Towards evaluating effects of digital sensory environments on human emotions in the wild

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ABSTRACT
Media Architecture has transformed galleries and exhibitions by creating immersive digital sensory environments, significantly impacting the visitor experience. Even with this shift, there is still a dearth of thorough knowledge about the complex impacts of these immersive environments, especially in terms of their spatial and affective dimensions. In order to investigate the impacts of immersive settings in galleries and exhibitions, we provide a framework. It encompasses three domains: (A) Physical Domain - Space, (B) Perceptual Domain - Human, and (C) Affective Domain - Human Response with an Outernet London case study. This study aims to pave the way for future research that will comprehensively explore these aspects using systematic physiological data collection methods.

Author Keywords
Human Building Interaction; Sensory Experience; Spatial Layout; Exhibition; Media; Perceived Atmosphere

CSS Concepts
• Human-centred computing

MAB '23, June 14–23, 2023, Toronto, ON, Canada © 2023 Copyright is held by the owner/author(s).ACM ISBN 979-8-4007-1635-5/23/06.https://doi.org/10.1145/3627611.3627626

INTRODUCTION

Designing physical environments, in particular when taking into account the design of digital sensory environments, requires a shift from the designer-orientated approach to the visitors-oriented approach [9]. The consideration of the emotional and sensory experience of visitors in multi-sensory spaces in galleries and exhibitions increased along with its functionality. As such. visitors' behaviour and feeling are highly affected by these sensory environments [12] which, in turn, shape their experience [6]. Although interaction with the physical environment, and installations, are an important part of space production and experience, the experience within sensory space hasn't been adequately evaluated by existing research. As an example, functional aspects of buildings including the layout and wayfinding have been examined but not incorporating the users' experience within sensory environments [5]. In recent years, the concept Human-Building Interaction (HBI) has been introduced to fill this gap in the literature and to create a ground for Human-Computer Interaction (HCI) research within built environments, as an interdisciplinary area between HCI and the architecture and urban design. The scope of HBI involves the relationship between human experiences, including interactivity and the built environment design, which may integrate computing in various ways [3]. The authors HBI call on scholars to fill the methodological gaps on four fronts: frameworks, re-exploration of existing methods in experience related studies, new methods, and method shifts in interaction and architecture contexts. This pictorial demonstrates our first attempt to bridge this gap and uncover visitors experience in consideration of HBI considerations with the focus on galleries and exhibition environments. We present an initial part of our ongoing research project. The main contribution of this pictorial is the framework (Figure 1) to examine the effects of immersive spaces, drawing on existing literature and an exploratory Media Architecture case study of Outernet London. The framework combines three domains of immersive environments: (A) Physical Domain - Space, (B) Perceptual Domain – Human, and (C) Affective Domain – Human Response. The case study aims to demonstrate how display contents in the same physical environment influence emotional and behavioural responses of visitors. This pictorial presents the first steps in a series of studies that aim to examine the impact of sensory environments on visitor's experience.

CONCEPTUALISING EXPERIENCE: THE FRAMEWORK

Existing research attempted to understand the design and functions of digitally mediated experiences and their effects on museum visitors bringing together human-computer interaction (HCI), interaction design, and museum studies. However, there is a gap in understanding the relation to the spatial configuration to bring together knowledge of embodied experience in museum space [39]. The purpose of the research is to bridge this gap and explore how visitors perceive and respond to digital sensory galleries and exhibition spaces in a systematic way.

In this pictorial, we examine experience in digital sensory exhibitions in the wild, that is in the natural way of experiencing various uncontrolled external factors [30]. We conceptualise the experience through a framework with three domains. The framework combines **(A) Physical Domain - Space, (B) Perceptual Domain – Human, and (C) Affective Domain – Human Response** (Figure 1). The dimensions of each domain are classified under subtitle groups. The framework illustrates the experience in a process starting from left starting from (A) Physical Domain – Space to (C) Affective Domain – Human Response. These dimensions will be explained with supportive literature in three parts by following the same order. The (A) Physical Domain – Space is divided into two parts as spatial configuration and display.

While spatial configuration defines the architectural envelope, the display addresses the created atmosphere and its tools inside the envelope. This part includes spatial analysis and documentation. The stimulus from the physical domain perceived by human is categorised in B) Perceptual Domain – Human. The four dimensions of this part address how the physical domain has been perceived by those who experience the space.

