

Re-Mapping the Territory: Immersive Exhibition Practices in the Expanded Field

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Abstract

The present article seeks to trace the interrelation between space, immersive exhibition practices and the use of new technologies in an attempt to present spatial politics as a potential methodological tool. Based on theoretical research and distinctive examples from contemporary exhibition models of technology-reliant art, immersiveness is explored as a bridge between canonical exhibition models (mainly in interior spaces) and remodeled initiatives within urban spaces.

Keywords: immersive exhibition practices, cultural politics of space, re-mapping, urban environment.

Immersiveness in the Expanded Field

In recent years, a great number of urban spaces have been reconfigured or seen in a different light thanks to the evolution of mapping technologies and touring works for public spaces. Those can vary greatly in form, scope, and audience engagement. As an example, the 3D projection mapping on a historic building in the center of Amsterdam for the inauguration of the H&M flagship store in November 2010 by Muse Amsterdam (an interactive advertising agency commissioned by the clothing company) and *Border Tuner*, an interactive public art installation in El Paso and Ciudad Juárez (across the U.S.-Mexican border) by Rafael Lozano-Hemmer in November 2019 both re-mapped the existing urban territory and altered spatial dynamics whilst inviting a strong audience participation. However, apart from the differences in the aesthetic result itself, they followed a different agenda on both the aim of the work and its anticipated engagement with the public. At present, interactive technologies are often used to “re-map” vast spaces and to create a new type of participatory user experience. In this respect, and after having chosen to focus on arts-related initiatives (rather

than events with a commercial character), with the expansion of the exhibition field also comes a re-definition of the cultural politics of space and spectatorship within the urban environment.

While reading canonical texts on the topic of immersive practices and new mapping technologies, and throughout the present research, Rosalind Krauss' "Sculpture in the Expanded Field" kept appearing as a personal guide. In an attempt to create trajectories between the interior and exterior space, the "white cube" and urban locations, active and passive interactivity, the seminal essay has been a valuable point of reference. There is a great resemblance between Krauss' architecture/ landscape divide and the projected image/ space correspondence that runs as a theme in current cases of interactive and immersive exhibits. Written more than forty years ago, it attempted to examine the category of "sculpture" that was, by that time, "made to become almost infinitely malleable" whilst "nothing, it would seem, could possibly give to such a motley effort the right to lay claim to whatever one might mean by the category of sculpture" (Krauss 30). Krauss developed a diagram based on the Klein group logic (in this case two sets of binaries: landscape, not-landscape, architecture, not-architecture)¹ with the help of which she managed to prove that the field of sculpture was expanded and had come to accommodate various other disciplines. Based on the above diagram and after having briefly examined the practice of American sculpture during the 1960s and 1970s, she concluded that what was being defined as sculpture fell into one of two trajectories: one that leans towards installation and one that tends towards land art. They both moved away from what—up to that point in time—was perceived as Modernist sculpture. Historically, and apart from its main art theoretical appeal, the essay functions as proof of the death of Modernism and the beginning of the—then

¹ For the relevance of the essay in relation to contemporary artistic and architectural discourse, see "Expanded, Exploded, Collapsed?" (2010, Sculpture Centre, New School, New York City), panel in celebration of the 30 years since the publication of Krauss' essay; also, see Papapetros and Rose, *Retracing the Expanded Field – Encounters between Art and Architecture*.

new—era of Postmodernism. The main ideas examined, however, are still valid today, and her Klein group model serves as a key for the understanding (or deciphering) of numerous art categories. For the purposes of the present article, it serves as a useful methodological model in order to place immersive practices within the expanded field of exhibitions.

Starting off with two axes (the complex and the neuter), each defining a relationship of pure contradiction with the other (in this case: landscape and architecture, not-landscape and not-architecture), Krauss developed the diagram with two further relationships of contradiction (landscape and not-landscape, architecture and not-architecture) and then two relationships of implication (landscape and not-architecture, architecture and not-landscape). The expansion of the field came from the logical expansion of a set of binaries that brought about the creation of a new quaternary field.

