



Modeling a Decision-Making Framework for Spiritual-Sensitive Design: A Grounded Theory Study of User Experience Ecosystems

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Abstract

While spirituality is increasingly recognized as a significant dimension of human experience, it remains an underdeveloped area within design research. Current design approaches often treat spirituality as a static aesthetic or a fixed symbolic attribute, failing to account for its dynamic and relational nature in user experience. This study aims to bridge this gap by modeling a decision-making framework for spiritual-sensitive design, focusing on how spiritual meaning is constructed and maintained within user experience ecosystems. Using a grounded theory approach, the study conducted in depth semi structured interviews with participants from diverse cultural and professional backgrounds to explore their lived spiritual experiences. Data were analyzed through open, axial, and selective coding using the constant comparison method. This approach enabled the development of a conceptual framework grounded in participants' narratives and revealed the iterative processes through which spiritual meanings are formed and transformed through interaction. The study identifies that spirituality functions as a dynamic Interaction Ecosystem (IE) rather than a static quality. Central to this ecosystem is the role of "The Other", a relational entity that mediates the experience through a continuous loop of personal assumptions and lived feedback. The findings reveal a "Cycle of Spiritual Understanding," where cognitive dissonance and experiential recalibrations drive the evolution of spiritual meaning. Furthermore, the research highlights the tension between soothing facilitators, such as materiality and nature, and repulsive factors that arise when spiritual frameworks become overly restrictive. The resulting IE Model offers a conceptual roadmap for designers to integrate spiritual sensitivity into their decision-making processes. By shifting the focus from symbolic representation to the facilitation of relational ecosystems, this research provides tangible entry points for designing products and environments that resonate with the profound complexities of human spirituality. The framework underscores the importance of interpretive openness, suggesting that spiritually sensitive design must support the fluid and iterative nature of personal meaning-making.

Keywords: *Spiritual-Sensitive Design, Interaction Ecosystem, Constructivist Grounded Theory, User Experience*

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1. Introduction

Design has progressively expanded from a discipline concerned primarily with form, function, production, and usability into a broader field that addresses experience, identity, emotion, ethics, culture, and meaning. Contemporary products, services, spaces, and digital systems shape how individuals interpret themselves, relate

to others, and understand their place within social and existential worlds. This expanded conception is particularly important in user experience research, where interaction is increasingly understood as situated within interconnected ecosystems of users, artifacts, environments, institutions, values, memories, and expectations. Qualitative design inquiry has therefore moved beyond isolated product attributes toward the meanings users attach to artifacts;



artifact elicitation, for example, shows how objects can prompt tacit memories, values, and interpretations [1]. Yet, despite this interpretive turn, one of the deepest dimensions of human meaning-making—spirituality—remains only partially integrated into design theory and decision-making. In many design contexts, spirituality is reduced to sacred imagery, traditional motifs, atmospheric calmness, or explicit religious symbolism, while the experiential processes through which spiritual meaning emerges, changes, and becomes embedded in interactions are left theoretically underdeveloped.

A central difficulty is that spirituality resists a single universal definition. Integrative reviews have shown that the concept varies across individuals, professional disciplines, cultural traditions, and systems of belief, and may refer to meaning, purpose, transcendence, connectedness, inner harmony, moral orientation, or relationship with a reality perceived as greater than the self [2]. Spirituality may be expressed through organized religion, but it is not reducible to religious affiliation or doctrinal practice; it can also be secular, existential, relational, aesthetic, ecological, or humanistic [3, 4]. The distinction between spirituality, religion, and culture is therefore analytically necessary, because these domains overlap without being identical: religion generally provides institutionalized beliefs and practices, culture supplies shared symbolic and behavioral frameworks, and spirituality concerns lived orientations toward ultimate meaning, connection, and transformation [5]. The contemporary search for spirituality consequently crosses traditional boundaries between sacred and secular life in a wider quest for meaning and fulfilment [6]. From a philosophical perspective, spirituality can likewise be interpreted as an effort to live according to deeper values, to confront fundamental questions of existence, and to cultivate an inner orientation that gives coherence to life beyond immediate material concerns [7]. These interpretations indicate that spirituality is not fixed content that designers can insert into an artifact; it is an evolving field of experience shaped by personal history, culture, relationships, and lived events.

The significance of spirituality is well established in psychology, health care, and human development. Psychological scholarship increasingly recognizes spirituality as a legitimate dimension of identity, development, coping, and ethical orientation, although professional training has often lacked adequate conceptual and practical preparation for engaging it responsibly [8]. Integrative approaches that connect theology and

psychology further emphasize that spirituality can involve transformation in relationships with the self, other people, the sacred, and the wider world, rather than functioning merely as a set of beliefs [9]. In mental health research, spirituality has been associated with the ways individuals interpret distress, preserve hope, construct meaning, and mobilize internal and social resources when facing suffering [10]. Studies of later life similarly show that spiritual narratives and practices may support resilience by helping individuals navigate loss, vulnerability, illness, and uncertainty through continuity of meaning and connection [11]. In clinical care, the recognition of spirituality as an essential dimension of the person has led to calls for spiritual care that respects patients' values, relationships, sources of hope, and existential concerns rather than treating them as peripheral to well-being [12]. For design, this matters because products and environments participate in processes of coping, remembrance, reflection, identity, and connection. A space, object, sound, interface, or ritualized interaction may therefore become spiritually significant not because it possesses an inherently spiritual property, but because it mediates a meaningful relationship within a specific life situation.