The focus of the research overall is to find out in detail about (C) Affective Domain – Human Response from A and B stages. The affective domain is categorised as emotion and behaviour. This part is grounded in Atmospherics Model [7] which has been adopted by Forrest based the on atmospherics model in retail environments [4,38]. The Atmospherics Model can be useful to understand how individuals perceive the atmosphere and respond to sensory stimuli in digital sensory environments. For example, in exhibitions visitors are exposed to a wide range of sensory stimuli such as artwork, historical artefacts, sounds, and lighting. the three domains in the framework will be explained in the next part with together subcategories. The proposed framework is developed based on the literature review of three domains of experience in digital sensory spaces. The following section will explain each domain and subcategory referencing the related literature.

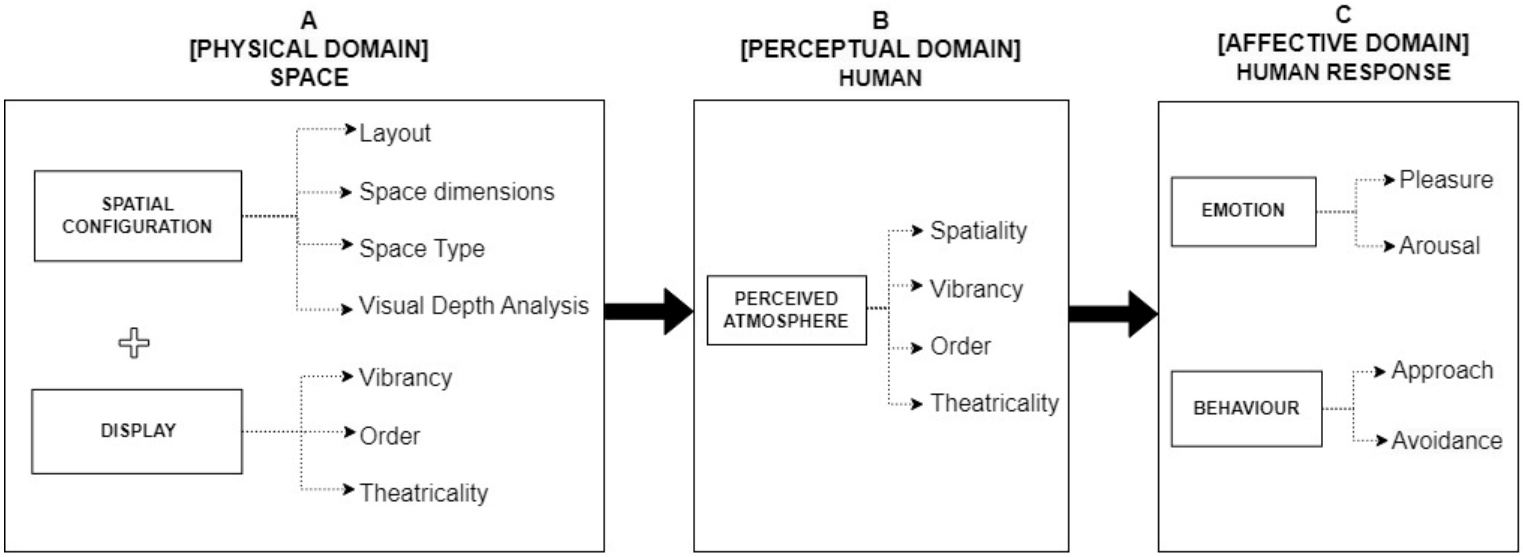

Figure 1 Proposed framework to conceptualise the experience in digital sensory environments. Source by author.

(A) PHYSICAL DOMAIN – SPACE

Spatial Configuration

(A) Physical Domain – Space divides the space as spatial configuration and display. This pictorial will use spatial configuration analysis to document the physical relationship between space and human. The term spatial configuration is derived from architectural theories, which explain it as 'a set of relationships among parts, all of which interdepend in an overall structure of some kinds.' [13]. Spatial configuration combines the permanent space qualities as layout, space dimension, and space type. These categories derived from the existing research.

The physical exhibition environment has been studied by various scholars using methods including the analysis of space types, visibility graph, and isovist [14]; museum architecture provides meaning to the objects and interactions in these 'spaces of encounter' as well as material-built contexts [2]; "beyond two dimensions: architecture through three-dimensional visibility graph analysis" studies [19,20,32,41]; architectural studies with a focus on museums and galleries examined Spatial Navigation in Real and Virtual Multi-Level Museums [20,21,41].

Building on these studies, the framework will extend the use of spatial analyses methods beyond the layouts. Existing research carried out an extensive study on spatial dimensions of exhibition spaces, materials, textures, lighting or any other components have dealt with these elements in digital sensory environments.

