Adapting Sensibilities Beyond 'Screen-Deep' Spatial Experience. Materiality and Atmosphere in Our Screen-Deep Virtual Excursions

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Materiality and Atmosphere in Our Screen-Deep Virtual Excursions

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Abstract. *Looking within and beyond our current situation it is clear that new sensibilities of spatial experiences are emerging that can no longer be defined by our physical presence alone. Working with screen-deep spatial encounters, virtual 'visits' or 'excursions', challenged by a depleted range of sensorial information, our situation demands new methods of representation and interpretation. This study explores how can we define and adapt our understanding of architectural sensory information. It provokes questions into our relationships with the atmosphere of architectural space and the data that might help define it. Findings propose how, as designers, we might provide increased opportunities through virtual excursions, to glimpse into a tangible embodied understanding of architectural spaces.*

Keywords. *Virtual, Screen, Architectural Space, Embodied, Atmosphere*

Introduction

The normalisation of worldwide spatial confinement of 'lockdown' in the early part of 2020 due to the Covid-19 pandemic was reassuringly contradicted by the easily accessible open door to infinite screen-deep digital worlds through our computer screens. The internet provided virtual visits to architectural spaces allowing exploration of new and familiar places anywhere in the world from our own homes. Yet, the tangible, experiential understanding of spaces, that of physical space, materiality and atmosphere of place, remained seemingly untouchable.

Figure 1. Photograph of physical site visit to St Benedict's chapel, Sumvitg, Switzerland, G Treacy, April 2019

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Looking within and beyond our current and evolving situation it is clear that new sensibilities of spatial experiences are emerging that can no longer be defined by our physical presence (Fig. 1). Working with screen-deep spatial encounters, challenged by a depleted range of sensorial information, demands new methods of representation and interpretation. This provokes questions into our understanding of the ambiance of each architectural space and the data assisting in defining it. A hypothesis is proposed that we can develop our sense of touch through our eyes and ears to provide cues to the atmosphere of a virtually experienced space.

This research questions and tests examples of how we might shape evolving human sensitivities to work autonomously, replacing our traditional appreciation of spaces only through direct physical emotions. It explores and tests a selected architectural space through the accumulation and layering of spatial and environmental data using basic digital tools, common sensor technologies and video capture to explore the missing 'essence' of materiality and atmosphere in our screen-deep virtual excursions. This paper highlights the successes and limitations of a proposed new methodology for heightening our awareness and reconfiguring our understanding of the physical materiality of new spatial experiences.

The Contextual Setting

Few studies have been conducted in this area specifically. Therefore, this paper aims to start a new conversation by investigating how a screen-based experience of an architectural space as a physical or virtual journey influences how we perceive spatial atmosphere. The main contribution of this paper is to identify the primary layers and elements of an architectural space that need to be understood when we experience spaces virtually in order to better appreciate the spaces and places we visit in a tangible way.

"If people are attuned to the spaces that surround them, they will be moved. Knowing how to 'see space', or how to be spatially attuned, is an ability with which we are all born" Royal Academy of Arts (2020).

This study commences by investigating varying representations of a 3-dimensional physical environments through a new lens, that of the digital flat screen. The following examples aim to identify the basis and context for the approach taken within this research.

The larger emerging field of study within which this research positions itself relates to both virtual environments and phenomenology of place. Current dialogue in this area implies spatial immersion often understood as a simply synthetic experience or, through more complex interactive computer simulations delving into AR or VR. Artistic imagery, architectural renderings, cartography and games often exploit abstraction to clarify, exaggerate, simplify or emphasise the visual content of the spatial experience. These techniques allow artists to highlight specific visual information and thereby direct the viewer to important aspects of the structure and organization of the scene .

In addition, if we consider the level of detail within a virtually rendered architectural scene in comparison to a video of a physical experience or photograph, this too is understood to have an impact on the emotional engagement of the participant. Duke et al. (2003) These researchers hypothesized that participants perceived the higher the level of detail as more intriguing for exploration.