Attempts to measure spirituality further demonstrate both its importance and its conceptual complexity. A systematic review of spirituality instruments found considerable diversity in definitions, dimensions, and operational strategies, with measures focusing on spiritual well-being, beliefs, experiences, coping, connectedness, meaning, or religious practice [13]. This heterogeneity suggests that spirituality cannot be represented by a single universal variable: some approaches treat it as an enduring disposition, whereas others emphasize temporary states. The development of the Awe Experience Scale, for example, illustrates how experiences of vastness, self-diminishment, altered time perception, connectedness, physical sensation, and cognitive accommodation can be studied as a complex emotional configuration relevant to transcendence [14]. These measurement traditions provide useful conceptual components, but they are not equivalent to a design framework. Instruments generally assess whether particular spiritual qualities or experiences are present; they do not explain how designers should interpret users' spiritual meanings, how those meanings change across repeated interactions, or how design decisions may facilitate, disrupt, constrain, or transform spiritually significant relationships. For spiritually sensitive design, the challenge is therefore not

simply to measure spirituality, but to understand the process by which spiritual meaning is constructed in interaction.

Research on spirituality in organizations offers another important foundation by showing that spirituality can be enacted within ordinary, structured environments rather than only in explicitly sacred settings. Early organizational models emphasized the relationship among spiritual values, community, business practices, and employee attitudes, illustrating how institutional arrangements can reinforce or weaken individuals' sense of meaning and belonging [15]. Workplace spirituality was later conceptualized through dimensions such as inner life, meaningful work, community, positive connection, personal responsibility, and alignment between individual and organizational values [16]. Empirical work also distinguished individual, group, and organizational levels, demonstrating that meaningful work, a sense of community, and value congruence operate through interconnected layers of experience [17]. Ethical analyses have further argued that spirituality may support authentic ethical behavior when it is integrated with practice rather than used rhetorically or instrumentally [18]. Recent studies extend this discussion by linking workplace spirituality with job satisfaction, quality of work life, organizational citizenship behavior, and lower turnover intention [19], while also showing that its relationship with mindfulness, digital technology, and psychological well-being is complex and context dependent [20]. Together, these studies confirm that spirituality is relational, multilevel, and environmentally mediated. However, their focus remains primarily organizational and attitudinal, leaving unanswered how similar multilevel dynamics might be translated into design decisions within broader user experience ecosystems.

Within design scholarship, spirituality has begun to receive more explicit attention. Creative work has been described as a site where imagination, embodied practice, symbolic interpretation, and transcendence can converge, suggesting that design can function not only as problem solving but also as a mode of spiritual inquiry and expression [21]. An integral design management perspective similarly proposes that spirituality can support life-affirming design by integrating ethical responsibility, relational awareness, sustainability, and concern for the wholeness of human experience [22]. Studies of interior design demonstrate how geometric forms, proportion, repetition, light, and spatial composition may communicate spiritual meanings or facilitate contemplation, especially when interpreted within particular cultural and religious traditions [23]. More recent

multidisciplinary work on mindfulness-oriented architecture has also identified strategies involving nature, sensory regulation, contemplative spatial qualities, and psychologically supportive environments as potential means of enhancing mental well-being and spiritual engagement [24]. These studies establish that designed environments and artifacts can participate in spiritual experience, yet much of the literature remains focused on formal attributes, symbols, or prescriptive features. Consequently, there is a risk of assuming that certain colors, geometries, materials, natural elements, or sacred motifs will produce comparable spiritual responses across users, even though the meaning of these elements varies through personal biography and cultural interpretation.

The cultural variability of spiritual experience makes this limitation particularly consequential. Hofstede's layered understanding of culture demonstrates that visible practices and symbols are supported by deeper values and interpretive structures that are not immediately observable [25]. In design research, culture-conscious approaches have adapted this insight to show that designers must move beyond surface-level cultural signifiers and investigate the assumptions, values, meanings, and practices that shape user interpretation [26]. The same principle applies to spirituality. A symbol that evokes reverence for one person may produce indifference, exclusion, discomfort, or resistance for another. A natural environment may be experienced as transcendent, threatening, nostalgic, or merely recreational depending on the user's history. An object may acquire spiritual significance through memory, loss, kinship, ritual use, or repeated interaction, while remaining ordinary to outside observers. Spiritual sensitivity in design therefore requires attention to how meaning emerges within a cultural and experiential system rather than reliance on predefined spiritual aesthetics. It also requires interpretive openness, because rigid or universalizing frameworks may impose meanings and marginalize users whose spiritual orientations differ from those anticipated by the designer.

This need points toward a process-based and relational understanding of spirituality. Instead of asking which forms, symbols, or materials are intrinsically spiritual, design research must ask how spiritual significance is generated through interaction among the person, the designed artifact or environment, other people, cultural narratives, remembered experiences, expectations, and feedback from lived reality. Such an approach recognizes that spirituality may be soothing and integrative, but it may also become ambivalent or repulsive when associated with coercion,

moral superiority, ideological rigidity, or failed expectations. It further recognizes that spiritual meaning is temporally fluid: beliefs and practices may be confirmed, revised, suspended, or abandoned when users encounter experiences that do not correspond with their prior assumptions. This perspective is especially relevant to user experience ecosystems, because interactions extend beyond the moment of use into narratives, relationships, habits, and feedback loops through which users reconstruct meaning. A spiritually sensitive design framework must therefore help designers identify not only facilitating elements but also the assumptions, actions, contradictions, transitions, and relational structures that sustain or transform spiritual experience.

Methodologically, this underexplored and interpretive problem calls for an approach capable of developing theory from participants' lived accounts rather than imposing a predetermined definition of spirituality. Grounded theory was originally formulated as a systematic strategy for generating conceptual explanations through iterative data collection, coding, comparison, and theoretical development [27]. Its constructivist development emphasizes that meanings are co-constructed through the interaction of participants, researchers, contexts, and interpretive processes, making it particularly appropriate for phenomena that are ambiguous, culturally situated, and difficult to access through standardized categories [28]. For design research, grounded theory enables the investigation of how individuals describe spiritually meaningful encounters, how they interpret material and social mediators, and how their assumptions change through lived feedback. When combined with design-sensitive elicitation, it can reveal meanings that may remain inaccessible through abstract questioning alone. This methodological orientation is therefore suitable for moving from fragmented descriptions of spirituality toward an empirically grounded model that can inform design judgment.

