it possible to design for an ineffable experience”, they

<sup>3</sup> I use the abbreviation as “TX” to make the analogy with “UX” for user experience.

### **Transcendence, spirituality, religion – some important distinctions**

These three concepts are related, of course. More importantly for understanding TX, they are also different. According to Kohls and Walach [24], spirituality “focuses primarily on experiences and insights” (p. 126) and religion is “a complex cultural and social framework” (*ibid.*) that supports understanding and facilitates practices.

Transcendence is a sense of connection with something greater than oneself; it may or may not be associated with a religion. One can experience spirituality and/or transcendence irrespective of religious or spiritual perspective. Astrophysicist Neil deGrasse Tyson explained his atheist spirituality at the 2006 Beyond Belief conference [44]:

It's quite literally true that we are star dust, in the highest exalted way one can use that phrase. ... Not only are we in the universe, the universe is *in us*. I don't know of any deeper spiritual feeling than what that brings upon me.

People of any faith tradition, or of none at all, report having transcendent experiences.

ask, “without defining and constraining it?” (*ibid.*). Akama, Light, & Bowen [4] make a similar point about mindfulness:

[we] propose a relationship between technology and mindfulness, not in service of one another, but through their processual engagement, to find out what we might learn about ourselves, about one another, our relationships to the world and how we accommodate openness, interpretation and, additionally, awareness, within the structures of technology design. (p. 345)

Given these senses of “define” — which connote “delimit” or “demarcate” — I think the concerns are valid for transcendent experiences as well. On the other hand, I argue for characterising transcendent experience enough that we can make an educated guess about what we are designing for. I do not argue for defining them in the sense that we assume we have said everything that needs to be said about them. But given that transcendent experiences cannot be anticipated with confidence, or planned at all — but only invited [14] — I submit that we have to say something about what we have in mind. TX literature can provide a foundation for doing so. And we have to say how we will know when we've seen them. We need operational definitions.

### **DEFINITIONS AND CITATIONS OF TRANSCENDENT EXPERIENCE LITERATURE IN TECHNO-SPIRITUALITY RESEARCH**

When I discuss the literature, I use the terms that appear in the papers I cite. If a paper uses “spiritual experience”, for example, I use that term in discussing that paper. My use of a term does not indicate any opinion I may or may not hold regarding its accuracy or appropriateness.

#### **No Treatment: Neither Definitions nor Citations**

Many studies of technology-supported transcendent experiences describe investigating such experiences without saying anything substantive — if indeed anything at all — about what such an experience was like for the experient or how their research determined that someone had had one (e.g., [1], [2], [11], [47], [50]). Some works, such as Highland and Yu [19] and Muntean, Neustaedter, and Hennessy [35] do note the difficulty of defining the concept.

#### **Partial Treatment: Definitions without Citations**

A few HCI papers show some steps taken in the direction of characterising TXs. Wyche, Caine, et al. [51] observe that Sun Dial's use of Islamic sacred imagery enabled users “to reflect on and connect their own experiences to bigger communities of practice” (p. 58). Unfortunately, I find that definition unsatisfying as a characterisation of religious experience because it focuses on behavior — “reflect on and connect” — and overlooks the subjective, internal aspect of the experience. Wyche, Magnus, & Grinter [52] initially reach the same level: they write of “ecstatic experiences such as speaking in tongues, prophesying, and faith healings” (p. 147) without defining

“ecstatic experiences” beyond “ecstatic” and those examples of behavior, leaving us largely in the dark about what it is like to live an ecstatic experience. Later, they get somewhat closer, reporting that the interactions “centered on wonder, or enchantment with technology” (p. 150). They come closest to a definition when they cite McCarthy et al.’s [33] description of enchantment. But even this movement in the right direction does not get them to a characterisation of religious experience — and how could it, absent any reference to TX literature?

Gaver et al. [14] gave one of the motivations for the Prayer Companion as exploring “whether we could address [the nuns’] spiritual experiences more directly in our design work” (p. 2057). Although their paper does not define the “spiritual experiences” they wanted the device to support, they consulted the nuns at every step and relied on their responses — which presumably reflected the sisters’ spiritual needs — to guide the design. In the end, the nuns commented that the Prayer Companion “persistently gives rise to moments of surprise and insight” (p. 2063).

Jenkins [22] and Radde-Antweiler, Waltmathe, and Zeiler [37] describe the target experience to some extent, although without supporting their definition or citing a source for it. Jenkins [22] writes of “strong feelings [that] come from investing a part of yourself in something bigger than you are”, and of “the unknowable, imperceptible majesty of religious experience” (p. 2221). He describes devotional practices and objects from a wide variety of faith traditions, but cites no literature to support his descriptions.