However, Pallasmaa (2014) argues that "The quality of a space or place is not merely a visual perceptual quality as it is usually assumed. The judgement of environmental character is a complex multisensory fusion of countless factors, which are immediately and and synthetically grasped as an overall atmosphere, feeling, mood or ambiance." This study seeks to begin addressing these hidden complexities, beyond the visual.

The Research Study

Building on these research themes this study sought to question how the data contained within physical architectural spaces; such as light and sound might supplement the experience of virtual spaces to help us code our screen-deep environments in new ways.

When explored through spatial environments, the nature of both of these interactive elements purports to ontological complexities that imply a continuation within a space regardless of our presence. Sound can exist in a space with or without a listener. Light can exist in a space visible by someone in that space and it exists without anyone seeing the light interactions within the space. This idea therefore suggests that we might still learn to understand architectural spaces viewed through the medium of a flat screen by exploring their unique atmospheres even without our physical presence by engaging with the interactions of sound and light; by seeing and hearing the space itself.

This research therefore considered two aspects of this notion through experiencing videos of the interior of an architectural space to seek to identify the possibilities in both the built 'virtual' space and the built 'physical' space as a viewer, through the lens of the computer screen. Further, through an additional layer of sound and light applied to the video material, the possibilities and value of this type of information in assisting the atmosphere of the space could be evaluated. The first study proposed addressing physical presence within a space through a recording of a physical visit to this same space. The second provided manipulation of layered elements of the recording to magnify selected sound and/or lighting information. The third context engaged the viewer with an architectural space built virtually, allowing light and sound interactions to be viewed as additional visual representational layers to emphasise the interactions between the built fabric and its sensorial characteristics.

An exemplar architectural space was used to explore data collected through physical and 'screen deep' research. Environmental measurements, photographic and video data were collected and collated in April 2019 during an architectural trip to Switzerland and in April 2020 from a virtual architectural trip to the same building during 'lockdown' from Scotland, UK. The selected building for this study is St Benedict's Chapel in Sumvitg, Graubünden, Switzerland, designed by Peter Zumthor (1988). This modestly sized chapel interior expresses a vocabulary of minimalist timber columns, beams and benches with clerestory windows providing daylighting. The simple, considered, craftsmanship evident in the selection of materials and the detailing defines Zumthor's famed approach to materiality of place and the unique design response this demands.

This paper summarises a series of experiments carried out through April 2020, investigating affective (emotive) qualities of videos that explore the interior of the chapel. A set of videos of St Benedict's Chapel were sourced from Youtube and my own library resources collected in 2019. These videos were then developed to use as prototypes for a survey of 60 architects in the UK. Sensorial inputs were adjusted for each set of presentation information. Various apps were used to develop and add this information

to the videos including iMovie, After Effects, 3dsMax, Wavepad, Edenapp, Oria wireless thermometer and Photolux app. Each video contained varying sensorial inputs as listed below and assigned to 3 separate survey groups. The sequence within which participants were exposed to each video scenario was considered to ensure indicators of atmosphere were not used as a reference too early in the testing process but provided a development of understanding. Further, at each stage, participants were asked to complete answers to questions in relation to the material provided and their understanding of the atmosphere and materiality of the space.

Set 1 - Raw data: Peter Zumthor's recording of a visit to the chapel[2] - 3 variations of combined or omitted audio and video.

Set 2 – Raw data: Peter Zumthor's recording of a visit to the chapel[3] and on-site measurements of temperature data (Oria) - 3 variations of combined or omitted audio and video.

Set 3 - Raw data: 3DSMax model walkthrough of chapel developed from measurements and photographs from site visit, April 2019 (Oria, laser distance measure, Samsung phone, Edenapp, Photolux and Wavepad) and audio from Peter Zumthor walk-through - 3 variations of combined or omitted audio and video.