Accordingly, the aim of this study is to develop a grounded decision-making framework for spiritual-sensitive design by explaining how spiritual meaning is constructed, maintained, challenged, and transformed within user experience ecosystems.

2. Methodology

This study adopts a qualitative research design grounded in a constructivist perspective to explore how individuals understand and experience spirituality. Because spirituality

is a complex and deeply personal phenomenon that is often shaped by cultural, social, and experiential contexts, a qualitative approach was considered appropriate for examining participants' interpretations and lived experiences in depth.

Research Approach

The study employs Grounded Theory methodology to develop a conceptual understanding of spirituality grounded in empirical data. Grounded Theory is particularly suitable for investigating complex and underexplored phenomena, as it allows theoretical insights to emerge inductively from participants' accounts rather than imposing predefined theoretical frameworks. The research followed the core principles of Grounded Theory, including iterative data collection and analysis, constant comparison of emerging concepts, and the gradual development of conceptual categories.

Research Context and Participants

The study focused on adult individuals aged over 25 who were willing to reflect on and share their thoughts and experiences related to spirituality. Participants were recruited from diverse cultural, religious, and professional backgrounds in order to capture a broad spectrum of perspectives and lived experiences. Recruitment included individuals from different locations in Iran and the Netherlands, allowing the study to incorporate variation in cultural and social contexts related to spirituality. The goal of participant selection was not statistical representation but conceptual diversity that could enrich the development of grounded theoretical insights.

Sampling Strategy and Sample Size

A non probability sampling strategy was employed for participant recruitment. In the initial phase, purposive sampling was used to identify individuals who were likely to provide rich and reflective accounts of spirituality. Subsequently, snowball sampling was applied, whereby participants introduced additional potential interviewees from their personal or professional networks, enabling access to a broader range of perspectives.

As data collection and analysis proceeded iteratively, participant selection was increasingly guided by the emerging analytical categories, consistent with the logic of Grounded Theory. Sampling continued until theoretical saturation was reached, meaning that additional interviews no longer generated substantially new conceptual insights or contributed to the refinement of the core categories. In total, 13 participants took part in the study.

Data Collection

Data were collected through semi structured in depth interviews designed to elicit participants' understandings of spirituality and their experiences of spiritually meaningful moments. Since spirituality can be difficult to articulate directly, the interviews were designed to encourage reflection through open and exploratory dialogue.

The interviews began with broad open ended questions such as:

How do you describe spirituality?

Have you had experiences that you consider spiritual? If so, how would you describe them?

These questions were followed by probing questions that allowed participants to elaborate on their experiences and interpretations. The interview guide was intentionally flexible in order to allow participants to express their own meanings and narratives. All interviews were conducted with participants' consent, audio recorded, and transcribed verbatim for analysis.

Data Analysis

Data analysis followed the systematic coding procedures of Grounded Theory. The process began with open coding, during which interview transcripts were examined line by line in order to identify meaningful concepts and interpretive elements emerging from participants' accounts.

In the next stage, axial coding was conducted to explore relationships among the initial codes and to organize them into broader conceptual categories. This step allowed patterns and connections between different aspects of participants' experiences to be identified.

Finally, selective coding was used to integrate the core categories into a coherent conceptual framework that explains the structure and dynamics of spirituality as described by participants. Throughout the analysis, the constant comparison method was used to refine the categories and ensure that the emerging theoretical model remained grounded in the empirical data (Charmaz, 2014).

3. Findings and Results

Analytical Patterns Emerging from Participants' Narratives

Analysis of the interview data revealed several recurring patterns that shaped participants' understanding and experience of spirituality. These patterns function as conceptual foundations for the model developed in the next section. Three major analytical themes emerged: the soothing consequences of spirituality, the ambivalent or repulsive effects associated with it, and the dynamic

manifestations through which spirituality becomes present in lived experience.

Soothing Consequences

Across participants' narratives, spirituality was consistently described as a pathway toward inner peace and psychological equilibrium. Regardless of whether individuals interpreted spirituality in sacred or non-sacred terms, they frequently turned to spiritual beliefs, reflections, or practices when confronting difficult life situations. In such moments, spirituality functioned as a source of comfort, helping individuals cope with uncertainty, suffering, or emotional distress.

Participants' accounts suggest that this soothing function may emerge in two different ways. In some cases, individuals described brief spiritual moments that occur spontaneously and often through external triggers such as environments, music, or rituals. These experiences tend to be temporary yet emotionally intense.

In other cases, spirituality appeared as a more enduring orientation toward life. Rather than a single event, it takes the form of an internal narrative through which individuals interpret their experiences and maintain a sense of coherence. When spirituality operates in this way, it does not require external mediation. Instead, it functions as an interpretive lens that helps individuals regulate their perspectives, evaluate situations, and make sense of life events.

Although participants emphasized that their understanding of spirituality evolves over time and changes with age and life circumstances, its fundamental function remained stable. Across different interpretations and personal trajectories, spirituality repeatedly appeared as a mechanism through which individuals seek and achieve tranquility.

Repulsive or Ambivalent Effects

Despite its generally positive connotations, participants also expressed ambivalent attitudes toward spirituality. Historical examples of violence, ideological conflict, and fanaticism associated with spiritual or religious movements caused some participants to question whether spirituality can always be considered beneficial.

These reflections reveal an important tension. While spirituality is often associated with compassion, transcendence, and human connection, it can also be appropriated as a legitimizing framework for exclusion or aggression when it becomes tied to the goals of a specific group. In such cases, spiritual narratives may be used to justify actions that contradict broader human values.

Another concern expressed by participants relates to the potential for moral superiority. Some individuals noted that spiritual practices may lead practitioners to perceive themselves as more enlightened or ethically superior than others. Such attitudes, participants suggested, contradict the relational and inclusive essence often associated with spirituality.