In a paper on video games and religion, Radde-Antweiler et al. [37] write of “religious content and religious experiences, or religion in the game and religion in the gamer” (p. 4). I do not dispute their definition of “religious content” as “religion in the game”, but defining “religious experiences” as “religion in the gamer” not only is simplistic but also fails to agree with any definition I have encountered for transcendent/religious experiences.

One HCI-related<sup>4</sup> paper does attempt to define operationally the TX it considers. Othman et al. [36] include an “Emotional and Spiritual Experience” component in their Church Experience Scale. This component covers feelings of being spiritually and emotionally involved and connected “with the church and its features” (p. 679), as well as “My sense of being in the church was stronger than my sense of being in the rest of the world” (*ibid.*). They cite no TX literature, however, leaving us to guess at the source of this construct and wonder about their rationale for combining “emotional” with “spiritual”. Spiritual experiences clearly have an emotional component, but are we to assume that any emotion felt in a church must be part of a spiritual experience? The development and validation method seems sound and the questions do not contradict any aspects of spiritual experience I have seen in the TX literature, but the scale omits the transcendent aspect; and absent any references to the TX literature I cannot but question the source of the items and the construct validity of the “spiritual experience” they have in mind. This paper describes an instrument created to assess spiritual experience — without citing any sources on the nature of such experiences.

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<sup>4</sup> I call this paper “HCI-related” because, although it does not appear in any of the usual HCI literature sources, the topic regards people’s experiences with an environment, and I recognize one of the authors as an HCI researcher.

### FULL TREATMENT: BOTH DEFINITIONS AND CITATIONS

As far as I have found, only three HCI works on experiential techno-spirituality (other than my own) both give a clear and credible definition of the experience and cite TX literature supporting it, and two of them are more than ten years old. The first is from 2005: Laarni et al. [26] define transcendent experience as

a subjective mental state that is characterized by such qualities as strong positive affect, feelings of overcoming the limits of everyday life, sense of harmony with the whole world, feelings of lightness and freedom, and sense of timelessness. (p. 409)

For this definition the authors cite Williams & Harvey [49]; elsewhere in the paper they refer to other TX literature, such as Maslow [31] and Hood [20]. In 2009 Saari [41], one of the authors of Laarni et al. [26], added “sense of union with the universe” (p. 528) to this definition. Saari [41] defines and analyses not only transcendent experience but also peak experience, peak performance, and flow — which, except for peak performance, both Waldron [46] and Levin & Steele [28] describe as types of transcendent experience — and he relates all four to presence.

Most recently, in the CHI 2017 Student Research Competition, Chen et al. [10] cite several sources from TX literature, notably Garcia-Romeu’s [15] in-depth analysis of self-transcendence as “a measurable transpersonal construct” (p. 26).

### Good Examples Outside the HCI Field

A number of works regarding transcendent user experience use relevant TX literature to characterise the experiences (e.g., [18], [34], [45], [48], [53]), but none of these works come from HCI. In particular, Latham [27] offers an excellent example of the use of TX literature and the careful characterisation of the target experience. She defines in clear terms, based in TX literature, numinous experience that people have with objects in museums. She uses the three-part Gatewood and Cameron [16] definition of numinous experience: “deep engagement or transcendence...; empathy...; and awe or reverence” (p. 4). These experiences, she writes, are closer to mystical experience than they are to the “traditional learning experience” (*ibid.*) that museums have historically aimed to provide. Citing a 1958 edition of William James’s 1902 seminal work [21], she defines mystical experience in terms of ineffability, noetic quality, transiency, and passivity. “Further understanding of numinous encounters in museums”, she writes,

can help museum practitioners make intentional choices about objects, design, and format that can serve to stimulate, connect, and inspire our museum audiences. (p. 3)

Latham [27] also writes of numinous experience “as a form of mystical flow” (p. 17). For this she cites a study by Csikszentmihalyi and Robinson [12] of aesthetic experience and flow in art museums, which yielded “remarkably similar results” to her work and led her “to surmise that the numinous encounter is also one type of optimal experience” ([27] p. 13). Unfortunately, she overlooks work such as Waldron [46], Levin & Steele [28], and Schouten, McAlexander, and Koenig [42], which place flow at the less intense end of transcendent experience and mystical or peak

experience at the more intense end — in fact, Waldron [46] calls flow experiences personal rather than *transpersonal* optimal experiences. However, Latham's [27] conflation of flow with mystical experience does not negate her paper's value as an example of non-HCI research on artifact-supported transcendent experience that cites TX literature and defines the type of experience it aims to enhance.