Our proposed framework divides the physical space in two parts. First, 'spatial configuration' part is for documenting layout, space dimension, space type. Second, 'display' part will document the other aspects of spaces which will be stated in the next section. of space which could shape the experience of the exhibitions and space. However, not enough studies

Display

As a second part of the digital sensory space, display means the components of the space that creates the experience. The build a ground understanding, existing literature defines that the exhibition environment combines different components. In *the Anatomy of an Exhibit,* [1] distinguishes the possible meanings into three separate groups: (1) 'exhibit unit' means *the 'display'*, (2) 'exhibition group' is *two or more displays on the same* topic, (3) 'exhibit area' is *a collection of displays with a similar, general theme.* The 'display' includes the visual information presentation, installation design, and spatial arrangement as a physical and explicative space [9]. Based on these main definitions, the pictorial will attempt to review the immersive multi-sensory exhibition as a 'display' to identify their evolved environments to fill the current gap in the literature. The pictorial will use the 'display' to indicate (1) exhibit components which are material, technology (hardware and software), storytelling method, media, and sensory content.

Building on the traditional approaches and definitions of 'display' and 'object', this part will move to digital media including displays. The digital concept blurred the edges in-between 'digital' and 'nondigital' and has become blended into museum components [27]. It means that object displaying shifted to displaying a real-time experience. Acknowledging these digital components and shifts in exhibition spaces, the research specifically focuses on the 'displays' as digital sensory exhibitions including visual and auditory displays.

We draw upon the literature on the 'atmospherics' concept from the environmental psychology of retail environments which is related to the embodiment in the space. The atmospherics concept mainly states that the environment influences people's behaviour and this influence can be controlled in 'perceptible and predictable ways through design choices' [16]. Forrest [11] reviewed the related literature and demonstrated the importance of the **atmospheric dimension** of the museum experience. The existing literature has not included enough study on the effect of atmospherics on visitor behaviour and responses in museum and exhibition environments [17:97]. The perceived atmosphere has four dimensions as Spatiality, Vibrancy, Order, and Theatricality. In the framework, we proposed the documentation of spatiality in spatial configuration part with a certain distinction from display categories as vibrancy, order, theatricality. The next part continues with B) Perceptual Domain – Human.

(B) PERCEPTUAL DOMAIN – HUMAN

Perceived Atmosphere

A difficulty in advancing our comprehension of how the exhibition setting influences the visitor's experience is the absence of common theoretical ideas and language among exhibition designers and visitor researchers [22]. This pictorial project will build on the 'Perceived Atmosphere' and 'Visitor Responses part'. In addition to spatial sense, layout, colour, and lighting; various factors may contribute to the creation of the atmosphere of an exhibition space such as sound, scent, texture and thermal. The research will attempt to expand this model to analyse digital sensory exhibitions. Atmospherics model was adapted from Forrest [11] who extended Kotler's [16] Atmospherics Model in exhibition environments. Spatiality (incorporating coherence, spaciousness, texture, material, and enclosure); Vibrancy (Layout, colour, lighting, audio, scent, and overall mood in the environment; Order (Narrative, incorporating novelty, mystery and complexity); Theatricality (schedule, time-based, scenario). The Forrest's research interprets principal dimensions following factor analysis. This pictorial firstly will analyse the case study based on these dimensions.

The of this research show that Vibrancy is the factor which most likely to shape feeling of pleasure and make experience worthwhile. This can be supported by the existing literature. The use of lighting and colour schemes is a common practice in atmospherics research to manipulate the level of arousal in an environment. Bright lighting is more stimulating than soft lighting, while "cool" white light (white light with more blue spectrum wavelengths) is more stimulating than "warm" white light [18,30]; colours like reds and yellows give the impression of a higher temperature than blue or green rooms at the same ambient temperature [18,25]; a noisy environment is predominantly painted in yellows and reds, it will appear even noisier [18]. Red is generally considered to be the most stimulating colour, with the ability to elicit the strongest emotional, physiological, and perceptual responses in museum atmospherics. Following factors and dimensions belove, they can be used the categorise the exhibition spaces in meaningful ways [11]. This pictorial applies the similar procedure to capture the effects of the exhibition spaces on visitor experiences. In the next steps of this research, we will use these dimensions to create correlations between objective data collection.

