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## ► To cite this version:

Vahid Vahdat, Judy Theodorson. Ambiance Production in Virtual Interiors. Engineering and Assessment of Affective Response in Design Studio Projects. Proceedings of the 4th International Congress on Ambiances, Alloaesthesia: Senses, Inventions, Worlds, Réseau International Ambiances, Dec 2020, e-conference, France. pp. 102-107, 10.48537/hal-03220379 . hal-03220379

**HAL Id: hal-03220379**

**<https://hal.science/hal-03220379>**

Submitted on 14 May 2021

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# Ambiance Production in Virtual Interiors

## Engineering and Assessment of Affective Response in Design Studio Projects

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**Abstract.** *This pedagogy-based research was conducted through a design studio challenge in which students were tasked with the creation of virtual models that place affect production at the center of the design process. The raster-based environment of VR operated as a site, which permitted a momentary withdrawal from considerations of structure, program, climate, gravity, materiality, and even circulation. The elimination of obtrusive variables allowed us to effectively register the correlation between spatial qualities and affective properties. The aim of the paper is to 1) catalogue affective reactions to these highly abstracted virtual spaces; 2) register any possible consensus among multiple subjects; and 3) identify correlations between affective experience and spatial qualities.*

**Keywords.** *Affect, Interiority, Interior Design, Architecture, Virtual, Pedagogy, Language*

### Introduction

In this paper, we first develop a theoretical framework for discussions about affect in the built environment. This framework situates the spatial experimentations conducted by our students in their interior design studio. It also justifies the formalism and virtuality of the projects, by emphasizing the relevance of affect-oriented design in interior architecture. The second half adopts a descriptive and positivist tone to articulate the methods and results of students' experimentations on affect and how they contribute to the body of knowledge discussed in the first half.

While it has been more than a decade since the reemergence of architectural discussions about affect, theoretical musings about sensation as an architectural drive that can transcend cultural boundaries has a long history. Mitrovic (2009, 24) traces discussions about the sensorial properties of architecture back to Vitruvius. Di Palma (2016, 32) looks at the concepts of character and mood, which were subject of theoretical interest since the second half of the eighteenth century, as predecessors to affect. At the same time, Edmund Burke's conception of the sublime, and its later development by Kant, appeals to the romantics, as a way to discuss buildings "not so much terms of their fixed attributes of beauty but rather in their capacities to evoke emotions" (Vidler, 1994, 72).

### *The Affective (Re)Turn*

To understand how affect was later abandoned from architectural discourse, and feeling of any kind became delegitimized as that which gets in the way of intellection, it is necessary to understand the linguistic turn (Rorty, 1967) and its effects on theories

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regarding the built environment. The linguistic turn, as Mitrovic (2009, 21) explains,

that all thinking is always verbal and situated in language. If all thinking is always verbal, then it is impossible to think about the visual properties of objects; if it is impossible to think about the visual properties of objects, then one cannot ascribe aesthetic properties to objects on the basis of their visual properties, because one cannot think about these properties.

The domination of architectural theory by textual, symbolic, and iconographic approaches, especially since the 1980s, left little space for spatial and visual explorations of architecture and even less for aesthetic formalism. At the same time, however, new trends in cognitive psychology and philosophy paved the way for post-linguistic theories on the built environment. As early as the 1970s visual imagination assumed a respectable place in psychological research, while by the 1980s, arguments were made for the study of the human thought outside verbal form (ibid.).

The fact that the relationship between humans and their built environment was now understood to be beyond linguistic associations meant that aesthetic sensations can be liberated from rationalization. By operating through direct sensations rather than symbolism, “[affects] bypass the need for codification of language and are able to shift across space and time” (Moussavi and Kubo, 2006, 9). This post-linguistic shift entails that 1) there is no hidden message or an underlying meaning behind architectural affect, 2) affective experiences of the built environment (or any other object for that matter) are unmediated, and thus, 3) they are universal.

The claim of the timelessness and universality of affective experience is questionable. Objects and spaces do not inherently possess affective properties; historical and cultural contexts influence the sensate responses they temporarily host. A calming building may feel haunted at night, a sacred object may come across as entertaining or even comical in a different era or location, and an ordinary artifact might seem uncanny to even the same subject. In his study of uncanny or subliminal affect, Vidler discusses how the very definition of the sublime, as Burke devised, was based on experience rather than artifice. By replacing “uncanny” with “affective,” his articulation of the problem cannot fit this discussion any better:

If there is a single premise to be derived from the study of the [affective] in modern culture, it is that there is no such thing as an [affective] architecture, but simply architecture that, from time to time and for different purposes, is invested with [affective] qualities (Vidler, 1994, 12).