Participants also pointed to the difficulty of clearly defining spirituality. The concept is often described through abstract language, making it difficult for individuals to determine what truly constitutes a spiritual experience. This ambiguity may lead people toward interpretations that diverge significantly from the intentions originally associated with the concept.

Finally, several participants described distancing themselves from institutionalized or ideological forms of spirituality. When spirituality becomes codified into rigid systems of rules, customs, or traditions that demand strict adherence, individuals may experience it as restrictive rather than meaningful.

Fluidity of Meaning

Participants' narratives demonstrate that spirituality does not exist as a fixed or stable concept. Instead, its meaning evolves continuously through lived experience, reflection, and changing life circumstances.

Many participants described having previously adopted a particular understanding of spirituality based on cultural teachings or social expectations. However, over time and through personal experiences, these definitions were often revised, expanded, or completely abandoned.

For instance, some participants shifted from a strictly theistic understanding of spirituality toward broader interpretations centered on relationships, interconnectedness, or a sense of unity with the world. In these perspectives, spirituality may emerge through connections with other people, with nature, with objects, or with existence itself.

Participants were also aware that their interpretations had transformed throughout their lives. The passage of time, new experiences, and changing personal priorities contributed to the ongoing reconfiguration of their understanding. This dynamic quality suggests that spirituality is better understood as an evolving interpretive process rather than a static belief system.

Attempts to formalize spirituality into fixed doctrines or institutionalized frameworks often conflict with this fluid nature. Many participants expressed a preference for

discovering spirituality through personal exploration rather than through prescribed systems of belief.

Facilitating and Reducing Factors

While spirituality is primarily conceptual and experiential, participants' narratives indicate that it often becomes tangible through various mediating elements. These mediators serve as facilitators that enable individuals to experience or recognize spiritual moments in everyday life.

Such facilitating factors may take multiple forms, including sensory stimuli, natural environments, objects, narratives, rituals, or social interactions. These elements act as bridges between abstract meanings and lived experience, making spiritual perception possible within concrete contexts.

At the same time, participants noted that these mediators can sometimes reduce the richness of spirituality. Because spiritual meaning is multidimensional, its representation through physical or symbolic forms may emphasize only certain aspects while obscuring others.

Among the facilitating factors described by participants, several categories appeared particularly significant.

Sensory stimuli including visual, auditory, olfactory, vocal, and tactile elements often play a role in triggering short-term spiritual experiences. Architectural spaces, lighting conditions, symbolic imagery, and collective rituals can intensify perception and create moments that participants describe as spiritually meaningful.

Natural environments were frequently associated with spiritual experiences. Participants described landscapes characterized by vastness, depth, and natural beauty as producing feelings of calmness and transcendence. Such environments often evoke a sense of connection to something larger than the individual self.

Objects can also function as carriers of spiritual meaning. In some cases, objects possess explicit spiritual significance, such as artifacts associated with religious rituals. In other cases, objects acquire spiritual value through personal or historical associations. An object connected to a particular person, memory, or life event may evoke a network of relationships that situates the individual within a broader continuum of meaning. Through this relational awareness, the object becomes a catalyst for spiritual experience.

Together, these patterns illustrate that spirituality emerges through a dynamic interaction between internal interpretations and external contexts. This interaction forms

the experiential basis from which the conceptual model presented in the following section is derived.

Interaction Ecosystem Model: The Dynamics of Spirituality

The analysis of participants' narratives led to the development of the Interaction Ecosystem Model, which conceptualizes spirituality as a dynamic and iterative process rather than a fixed state. The model describes spirituality as a cycle that unfolds through the interaction of several interconnected elements, including assumptions, lived experiences, approaches, actions, and feedback. This process may evolve gradually over long periods of time or occur suddenly in response to significant life events.

Ambiguity emerged as a central condition underlying this dynamic. Participants frequently expressed uncertainty when attempting to define spirituality or determine whether their experiences could be considered spiritual. This lack of conceptual clarity appeared to sustain the ongoing cycle of reinterpretation through which individuals continuously reassess their understanding of spirituality.

For many participants, the difficulty of articulating spirituality reflected both the abstract nature of the concept and its historical entanglement with religion. As one participant explained, "I find it very difficult to describe... sometimes it is difficult to define... I distinguish very much between the religious part and spirituality" (participant No.10, 2023). Similarly, another participant described spirituality as "something connected to a larger whole... but very abstract in a way" (participant No.6, 2023). Such reflections indicate that spirituality often exists as a vague yet meaningful orientation rather than a clearly defined concept.

Within this dynamic context, the cycle of spiritual understanding begins with assumptions. Assumptions refer to the initial mental images or expectations individuals hold about spirituality. These assumptions are primarily shaped by two factors: education and lived experience.

Education plays a formative role in shaping early understandings of spirituality. Cultural teachings, family traditions, and religious narratives often provide the first interpretive framework through which individuals understand spiritual experiences. For example, one participant connected a near-death experience to ideas learned in childhood about the moment of death: "Since childhood we were told that when people die they try to speak but others cannot hear them... suddenly I felt that I had died" (participant No.1, 2023). Similarly, another

participant explained that early exposure to practices such as yoga and meditation influenced her perception of spirituality: "My mom did yoga for a very long time, so it influenced me when I was young" (participant No.8, 2023).

However, assumptions do not remain stable. Individuals continuously reinterpret them through lived experiences. Significant life events, emotional encounters, or reflective moments may reinforce, reshape, or completely transform previously held assumptions. For instance, one participant described how the death of her father during the COVID-19 pandemic fundamentally changed her beliefs: "After that I lost my beliefs... the connection I thought existed with the outside world disappeared" (participant No.1, 2023).

Participants also emphasized that spiritual understanding cannot easily be measured or explained through external criteria. Instead, it is experienced as a deeply personal realization that emerges within specific moments of life. As one participant stated, spirituality is something that "you feel yourself but cannot logically explain to others" (participant No.11, 2023).