Perceived Atmosphere Dimensions [11]

Factor 1: Vibrancy	→	Dramatic, Active, Vibrant, Striking, Dynamic, Colourful, Energetic, Three Dimensional
Factor 2: Spatiality	→	Wide, Spacious, Open, Uncluttered
Factor 3: Theatricality	→	Winding, Modern, Asymmetrical, Targeted Lighting, Dark, New
Factor 4: Order	→	Ordered, Organised, Structured, Flowing

(C) AFFECTIVE DOMAIN – HUMAN RESPONSE space without through-movement

Emotion

Different scholars define emotions and affects from their perspectives which are the neurological and biological origin without the cultural background of humans [26] and the '*constructivist approach'* which involves cultural patterns [37]. From a basic and discrete view, [26], emotional systems can be divided into seven *seeking* (expectancy), *fear* (anxiety), *rage* (anger), *lust* (sexual excitement), *care* (nurturance), *panic/grief* (sadness) and *play* (social joy) that are controlled by subcortical regions of our brains. Also, [7] identified six emotions of anger, disgust, fear, sadness, surprise, and happiness. The research project will exclude the second pole which involves cultural patterns.

Various studies explored emotions and feelings in different contexts. For example, [15] proved emotions have a strong role in memory and learning; [43] also considered emotions a part of learning and interpretation; [24] argued that positive emotions improve creativity and imagination; [23] defined emotive journey concept in the museum experience; [36] studied the emotions in the museum storytelling.

We suggest that in order to understand sensory experience we need new tools and methods to evaluate and capture visitors experience in immersive multi-sensory museum and gallery environments. This requires learning from studies from HCI perspectives such as capturing *basic emotions from body movements* [33]; *perception of emotions from static postures* [34]; *how emotion is made and measured* [3]; *emotional body movements* [35].

A limited number of studies attempted to evaluate sensory and emotional experience data in digital museum environments. For instance, [6] demonstrated the limitations and potentials of mobile eye-tracking in visitor studies; [5] studied the multi-sensory engagement with multimedia installations and objects by using semi-structured post-visit interviews that question the visitors about the recorded behaviours in the conducted observations; [29] conduct a study with a skin conductance recording tool with the experience of interactive screens in galleries and exhibition.

We consider that the digital sensory environments create similar experience with virtual environments. Although, virtual world is a different context digital sensory environment has immersion effects on visitors. Therefore, the experience level of the visitors depends on their tendencies. One of the supporting literatures is that Witmer & Singer [18] introduced the idea of Immersive Tendencies (ITs), which suggests that some people are more likely to experience immersion than others. Additionally, researchers have proposed Influencing Factors (IFs) as another concept that affects the quality of a person's immersive experience [5, 21]. These IFs include the medium, media, and context, all of which have been found to have a significant impact on the immersive experience. [42]. As Tzortzi and Fatah gen Schieck (2023) pointed out the two concepts of immersion and presence, which are intrinsic to the experience in virtual environments, are key to other mediated experiences beyond virtual environments. We will build on this view and will apply methods for the evaluation of immersion that originate form studies in Virtual Environment outlined above [40].

In the framework, we propose behaviour as a dimension under the Affective Response as a part of experience. However, this pictorial will not cover this part yet. It will remain to explore in the next stage of the research. In the following section we introduce our exploratory case study, Outernet London to illustrate the framework dimension and the various components.

PILOT CASE STUDY: Outernet London

We proposed a framework to analyse and evaluate examples of sensory environments in a systematic way. Outernet London (Outernet) is chosen as one of the newest examples of the Media Architecture has been opened in London in 2022. Outernet is an advance entertainment district located in West End of London. It is the largest digital space in Europe which surrounded with largest LED screen in the World. The district combines seven different parts including exhibition spaces, music venue, and hotel [44].

This pictorial takes as a case the exhibition spaces which are The Now Building (coded as Space One) and Now Trending (coded as Space Two) (Figure 2). Both spaces surrounded by LED screens internally including ceiling surface. However, they are different as per their spatial and display features. Space One has four storey high video screens and for scheduled exhibitions. Space Two is one storey high video screens with motion interactive screen as a different feature from Space One.

The Outernet has a schedule for the video installation screenings from different creatives with a free entrance. It is a part of the street level as a public space with no booking requirements. The contribution of this case study in this pictorial is to show the proposed work in progress framework to examine experience of visitors in this new Media Architecture types. The proposed framework only focuses on the internal space with screen walls in both Space One and Space Two. The case study will follow the framework to explore the experience in this context.

Figure 2 Outernet London photograph and 3D model show the spatial design of The Now Building (coded as Space One) and Now Trending (coded as Space Two).