### THE SOURCE OF THE PROBLEM IN TECHNO-SPIRITUALITY RESEARCH?

One might conjecture that one (or perhaps *the*) key reason why HCI researchers find it difficult to characterise transcendent experiences is ineffability, the quality of being beyond language. Aesthetic experiences, too, can be ineffable, as Boehner et al. [6] observe, although they list some common features:

Common characteristics...suggest that aesthetic experiences are tied to the particular, invoke the senses, command an immersion of the whole self, and result in a heightened form of engagement. (12:1-2)

The common characteristics of transcendent experiences have been described rather more fully, however, than have these four characteristics of aesthetic experience.

For the most part, the reason why most techno-spirituality research fails to characterise transcendent experiences adequately is, I argue, that it fails to use TX literature as background for understanding the experiences. The substantial body of this literature covers quite nuanced aspects of TX and also offers assessment instruments, both of which might serve HCI researchers in studying the target experiences and designing to support them.

Perhaps most techno-spirituality researchers are unaware of the extensive literature that covers spiritual or transcendent experiences; I myself had no idea of its extent until I was well into my PhD research. Maybe HCI researchers, even those studying techno-spirituality, are also affected by the kinds of biases that Blythe and I [8] hypothesized for why HCI coverage of techno-spirituality falls short of the range of technologies that support spirituality and religion. Possible biases we suggested in 2013 include perceived irrelevance to the HCI community, concerns about professional risk, and lack of funding. Six years later, could this still be true?

### DRAWING ON THE TRANSCENDENT EXPERIENCE LITERATURE

The literature of transcendent experience offers an extremely rich source of information for techno-spirituality researchers regarding the kinds of experiences that we might study and how we might define and measure them. TX literature is based in the spirituality literature, the majority of which comes from the healthcare field [40] and also includes contributions from fields such as psychology, philosophy, social sciences, tourism, neuroscience and neurotheology, religion and theology, and wilderness and nature [7].

TX literature is not entirely uniform in its use of terminology for the experiences. This is due partly to the range of intensities and depths of such experiences, from flow to mystical experience [28], [38], [46]. It seems also partly due to the inadequate consensus on the difference between spirituality and religion, although that discrepancy seems to be moving toward resolution.

The TX literature is far too extensive for me to cite much of it in this paper. I have, however, created an online TX literature resource for techno-spirituality researchers, a kind of living literature summary with notes on each reference listed. Eventually it will also, I hope, cover some of the HCI literature on transcendent user experiences. I intend this resource to serve the techno-spirituality research community in grounding its coverage of transcendent user experiences in the literature on those experiences. It resides at <https://transcendhance.wordpress.com/literature5>

### CONCLUSION: TOWARDS OPERATIONAL DEFINITIONS

I urge my fellow techno-spirituality researchers to define the kinds of experiences they are studying and to cite some relevant literature regarding them. I offer the following as initial definitions for this purpose:

- *spirituality*: a person's relationship with the sacred or transcendent, with their ultimate values, with what purpose and meaning that relationship enables them to create in their life; the search for the sacred or transcendent [7]
- *religion*: beliefs and practices that support a person's relationship with the sacred, whether practised alone or with others; "a complex cultural and social framework" [24] (p. 126) that facilitates the organised practice of a faith tradition [7]
- *transcendent experience, self-transcendent experience*: an *individual* experience of connection or unity with transcendence, whether sacred or secular, having a beginning and an end; it may be spiritual or religious, deep or light (I refer to this as "a transcendent experience" or, in the plural, "transcendent experiences") [7]. A transcendent experience may be as light as flow (which is *not* always transcendent) or as deep as a mystical experience [28]
- *spiritual experience*: a meaningful experience that the person associates with their spirituality or spiritual practice. It may or may not be transcendent, perhaps simply an experience that occurs in the context of spiritual practice
- *religious experience*: a meaningful experience that the person associates with their religion. It may or may not be transcendent, perhaps simply an experience that occurs in the context of religious practice
- *transcendence, self-transcendence*: "an awareness of, and connection with, something beyond and greater than oneself" [7] (p. 14). Self-transcendence may be as light as empathy with other people and service to the community, or it may be as deep as a continual sense of connection or even union with that "something greater"
- *transformative experience*: an experience that engenders "a sudden and profound change" [14] (p. 98) in the way one sees oneself and the world. Transcendent experiences can often be transformative [15]
- *transcendent user experience (TUX)*: a transcendent experience facilitated by technology

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<sup>5</sup> "Transcendhance" is a portmanteau of "transcendence" and "enhance" — to reflect the primary aim of this work.

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I invite the community of techno-spirituality researchers to discuss these proposed definitions and explore how we might operationalize them, as appropriate. This will help us to reach a consensus on our terminology and be confident that we are saying what we mean.

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