If a body’s engagement with the world, as Kraftl and Adey (2008, 215) suggest, “can engender almost limitless forms and exemplars of affect,” is any attempt to associate particular affective sensations to objects and spaces basically meaningless? And if within the world of human sensations, as Gage and Pita (2009, 8) imply, “there simply are no privileged viewers,” are all affective experiences equally valid?

### *Affect, Interiorized*

To address these questions, it is no longer possible to evade a definition of the affective - especially one that is distinct from the sensorial. In contrast to emotions that is often assumed to function at intimate scales, the affective presents itself socially and relationally, as a force that propels the subject to feel, think, or act (Thrift, 2004, 64). Affect is thus neither an inherent quality of the emitting object nor an attribute of a single (human) subject; it is rather the property of relations, interactions, and

forces. By locating the affective in the relational, and by challenging the unidirectionality of the affective drive, the rigid subject/object distinction is also disturbed (Massumi, 2002). This understanding of affect as reciprocal, impersonal, and nonrepresentational has enjoyed a strong presence in the literature in the past few decades<sup>3</sup>. Yet, the integration of this subject in interior design suffers from a lack of systematic theoretical digestion. Theoretical attention towards affect in interior design can address concerns over the status of interior design as it remains overlooked under the hegemony of architectural design. Especially because, affect flattens the assumed hierarchy of interior/exterior by treating them as continuous, yet autonomous. Deleuze, for example, adopted Kant's "sense" of space but dissolved the inside/outside separation (Deleuze, 1997; Deleuze and Guattari, 1987; Flaxman, 2005, 177). In their discussions on affect, Moussavi and Lopez (2009) similarly aspire to a radical disassociation between inside and outside. The quasi-autonomy of interior in provoking an affective response allowed us to experiment with the interiority of 360-imagery with a methodic disregard to exterior considerations.

## Methodology

### *The Pixilation of Affect*

Aside from, and in parallel to, the "postlinguistic, postsemiotic" shift (Mitchell, 2002), three interrelated developments facilitated the (re)emergence of affect in spatial design discourses: 1) the introduction of digital media and the subsequent formal explorations (Mitrovic, 2009, 22), 2) intense globalization and its demand for universality (Di Palma, 33), and 3) the surge of "paper architecture" in the aftermath of the great recession.

This understanding that architectural experience is not necessarily tied to the built and that the aesthetic content of imagery, drawings, and even spatial imagination can invoke an affective response (Mitrovic, 2009, 23) permitted the design studio to function as a laboratory for affective studies. On the other hand, virtual reality (VR) technologies allowed the students to design - and the subjects (which in this case were the same group of students) to participate in - a more immersive experience of affect, especially when compared to flat environment of conventional renders. VR, in this context, was not treated as a representational technology that accurately mimics the built or replicates a yet-to-be-constructed. It was rather understood as a site, and therefore any design within this site was considered a product of an affect-oriented design process.

By assuming the properties of a site that has its own internal logic, very distinct from the physical laws of the external world, the virtual environment encouraged students to embrace the freedom to investigate space of an unfamiliar kind. The production of these alien interiorities was only conceivable through the digital means, which as discussed before, played an important role in the affective turn.

### *Affect Hunting*

A total of 40 students from two sections of a 4th-year capstone interior design studio at Washington State University took part in this study. Through a deliberate disregard of programmatic, climatic, structural, material, and circulation considerations, each student was challenged to use design strategies as a means of generating profound

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3. For a rather comprehensive list of literature in urban geography, sociology, psychology, and neuroscience that contribute to the discussion of affect, see Scheutz (2011).

spatial ambiance. Students were then directed to study the projects of their peers through 360-virtual renders and respond to a series of questions about affective categories for each design.

Many different affective categories have been identified in the literature. From back in mid-eighteenth century when Boffrand associated moods such as gaiety or sadness to building types and Blondel's categorization of moods into pastoral, naïve, frivolous, terrible, mysterious, dissembling, and vague (Di Palma, 2016, 32) to Moussavi and Kubo's (2006) affects of amorphous, scaleless, embroidered, luminous, camouflaged and Tomkins seven affects of excitement, joy, surprise, distress, shame, anger, and fear (Sedgwick and Frank, 1995, 10).