These lived experiences shape the approaches individuals adopt toward spirituality. When previous assumptions no longer align with lived reality, individuals may revise their perspective and adopt alternative ways of understanding spirituality.

Changes in approach are reflected in actions. Participants described modifying their behaviors, rituals, or practices in response to evolving interpretations of spirituality. For example, some discontinued previously practiced religious rituals, while others returned to them after periods of distance.

Finally, the outcomes of these actions generate feedback. The results of spiritual practices, reflections, or experiences contribute to new interpretations that either reinforce existing assumptions or prompt further change. Through this feedback loop, the cycle continues, allowing individuals to continually reinterpret spirituality in relation to their evolving life experiences.

Together, these interconnected stages form a dynamic ecosystem in which spirituality is continuously constructed and reconstructed through the interaction between beliefs, experiences, actions, and reflections.

Table 1 presents a synthesis of this process as the Cycle of Spiritual Understanding, illustrating the relationships between assumptions, actions, feedback, and lived experiences within the broader interaction ecosystem of spirituality.

Table 1. The Cycle of Spiritual Understanding: Exploring the Interconnected Stages of Assumptions, Actions, Feedback, and Lived Experiences.

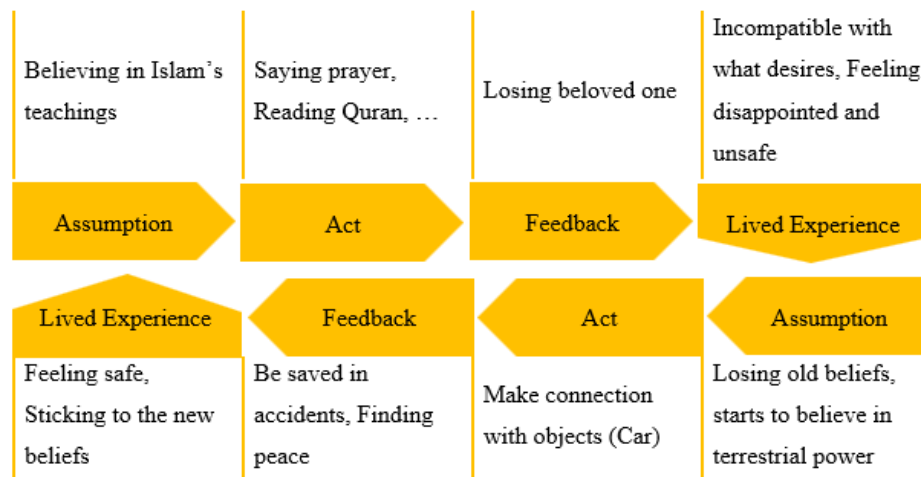
	Description	Connection to Other Items
Assumption	The underlying beliefs or expectations about spirituality.	Influences the actions taken (Act).
Act	The actions or practices undertaken based on assumptions.	Generates feedback based on outcomes.
Feedback	The responses or results obtained from the actions taken.	Affects how they feel.
Lived Experience	The personal experiences that shape an individual's understanding of spirituality.	Informed by feedback and influences future assumption.

Operationalizing the Cycle of Spiritual Understanding: Case Study Analysis

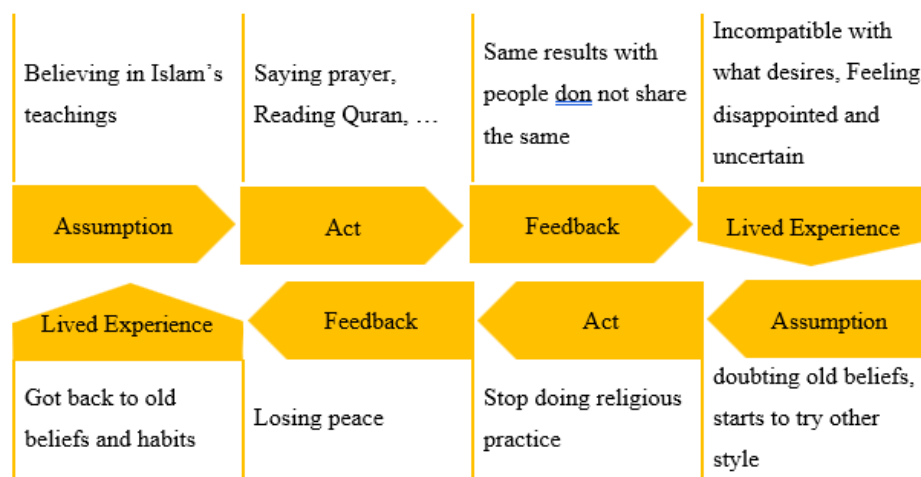
To demonstrate the iterative and adaptive nature of the spiritual ecosystem, the experiences of two participants, No.1 and No.11, were mapped onto the Cycle of Spiritual Understanding (Figure 1). This operationalization reveals how the cycle functions not as a linear progression, but as an

ongoing feedback loop where lived experiences continuously challenge initial assumptions, requiring individuals to recalibrate their spiritual framework. As the mapping demonstrates, when “Feedback” is incompatible with “Lived Experience,” it triggers a cognitive dissonance that forces an iterative process of re-evaluation, leading to new assumptions and adaptive actions.

Participant No.1- Serious Disease of Her Beloved Ones



Participant No.11 – Encountering with a New Atmosphere in a New City

**Figure 1.** Mapping participant narratives onto the Cycle of Spiritual Understanding.

This figure illustrates the iterative trajectories of participants (No.1 and No.11). The arrows represent the continuous feedback loops where lived experiences and environmental inconsistencies (feedback) force individuals to revise their initial assumptions and adjust their behavioral actions.