(A) PHYSICAL DOMAIN – SPACE: OUTERNET LONDON

Following the introduction of Outernet London in the previous section this part will examine the case by following the proposed framework. First spatial configuration with sub dimensions will be analysed including layout, space dimensions, and space type analysis in Space One and Space Two (Figure 3). Second, display and subdimensions will be illustrated.

Spatial Configuration

- **Layout**

Outernet combines Space One and Space Two with open edges from street level. Space One layout is twofold larger than the Space Two as it is seen on the 2D drawing (Figure 3). Space One has an open accessibility from three sides. Space Two has two sides to access to the space. Space One and Two have a connectivity with an open-air promenade that opens to the other parts of Outernet London. The shape of the space can also influence visitors' experiences, with curved walls and irregular shapes creating a more dynamic and engaging environment compared to rectangular or square spaces. An open space layout in an exhibition can create a sense of freedom and allow visitors to move around more freely. Such a layout can also create a more immersive experience, as visitors can explore the space and interact with the exhibits from different angles. Additionally, an open layout can encourage visitors to engage with each other, as they can move around more easily and discuss the exhibits with one another. However, an open space layout can also pose challenges. For instance, large spaces can be overwhelming. Overall, an open space layout can create a unique and engaging exhibition experience, but it should be thoughtfully designed to ensure visitors can navigate and engage with the exhibits effectively.

Figure 3 Layout of Space One and Space Two at Outernet. Source by author.

- **Space Dimensions**

The ceiling height is four floors (24-metre) in the Space One while the other one floor height (4-metre). We observed experience in the two spaces are affected by the space scale (Figure 4). The spatial dimension of the exhibition spaces can greatly impact visitors' experiences. The arrangement of exhibits, lighting, sound, and other environmental factors are all influenced by the spatial dimension of the exhibit space. A larger space (Space One) can provide visitors with a sense of grandeur, allowing them to appreciate the scale of exhibits and the overall atmosphere of the exhibition. In contrast, a smaller space (Space Two) can create a more intimate experience, bringing visitors closer to the exhibits and encouraging them to interact with them in a more personal way. The height of the space can also impact visitors' experiences, as taller ceilings (Space One) can create a sense of openness and airiness, while lower ceilings (Space Two) can create a more intimate and cosier atmosphere. Ultimately, the spatial dimension of an exhibition space plays a significant role in shaping visitors' experiences and can greatly impact their enjoyment and understanding of the exhibits.

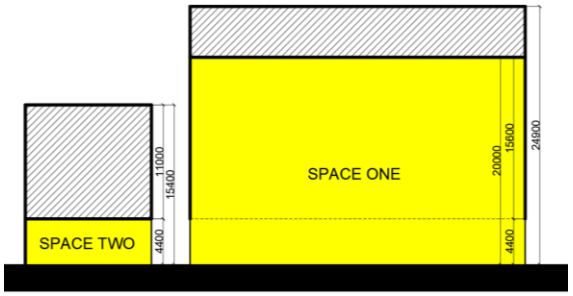

Figure 4 Section drawing. Source by author.

- **Space Type**

From the architectural research, space type concept (a-b-c-d space types) refer to different types of ways that spaces being connected within the spatial configuration (Figure 5). In exhibition spaces, these space types can impact visitors' experiences. An a-space, for example, is an occupation space without through-movement. A-space can create a sense of enclosure and focus visitors' attention on a particular experience. However, it can also be limiting and may make it difficult for visitors to move around the exhibition freely; b-space allows through-movement but only one way back; c-space offering one alternative way back and creates cycles; d-space intersecting cycles and offering multiple alternative paths back. D-space can create a sense of openness and flexibility, allowing visitors to move around the exhibition more freely and engage with exhibits from multiple angles. We applied space types of concepts in Outernet London as it is shown Figure 5. While Space One is d-space which gives choices from everywhere to everywhere, Space Two is c-space provides a circulation. Understanding how different a-b-c-d space types impact on visitors' experiences can help designers create a space that balances both engagement and functionality.