The idea of binaries creating different sets of “situations” within which an exhibit and/ or exhibition is to be found (or categorised) has been a very helpful trajectory to keep in mind whilst attempting to find the golden rule for a “curating-immersive-media” paradigm in the context of spatial politics. It served to underline that different rules apply to each situation and practice and to accept that it is not necessary to place all practices within a dominant single discipline and that, even when so doing, the latter could still move from one diagrammatic binary to another. If the Klein group was to be broadened, it could include different sets of binaries and demonstrate the relevance of the expanded field when considering exhibition practices. In this respect, potential suggested binaries would be (participants’) performance/ architecture, screen installation/ landscape, screened image/ site construction.²

² In the preface of *Entangled - Technology and the Transformation of Performance* and in an attempt to justify the limited notion of discipline in his book, Chris Salter exclaims: “Where for example, do we place the pioneering work of the British architect Cedric Price, who worked with Joan Littlewood, a politically motivated Marxist theater director in order to create a ‘Fun Palace’ that was neither completely architecture nor theater but an interactive, technologically driven public play space for performances in everyday life? How do we classify something like *9 Evenings: Theatre and Engineering* using traditional artistic disciplines like theater, dance, or

If we were to apply the Klein group diagram to mapping, immersive and interactive technologies, we could equally find a plethora of axes to start with. I see the projected image as creating an environment in relation to the physical space where it is exhibited and functioning inseparably as one entity in a state of limbo which, in my opinion, is not as striking when referring to static objects. So (not-)specificity of the type of projected image and (not-)specificity of location would be one, (not-) fixed duration and (not-)predetermined exhibition specifications would be another, (not-)public space and (not-)immersion of the audience would be another and the list of binaries would be endless.³ The expansion of the field goes beyond the practice of sculpture and its development throughout the years, but also refers to the opening up of the art practice domain to other disciplines; the field thus also expands from the arena of art theory to the wider space of culture. What matters here is the structure and synthesis of the axes rather than the definitions themselves; Charles Waldheim's definitions of landscape and architecture (from the field of Landscape Urbanism) could just as easily be placed as main axes in order to create a guide within the expanded field of immersive practices. In this respect, the lucid model of 'landscape: things open to the sky' and 'architecture: things not open to the sky' could be followed.

Furthermore, the idea of binaries that create new syntheses, *in lieu of* strict definitions and set of canonical concepts, can help us to think of immersive practices in terms of what they do and how they operate as a set of behaviors depending on space itself, the audience, the environment, and technical characteristics. The latter can then introduce us to a different type of thinking as far as exhibitions are concerned: one that is concerned with the "mapping" of the territory itself instead of the placement of exhibits in space, interior or exterior.

visual art? Where is one to place the range of performative works from artistic collectives that arose in the 1990s, inventing computer-based interaction techniques that straddled the research lab, the media arts festival, the academic conference circuit, and commercial industry?" (xvi).

³ A quick online search resulted in innumerable examples where the rationale of Krauss' expanded field was applied to all kinds of thematic agendas, from bakery to *Star Wars*. It is beyond the scope of the present discussion to mention those here but also constitutes an interesting fact that the Klein group *per se* was seldom mentioned, since most writers' inspiration (and first point of reference) seemed to be the Krauss essay.

Starting off with the Immersive Condition

The terms ‘immersion,’ ‘immersive environment,’ and ‘immersive artwork’ are increasingly used in contemporary discourse when referring to exhibition practices and new technologies. They might refer to interactive environments (where a visitor must do something, for example, press a button, walk over a designated area, or move his or her hands in order to provoke a reaction) or simply to situations where one is “lost” into the exhibition space (due to a reconfiguration of the space itself, for example). The concept itself seems to have an open-ended meaning as well as appearing “somewhat opaque and contradictory” (Grau 13):

[...] the relations are multifaceted, closely intertwined, dialectical, in part contradictory, and certainly highly dependent on the disposition of the observer. Immersion can be an intellectually stimulating process; however, in the present as in the past, in most cases immersion is mentally absorbing and a process, a change, a passage from one mental state to another. It is characterised by diminishing critical distance to what is shown and increasing emotional involvement in what is happening. (Grau 13)

Immersive environments *per se* are not an unknown condition for us on an everyday basis; in his “Discursive versus Immersive: The Museum is the Massage” [sic], Mark Wigley argues that all overlapping flows of information operate, in fact, as “an immersive environment and as a discursive system of detection, analysis and visualisation” (1).

In this context, the main trajectories as far as exhibition practices are concerned are between the “discursive” and the “immersive” exhibition. Historically, the museum has been the keeper of precious artefacts, a place where one would go and be faced with paintings hanging from a (usually white) wall, sculptures on a pedestal, and generally objects on display to be viewed by the public. The discursive element has always been a strong feature

of museum politics, as the latter were meant to primarily serve an educational and taxonomical purpose. The visitors read the wall label, observed the exhibit, walked in a linear manner to chronologically proceed in the history of art that was presented to them. In this way, what was achieved at the end of the visit was the accumulation of encyclopaedic knowledge towards an artist, a period, and/ or a movement. The organisation of space, along with the visitors' linear movement within it, as well as the elevation of objects into an "exhibition status" promoted the "logic of vision" rather than the "logic of the multi-sensory" (Wigley 2). Exhibitions were thus based on the discursive principle, hoping to inform and educate their audiences. Still, there is never an absolute "discursive" or "immersive" model. One could argue that by promoting vision at the expense of the other senses, the museum space had already created an immersive environment. In a study concerning the architecture of museums, Victoria Newhouse explains that the main rooms of museums were built to isolate the outside world: "Modern museums eventually banned all architectural articulation for fear that the eye might stray from the art: also frequently banned was natural light" (47).