The trajectories of participant No.1 and No.11 highlight two distinct outcomes of this cycle. For participant No.1, the feedback of a traumatic event necessitated a radical shift in her spiritual framework, transitioning from traditional religious teachings to a reliance on terrestrial or material symbols. Conversely, participant number eleven's experience reflects a pattern of oscillation; when his current environment failed to validate his prior spiritual practices, he returned to his initial beliefs, highlighting the resilience and sometimes the rigidity of established spiritual frameworks. These narratives underscore that spiritual design must support not only stability but also the capacity for humans to navigate these periods of re-evaluation and dissonance within their ecosystem.

The Interaction Ecosystem (IE) Model of Spirituality

The synthesis of the grounded theory analysis culminates in the Interaction Ecosystem (IE) Model of Spirituality (Figure 2). At the heart of this model is the concept of “The

Other”, a holistic and transcendent category emerging from the participants’ narratives. In this context, “The Other” encompasses everything beyond the immediate, material self, including mental states, other human beings, the natural world, or a divine entity (God). It represents a boundary-crossing element that connects the individual to the universe, animals, or even significant objects.

The mechanism of this ecosystem is driven by a Core Assumption: the belief in an influential, non-material relationship that impacts the individual’s existence. This assumption triggers an Act a proactive effort to establish connection through altruism, benevolence, or the transcendence of material desires.

A critical component of this model is the Subconscious Monitoring of reality. The individual continuously evaluates their Lived Experience against their core beliefs. As long as the Feedback from these interactions remains congruent with the initial assumption, the spiritual cycle is reinforced. However, the model is inherently dynamic; any perceived contradiction between lived experience and the core assumption forces a shift in the belief system, thereby recalibrating the entire ecosystem. This reciprocal, non-material dynamic is what constitutes the “spiritual interaction” within the user experience.

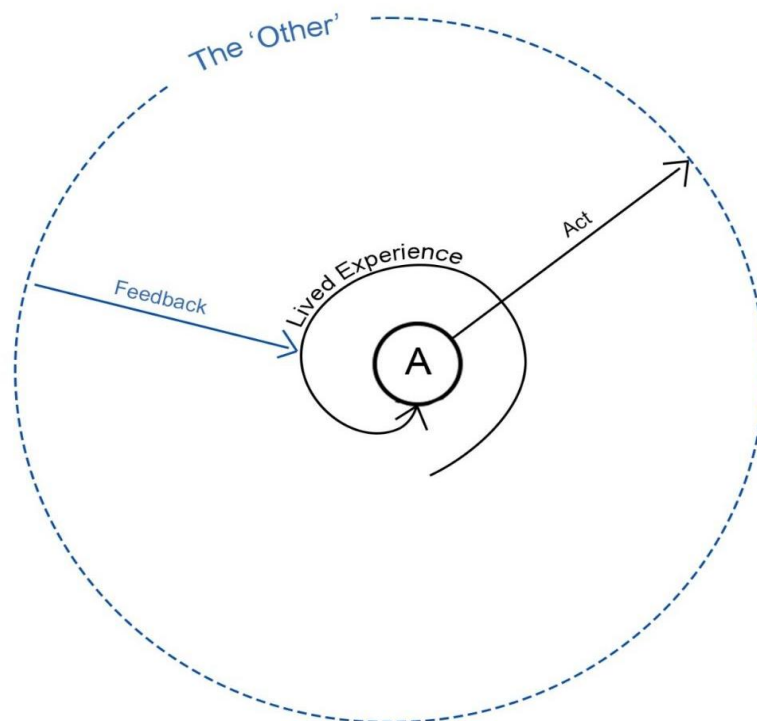


Figure 2. The Interaction Ecosystem (IE) Model of Spirituality

This model illustrates the spiral dynamics between the self and ‘The Other’. The process depicts how assumptions lead to actions, which are then filtered through lived experience and feedback loops, creating a continuous or shifting spiritual engagement.

4. Discussion and Conclusion

The findings of the present study provide a process-oriented interpretation of spirituality in design by demonstrating that spiritual experience is not a stable property embedded in an artifact, space, or visual symbol, but a dynamic interaction ecosystem that develops through the reciprocal relationship between individuals, their assumptions, their actions, their lived experiences, and the feedback they receive from their environment. The grounded analysis showed that participants did not describe spirituality through a single, shared definition. Instead, they articulated it through changing experiences of meaning, connectedness, peace, transcendence, uncertainty, disappointment, and reinterpretation. This finding is consistent with the conceptual ambiguity identified in previous multidisciplinary reviews, which have emphasized that spirituality assumes different meanings across individuals, cultures, professions, and belief systems [2]. It also accords with the view that spirituality may encompass religious and nonreligious systems of meaning and can be expressed through purpose, connectedness, transcendence, values, and wholeness [3]. The present findings advance this literature by showing that such diversity is not merely a definitional problem; rather, it is an intrinsic feature of how spirituality is lived and continually reconstructed. From a design perspective, this means that spiritual sensitivity cannot be achieved by assigning a universal spiritual meaning to a particular material, color, form, or symbol. It requires attention to the evolving interpretive processes through which users encounter and evaluate designed experiences.

A major finding was the central position of “The Other” within the Interaction Ecosystem Model. Participants’ narratives indicated that spiritual experience emerged when the individual perceived a meaningful relationship with something beyond the immediate material self. This “Other” could be interpreted as God, another person, nature, an imagined reality, a deceased loved one, a symbolic object, or a broader sense of existence and interconnectedness. The finding supports conceptualizations of spirituality as a search for connection with realities that extend beyond individual self-interest [6]. It also corresponds with

relational approaches that understand spiritual transformation through relationships with the self, other people, the sacred, and the wider world [9]. Sheldrake similarly presents spirituality as a lived orientation that concerns how individuals understand existence, values, relationships, and transformation rather than merely their adherence to formal doctrine [4]. The current study extends these perspectives into design by locating spiritually meaningful interaction within an ecosystem of relationships. In this model, an artifact does not independently produce spirituality; it becomes spiritually significant when it mediates or materializes a relationship between the individual and “The Other.” Accordingly, the spiritual value of a designed object depends less on its prescribed symbolism than on the relational network of memories, expectations, beliefs, and experiences activated through interaction.