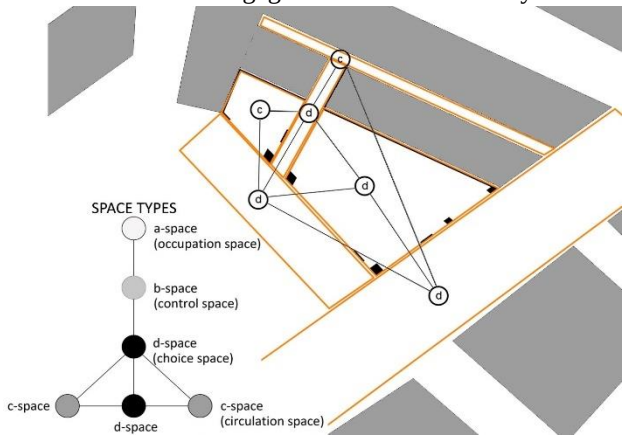

Figure 5 Space Type analysis in Outernet London. Source by author

- **Visual Depth Analysis**

Visual depth analysis is a tool used to analyse the visual complexity of a spatial layout. Visual depth to location is the least number of 'visual steps' from chosen to point to single universal sample. This considers space borders in 2D layout only without the 3D space and display. In exhibition spaces, visual depth analysis can help to visualise visitors' visual perceptions. From central points of Space One and Two shows a different pattern (Figure 6). Space One has more extended visual boundaries than Space Two. This correlates to their space types as Space One is a d-space more connected than Space Two (c-space) to other spaces. A space with high visual connection can create a sense of complexity and richness, engaging visitors and encouraging them to explore. Therefore, Space Two seems more attractive than Space One. Visual depth analysis can help designers create a space that is both visually interesting and functional, allowing visitors to engage with the exhibits in a meaningful way.

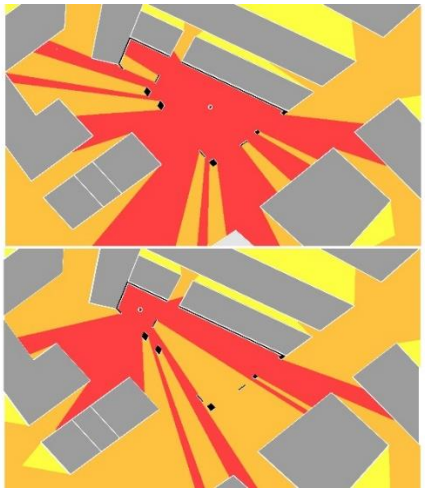

Figure 6 Visual Depth to location (observer point in the centre) analysis with Isovist.app. Source by author. Visual depth increases from yellow colour to red colour.

Display

As a part of the physical configuration of the space, display with its subdimensions will be documented in this section.

Display contains two parts as hardware and content. The layout of the exhibition hardware is documented in Figure 7.

The content is video and computer-generated animations with audio and visual outputs. These can be categorised in three dimensions in the framework.