Findings

61 architecture professionals took part in the survey, each test set was assigned to a group of approximately 20 participants. Set 1 and Set 2 considered Peter Zumthor's own recording of a visit to the chapel and Set 3 provided a virtual 3-dimensional model experience.

The key findings related more closely to the use of audio than any of the other visual data layers that were developed or revised. The Set 1 'audio only' mp3 file provided interesting descriptions and these varied from, 'an ancient space', 'somewhere hidden' to a 'community gathering space' or space 'close to nature'. Over 50% of Set 1 participants noted the movement in the floor was audible. In addition, using the audio only file, participants were able to identify that the space was not a particularly small room and had hard surfaces due to the acoustic appreciation of the reverberation time. When answers were analysed it was clear that Set 3 participants benefitted most from the introduction of audio. When the same audio track from Set 1 and 2 videos was added to the 3DSMax model virtual video view participants were immediately able to discuss the materiality in the space (timber, wooden benches etc.) and they were able to talk of the atmosphere with more confidence.

Discussion

This research concludes by highlighting the successes and limitations of this new methodology in heightening our awareness and reconfiguring our understanding of the physical materiality of new spatial experiences.

In the creation of the videos, basic cameras, measurement tools and 3-dimensional drawing software was used. The resulting videos and the experience of viewing these, sought to inform the viewer of the acoustic and lighting interactions with the built

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2. *Peter Zumthor – St Benedict's Chapel:* https://www.youtube.com/watch?v=mOPWNid856c
3. *Ibid.*

fabric providing indicators of the properties of the spatial physical environment. It was understood and noted that this viewing experience was influenced by many other factors such as the screen size, the physical space the video was viewed from (ambient light and visual adaptation and sound interruptions) and the affective and cognitive state of the viewer and listener. The level of skin-deep screen experience was ultimately influenced by a combination of factors. Further limitations in this study exist due to the single space used to carry out the analysis and visualisations.

However, by collecting and visualising the various interactional spatial elements of light and sound together it became possible to demonstrate how reliant we are in the understanding of them to appreciate a space beyond an insubstantial 'skin deep' approach providing a platform from which to further explore. For instance, the experience of viewing the different videos allows different associations to be drawn between proprioceptive feelings as the viewer is taken into the space to the memory of similar spaces previously experienced, raising the question of how the elements of light and sound in a space may influence each other and collectively determine our perception of an architectural space.

Janson (2014) discuss that materials address our senses to varying degrees, for the most part, the properties of materials are not perceived in isolation, but in their interaction with other materials, which modulate, contrast, or accentuate one another. In the right proportions, a variety of materials can be coordinated with one another to shape the atmosphere of the room so that it 'resounds' with a characteristic chord. The layer of audio in the video recording by Peter Zumthor during his visit clearly when in the real physical space clearly heightens our understanding of the atmosphere more than we might have previously imagined. Janson (2014) also comment that, "As expressions of total situations, however, atmospheres are also generated through use, and through our knowledge of places." It would be nonsensical to argue against the fact that background knowledge augments appreciation. However, these findings imply that even the knowledge of places as recorded by someone else can provide us with missing data and supplemental cues to understand the atmosphere of the space that we cannot be physically present in.

We can also enjoy screen-deep experiences in a more embodied way if we seek to add audio that helps to define the characteristics of the space and allow us to imagine we are really there. Böhme (2017), proposes, "In the church space, though, silence is most intensively articulated by one's own footsteps." Through the echoing sound of "one's own footsteps," allowing one to experience "one's own lostness in space" it can become possible once again to feel physically present during our virtual excursions through our digital screen.

This research sets out not to teach people what to understand about architectural space but to understand above all else that architecture is a personal experience embodied with various sensorial levels of complexity. When a single layer of this encounter is missing we too miss this part of the experience. What we enjoy most is the opportunity to glimpse into an embodied understanding of the space, even if temporarily, and even if virtually – its atmosphere and associated unique complexities.

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