The results also revealed a Cycle of Spiritual Understanding consisting of assumptions, actions, feedback, and lived experience. Participants initially approached spirituality through assumptions shaped by family, culture, education, religion, and previous experience. These assumptions informed practices and behaviors, including prayer, meditation, engagement with nature, interaction with meaningful objects, or withdrawal from particular rituals. The consequences of these actions were then evaluated through lived feedback. When experience confirmed prior expectations, the spiritual framework was reinforced; when it contradicted them, participants experienced uncertainty and revised or abandoned earlier beliefs. This iterative process is compatible with constructivist grounded theory, which treats meaning as emergent, contextual, and continuously reconstructed through interaction rather than as an objective structure awaiting discovery [27]. Constructivist grounded theory further emphasizes that people interpret events through existing meanings while simultaneously modifying those meanings in response to new situations [28]. The present study translates this epistemological principle into a substantive model of spiritual experience. The findings suggest that spiritually sensitive design should accommodate reinterpretation over time and avoid assuming that users’ initial values, interpretations, or practices will remain stable across changing life circumstances.

The experiences of participants whose beliefs were disrupted by bereavement, migration, environmental change, or perceived contradictions were particularly important. These narratives demonstrated that spiritual

development was often driven by cognitive and existential dissonance rather than by uninterrupted progression toward peace or transcendence. When an expected spiritual outcome was not realized, participants reconsidered both the assumptions underlying their practices and the nature of the relationship they believed existed with “The Other.” Some moved away from inherited religious interpretations, while others returned to earlier practices after experimenting with alternative approaches. These findings align with research showing that spirituality may serve as a resource for coping with suffering and uncertainty, but its role is mediated by personal interpretation and life context [10]. The relationship between spirituality and resilience in later life similarly depends on how individuals incorporate hardship, loss, and vulnerability into a meaningful narrative [11]. In clinical settings, spiritual care has therefore been conceptualized not as the imposition of reassuring beliefs but as support for patients’ own sources of meaning, hope, values, and connection during periods of crisis [12]. In design, the equivalent implication is that products and environments should not merely attempt to calm users or reaffirm fixed spiritual assumptions. They may also need to support reflection, ambiguity, grieving, questioning, and the reconstruction of meaning during periods of spiritual transition.

The findings further showed that spirituality was frequently associated with soothing consequences, including tranquility, emotional regulation, psychological equilibrium, safety, hope, and a sense of coherence. For some participants, these consequences were temporary and triggered by specific sensory or environmental conditions; for others, spirituality operated as a more enduring interpretive orientation. This distinction resembles the difference between spirituality as a stable disposition and spirituality as a transient experiential state. Existing instruments have operationalized spirituality through multiple dimensions, demonstrating that the construct includes both relatively enduring beliefs and situational experiences [13]. The Awe Experience Scale also illustrates how temporary experiences of vastness, connectedness, altered time perception, self-diminishment, and cognitive accommodation can produce psychologically significant states that may be interpreted spiritually [14]. The current results contribute to this literature by indicating that design may influence both forms. A space, material, sound, landscape, or interaction can trigger an intense short-term spiritual moment, whereas repeated engagement with an artifact or environment may gradually become integrated

into a person’s broader narrative of meaning. Designers should therefore distinguish between immediate emotional impact and sustained spiritual significance, because visually impressive or emotionally powerful experiences do not necessarily generate durable meaning.

Natural environments, sensory qualities, spatial atmosphere, and material objects emerged as prominent facilitators of spiritually meaningful experience. Participants frequently described nature as producing calmness, vastness, connection, or transcendence. Light, sound, texture, smell, visual rhythm, and spatial depth also functioned as mediators between abstract spiritual meanings and concrete experience. These results are consistent with mindfulness-oriented architectural research showing that access to nature, contemplative spatial organization, sensory regulation, and psychologically supportive environments may enhance mental well-being and spiritual engagement [24]. Research on spiritual manifestations in interior design likewise demonstrates that geometry, spatial order, repetition, and symbolic composition can evoke meanings associated with balance, perfection, unity, and transcendence [23]. However, the present findings qualify these claims by showing that such elements do not operate uniformly. Their spiritual significance depends on the user’s cultural background, personal memories, interpretive assumptions, and current life situation. Thus, nature, geometry, light, or materiality should be regarded as potential mediators rather than universal spiritual stimuli.

Objects also played a substantial role in participants’ accounts. Some objects possessed explicit religious functions, whereas others acquired spiritual meaning through personal history, memory, attachment, or association with significant people and events. This finding is supported by qualitative design research demonstrating that artifacts can elicit tacit narratives, emotions, identities, and meanings that are not readily accessible through direct questioning [1]. It also supports the proposition that creative work and designed objects can connect imagination, symbolism, emotional resonance, and transcendence [21]. The design implication is that spirituality may be embedded in the relational biography of an object rather than in its formal appearance. A mundane artifact may become spiritually significant because it sustains a relationship with a loved one, represents survival, recalls a turning point, or connects the user with a larger narrative. Conversely, an overtly spiritual object may fail to produce meaningful engagement when its symbolism does not correspond with the user’s experience. Therefore, spiritually sensitive design

should investigate users' object relationships and meaning-making practices rather than relying solely on predefined sacred forms.