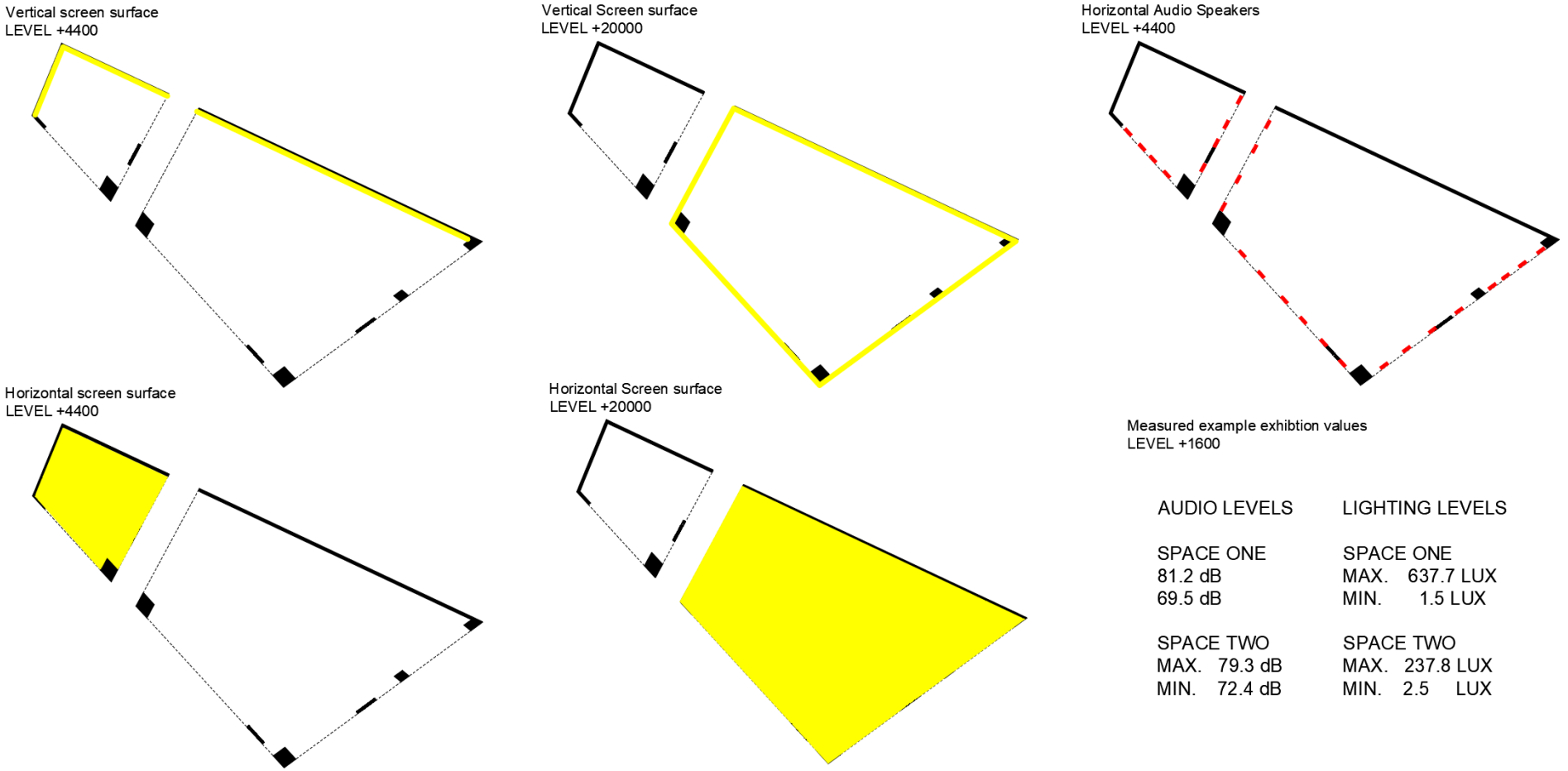

Figure 7 Layout of the hardware components of the display. Source by author.

- **Vibrancy**

Vibrancy defines layout, colour, lighting, audio, scent, and overall mood in the environment in general. We already examined layout above. Outernet London installations doesn't contain scent dimension yet. The vibrancy combines visual **(colour, lighting) and audio** via installation contents. Without screens operated the space has a black surface only. Each installation creates a unique vibrancy. For example, installation content uses bright colours and dynamic lighting can create a sense of energy and excitement. However, too much vibrancy can also be overwhelming and may detract from visitors' experiences. Therefore, it is important to strike a balance between vibrancy and functionality.

- **Order**

The exhibition contents have unique narrative, incorporating novelty, mystery and complexity. The order in which visitors experience exhibits in an exhibition can impact their overall experience. A well-planned order can create a sense of narrative and progression, leading visitors through the exhibition in a logical and engaging way. Therefore, it is important for designers to consider the order of exhibits when planning an exhibition, taking into account factors such as **narrative, theme, and flow.** Ultimately, a well-planned order can create a more engaging and memorable exhibition experience for visitors.

- **Theatricality**

Theatricality of the exhibition contents are categorised with dimensions of **schedule, time-based, and scenario** of digital sensory content. Theatricality in exhibition spaces refers to the use of theatrical elements to create a more engaging and immersive experience for visitors. Theatricality can be achieved through a variety of factors, including lighting, sound, set design, and storytelling. For example, lighting can be used to create a sense of drama and highlight key exhibits, while sound can be used to create atmosphere and mood. Set design can also play a role in theatricality, creating a sense of place and transporting visitors to a different time or world. Storytelling is another important element of theatricality, as it can create a sense of narrative and engage visitors on an emotional level, understanding how theatricality can impact visitors' experiences can help designers create a more engaging and memorable exhibition space. For example, Figure 8 shows the different content types in the same ceiling in the different times in Space One. The content creates a virtual deepness. Another point, the Space One and Two contains the same theatrical dimensions in the same screening time, we discuss is it perceived by visitors at the same level in the next part.

Figure 8 Space One - Exhibition 1 (left) and Exhibition 2 (right) in different times. Photographs by author, 2023.

(B) PERCEPTUAL DOMAIN – HUMAN: Outernet London

The Perceptual Domain explores how the Physical Domain perceived by the human which called as 'perceived atmosphere' [12]. The section shows the human eye level and visual span in vertical axis (Figure 9). This pictorial presents our initial pilot with questionnaire, interview, and observation with five participants at the Outernet London. The questionnaire categorised based on four dimensions of perceived atmosphere during the Exhibition 1 and 2 experiences. The initial outcomes are listed in the below.