Yet, to ensure that the subjects of the study fully understood the affective categories, they were directly involved in identifying the emotional responses. The questionnaire was developed through multiple sessions of discussions with volunteered focus groups from the students. The final document comprised of 13 questions in four sections. The first section was a closed word choice for emotive response. It asked students to pick three to five words that best described their feeling in relation to the space, from a list of 18 affective qualities<sup>4</sup>. The participatory approach in generating a list resulted in categories that occasionally overlap, lack mutual inclusivity, and are not hierarchically equivalent; yet, the investment of the participants in the development of the categories created a sense of attachment to the study that invoked greater engagement.

In another section, we applied semantic differential. Using a slider, students determined the strength of spatial qualities from bipolar word pairs about space luminosity, color, order, form, familiarity, and enclosure. The other sections, including a five-point Likert Scale and open-ended questions were not used in the study. Aside from the quantitative study, the subjects were also asked to act as a photographer and take a snapshot from the parts of the 360-space they considered to invoke the most affective response. The affective parts of each project were thus registered through 40 still images, some of which strongly overlapped, while others were more diverse. This part of the study is not included in the results.

## Results

The questionnaire documented the affective responses to each space based on the categories, while frequency of responses were registered for the intensity of the affect and consensus among participants. A Pearson Product-Moment Correlation Coefficient analysis was conducted to study the relationship between the affective categories and their association to spatial qualities<sup>5</sup>.

The results indicate a strong correlation (0.81) between fearfulness and intimidation of a space, and between peaceful and comforted spaces (0.84). Playful spaces show a strong correlation (0.83) with energized spaces and tend to be joyful (0.75). Stressful spaces are not calming (-0.92); they tend to generate the feelings of anxiety (0.82) intimidation (0.8) and they overwhelm (0.78). Confused spaces are uncomfortable (0.76); uncomfortable spaces make subject anxious (0.7). Feelings of anxiety (-0.7) and overwhelm (-0.78) have a negative correlation with calming spaces. Calming

4. These qualities were energized, intimidated, uncomfortable, welcomed, interested, comforted, confused, tense, overwhelmed, joyful, free, fearful, curious, peaceful, protected, playful, vulnerable, and cautious.

5. It is important to understand that 1) this is a pilot study and the results cannot be generalized until tested on a larger sample population and 2) correlations do not constitute causal relationships.

spaces correlate with comfort and peacefulness (0.85) and they are often welcoming (0.76). Welcoming spaces are comforting and peaceful (0.71). Welcoming and comforted spaces are not stressful (-0.75 and -0.76 respectively). Familiar spaces are more welcoming (0.74) and more calming (0.71) but free and open spaces are often not (-0.7). Colorful and playful spaces tend to be more energized (0.77 and 0.82 respectively). And, the less orderly a space is the more alien it appears (0.81).

### *Discussion*

Given that a few of the affective categories semantically overlap, some correlations were only beneficial to confirm the validity of the survey. For example, the correlation between fearful and intimidating, peaceful and comforted, as well as playful and energized spaces. The synonymous/antonymous criteria were thus adopted as a measure to detect random responding and cleanse the survey for more accurate results. Yet, the fact that occasionally the correlations between similar (not synonymous) affects were not very strong (e.g. 0.7 between anxiousness and discomfort) speaks to the complexity of affective sensations.

While some of the results confirm the expectations that for example, colorful spaces tend to be more energized and familiar spaces are more welcoming and calming, others offered some original (and counterintuitive) insights into the discussion of affect. For example, that disordered spaces tend to appear unfamiliar and that free/open spaces often generate a sensation of discomfort and disorientation.

Finally, a statistical indifference between the spatial variables and affective ones were observed. This weak correlation between spatial qualities and their affective sensibilities confirms that affect is not a property of the object. Spatial features (e.g. size, proportion, color, light, and even geometry) may produce different and even contradictory affects.

### **Afterword**

The affective (re)turn does not necessarily undermine the representational or the semiotic, but can rather add a non-verbal layer to design by privileging the sensate. The reintegration of discussions about affect into interior design theories would empower designers to embrace affective expressions, while being cognizant that affect evades a deterministic relationship with spatial quality. By liberating the interior from the hegemony of the exterior, theories of affect can contribute to interior design's disciplinary autonomy.

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