Another major result was the identification of repulsive and ambivalent effects. Participants noted that spirituality could become restrictive, exclusionary, or psychologically aversive when transformed into rigid doctrines, compulsory practices, moral superiority, or ideological control. This finding complicates the assumption that spirituality is necessarily positive. The relationship between spirituality, religion, and culture is complex, and institutionalized expressions may carry social expectations that differ from an individual's lived spiritual orientation [5]. Ethical scholarship has similarly warned that spirituality does not automatically generate moral conduct and may become inauthentic when used as rhetoric, authority, or organizational manipulation [18]. The current findings suggest that design can reproduce comparable risks. A design intended to appear spiritual may alienate users if it privileges one tradition, prescribes a specific interpretation, or implicitly categorizes some users as more spiritually legitimate than others. Spiritual sensitivity must therefore include awareness of potential repulsion, not only facilitation. Ethical design in this area requires humility, pluralism, informed participation, and the avoidance of coercive symbolic frameworks.

The cultural diversity of participants further reinforced the importance of contextual interpretation. Spiritual assumptions were shaped by family traditions, social environments, religious education, and national or cultural experiences. Yet these inherited frameworks were not necessarily retained unchanged; participants modified them as they encountered new environments and alternative forms of life. Hofstede's layered account of culture suggests that visible symbols, practices, and rituals are supported by deeper values and assumptions [25]. In culture-conscious design, this insight has been used to caution designers against reducing cultural sensitivity to the reproduction of superficial signs [26]. The same caution is relevant to spirituality. Sacred geometry, ritual forms, or culturally recognizable motifs may communicate effectively within one interpretive community while producing misunderstanding or rejection in another. The Interaction Ecosystem Model therefore provides a useful extension to culture-conscious design by emphasizing that users actively test culturally inherited assumptions against lived experience. Spiritually sensitive design must engage both

the visible expression of spirituality and the deeper, often changing meanings that sustain it.

The model also bears similarities to workplace spirituality frameworks, although it broadens their application beyond organizational settings. Workplace spirituality has been conceptualized through meaningful work, inner life, community, and value alignment [16]. Multilevel models have shown that spirituality may operate at individual, group, and organizational levels through meaning, connection, and congruence between personal and institutional values [17]. Earlier organizational research likewise demonstrated how spiritual values may be reinforced through relationships among organizational mission, human resource practices, employee attitudes, and community [15]. Contemporary evidence indicates that workplace spirituality may influence job satisfaction, organizational citizenship behavior, quality of work life, and turnover intention [19], while its relationship with mindfulness, digital technology, and psychological well-being is shaped by complex organizational conditions [20]. The present study extends these multilevel insights by proposing that spiritual experience operates across psychological, relational, material, and contextual layers within any user experience ecosystem. The designer's task is therefore not to add spirituality as an isolated feature but to examine how values, practices, interactions, environments, and feedback collectively shape the user's sense of meaning.

Overall, the findings support a transition from symbolic spiritual design toward relational and process-based spiritual-sensitive design. Existing design-oriented scholarship has argued for integrating spirituality, ethics, sustainability, and concern for life into holistic design management [22]. The present study contributes an operational conceptual structure for pursuing this integration. The Interaction Ecosystem Model directs attention to users' initial assumptions, their attempts to connect with "The Other," the actions through which this connection is pursued, the material and environmental mediators involved, and the feedback through which spiritual meanings are reinforced or transformed. Such an approach does not eliminate the ambiguity of spirituality; instead, it treats ambiguity as a core design condition. The main theoretical contribution of the study is therefore its explanation of spirituality as an evolving ecosystem of interpretation and interaction. Its practical contribution lies in offering designers a framework for asking more precise research questions, recognizing moments of confirmation or

dissonance, and creating products and environments that preserve interpretive openness rather than prescribing spiritual meaning.

This study has several limitations that should be considered when interpreting its findings. The relatively small sample was appropriate for theoretical development but cannot represent the full range of spiritual experiences across religious, secular, cultural, and socioeconomic populations. Participants were recruited from a limited number of geographical contexts, and some religious traditions, particularly Judaism and other minority spiritual orientations, were insufficiently represented. The use of online interviews increased geographical access but reduced the researcher's ability to observe spatial behavior, embodied responses, and subtle nonverbal cues that may have enriched interpretation. Spirituality is also an abstract and linguistically difficult phenomenon, meaning that participants may have experienced dimensions they could not fully articulate. Finally, the resulting model is conceptual and grounded in retrospective narratives rather than direct observation of users interacting with specific products, services, or environments.

Future studies should examine the Interaction Ecosystem Model across larger and more culturally diverse populations and deliberately include participants representing religious, secular, indigenous, humanistic, and hybrid spiritual orientations. Comparative investigations could explore whether the stages of assumption, action, feedback, and lived experience operate differently across age groups, cultures, design domains, and major life transitions. Longitudinal research would be particularly valuable for observing how spiritual meanings change over time rather than relying solely on retrospective descriptions. The model should also be tested in specific contexts such as hospitals, memorial spaces, mindfulness applications, educational environments, workplaces, sacred architecture, domestic products, and digital well-being platforms. Mixed-method studies could combine interviews, participant observation, experience sampling, physiological indicators, and interaction logs to examine both subjective meaning and behavioral engagement. Co-design studies would further clarify how users can actively participate in translating spiritual values into design requirements without reducing those values to fixed symbols.

Designers should begin spiritually sensitive projects by investigating users' meanings, assumptions, relationships, and life histories rather than selecting predetermined spiritual forms. Interviews and participatory methods should

explore what users perceive as "The Other," which experiences reinforce or challenge their beliefs, what objects or environments mediate connection, and which symbolic or institutional elements cause discomfort or exclusion. Design solutions should offer opportunities for reflection, personalization, reinterpretation, and gradual meaning-making while avoiding rigid prescriptions. Sensory elements such as light, sound, material, texture, spatial depth, and contact with nature should be treated as adaptable facilitators rather than universal formulas. Designers should also evaluate unintended effects, including ideological imposition, cultural appropriation, moral hierarchy, and emotional distress. The most appropriate outcome is not a product that declares itself spiritual, but an inclusive interaction ecosystem that enables different users to establish, revise, or decline spiritual meanings according to their own lived experience.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

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All procedures performed in this study were under the ethical standards.

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