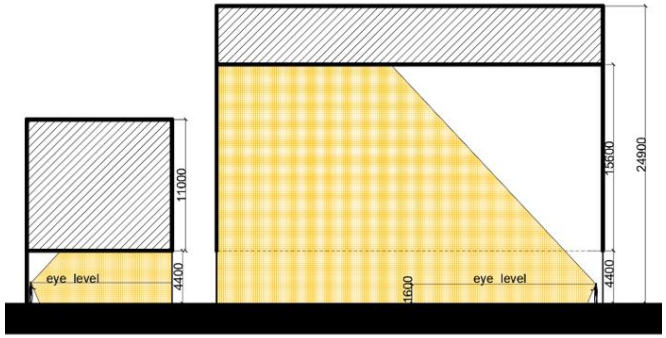

Figure9 Human scale and space scale diagram Source by author.

Perceived Atmosphere

- **Spatiality:** Spatiality questions targets how physical spatial configuration perceived by human. Pilot study showed that participants preferred to stand close to edges which showed high visual depth in the analysis already.
- **Vibrancy:** The colour and lighting are of the contents are the most effective dimensions for them to say expression of pleasant. All of them found the vibrancy of Exhibition 1 higher than the Exhibition 2 with higher mood and atmospheric effect.
- **Order:** While Exhibition 1 has a graphical and abstract narrative, Exhibition 2 has an architectural content with changing lighting and colour types. Participants depicted Exhibition 2 was more meaningful for them.
- **Theatricality:** Exhibition 1 created more dramatic effect with its realistic graphic content. Participants expressed they perceived the ceiling as if it is opened to galaxies.

Figure 10 Exhibition 1 and Exhibition 2. Source by author.

(C) AFFECTIVE DOMAIN – HUMAN RESPONSE: Outernet London

The final part of the framework is Affective Domain. This pictorial explores the general responses with subjective methods as an initial attempt. We captured the participants responses to Exhibition 1 and 2 in the Space One in emotional. This pictorial focuses on only **arousal and valance** based on suggestions on the literature. Also, we asked participants likeness levels. The general results are shown that the valance and arousal is correlated with high atmospheric perception in Exhibition 1. We observed 'wow!' responses as a sign of excitement during the Exhibition 1 only.

Behavioural difference can be observed in the pictures taken during both exhibitions (Figure 10).Visitors lie down in the Exhibition 1 as they are attracted by the narrative and absorbed by the content while we don't observe similar effect in the Exhibition 2. Although different dimensions are affecting the responses at the different level, at this stage we explored the general relationships in the experience. In the future steps of this research, we will take these explorations into in depth analysis of physiological responses by using psychological data with heart rate and Galvanic Skin Responses sensors.

CONCLUSION

Galleries and exhibitions have been changing due to the transformation of these spaces into Media Architecture. These spaces have powerful affective dimension on visitor's experience. In this context, the overarching goal of this pictorial has been to take a modest step to present a framework to explore the effects of immersive spaces with a focus on spatial and affective dimensions. We believe, this is a crucial initiative which has not been examined on a deep level in Media Architecture research earlier. We show initial exploratory approach to capture this through existing methods of subjective reporting. The next steps will continue with systematic data collection through psychological tools.

We proposed the framework grounded on the existing literature and presented an exploratory case study. The framework combines three domains of the digital sensory environments including (A) Physical Domain - Space, (B) Perceptual Domain – Human, and (C) Affective Domain – Human Response (see Figure 1). The dimensions of each domain classified under subgroups.

We illustrated this framework on a Media Architecture case study which is Outernet London. In the pre-pilot study, this case study has been examined in three parts based on the proposed framework. Taken together, the Outernet London case study represents an initial exploration of this Media Architectures in a systematic way to be extended in the next steps of the research project. From the initial findings form the initial questionnaires and observations indicated, (B) Perceptual Domain – Human is shaped by different type of display contents in the same physical environments. These resulted with the various level of emotional and behavioural responses in the (C) Affective Domain – Human Response.

The main contribution of this pictorial is the framework, which is based on the literature review and an initial exploratory understanding of subjective reporting on visitor feelings. We detected there is a relationship between experience and type of the space and where people stand in the space. However, it needs a systematic analysis method. The future steps of the overall research will continue with the physiological data collection methods and exploring objective ways to quantify the human experience in immersive spaces.

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