Apart from the space itself, the exhibit too may also have an effect in the experience of the physical surroundings. In "Art and Objecthood," Michael Fried defined clearly the differentiation between Modernist art and the arts that dealt mostly with space or time. In the case of interactive projected images, both of the latter notions usually form a central part in their being and presentation. If one opens up the argument even further, it could be suggested that contemporary art production "is a proposal to live in a shared world, giving rise to other relations, and so on and so forth, ad infinitum" (Bourriaud 22). The aesthetic experience here is closer to the notion of social exchange and immersion rather than artistic appreciation. Fried accepted that this new genre, "inasmuch as it compelled a durational viewing experience akin to theatre, undermined both the medium specificity and the presumed instantaneousness of modernism" (Mondloch 1).

Kate Mondloch, in her extensive analysis on viewing media installation art, suggests that the divide suggested by Fried between Minimalism and the cinema gradually diminished with the expansion of the field of art and media practices in the 1960s and 1970s, and the consequent overlapping of boundaries between the sculptural and the cinematic (1). Unlike the exhibition of static objects, when we are put in contact with a series of successive images, the immersive images created by technology-reliant works (which constitute the main focus of the present article) can place the viewer/ participant within a 360° space with unity of time and space (Grau 13). When this takes place within an urban setting, the work has the potential to integrate the viewer within a new re-mapped version of that space. As technology advances, the possibilities of altering the urban environment increase exponentially.

Theories on immersion range from the philosophical to the technical, but what makes Wigley's account relevant to the current topic of spatial politics is that, as a trained architect himself, he approaches the subject in terms of space and its configuration/ design. Is immersion really so dependent on spatial politics? And how is an exhibition space, whether indoor or outdoor, mentally mapped by its visitors? Wigley suggests that "the immersive exhibition or installation represents a loss of th[e] subject/object spacing by using the language of the multi-sensory as opposed to the language of vision" (2). In an immersive condition, there are no gaps or "sense of separateness" in space (Wigley 2) and visitors become part of the exhibit.

Nevertheless, there are times when "immersion" refers more to its own representation and thus constitutes a visual image rather than actually *being* immersive. The excellent referenced example by Wigley is the *Rain Room* (2012-2013), an installation by Random International at The Curve (Barbican Centre, London, UK). Visitors walk across the winding corridor that is the gallery space whilst being faced with 100 square metres of falling water. Motion sensors stop it from falling above the visitors. They can listen to the rain, see it

around them, be enveloped by it but not be immersed in it as they never get wet. It is precisely this non-immersion that makes the installation particularly interesting: we are literally “mapped out” of the rain whilst our movement in the exhibition space continually triggers a “dry” itinerary.

Some other times, immersion is achieved especially due to this lack of boundaries or separateness in space. In James Turrell’s *Dhātu* (2010), installed at the Gagosian Gallery in London, the visitor is led through a set of stairs into a formless space with no discernible corners or limits. The feeling of standing in a room without being able to see where the walls are is initially awkward and unsettling. A light fog covers all edges of the area, thus making any mental mapping of the space around one’s body impossible. At the same time, the source of light at the center of the space gradually changes color and creates a nearly hypnotizing effect on the visitors. After a while, there is a sensation of being immersed in color whilst not knowing where to place oneself within one’s surroundings. The gallery’s press release stated that “the imageless and formless landscape of *Dhātu* [...] yields an emptiness filled with light that allows the viewer to feel its physicality” (Gagosian 2010). Indeed, in this case, the lack of boundaries both remind visitors of the pure physicality of space (together with all the preconceptions that we might hold about how a space should be mapped and defined) and immerse them in a state of limbo, in an in-between moment of being inside the space and a part of it. In this case, an enclosed space is “un-mapped,” meaning that its own spatial limitations are broken down and reconfigured as an abstract unknown territory. It is light, in this occasion, forming space, and it takes over the physical properties of construction materials in setting the abstract boundaries of the enclosed space. Playing with light for over half a century, Turrell has reached the point where he can create installations that make us re-conceptualize the idea of physical space itself.

For his recent series titled as *Constellations* (2020), he has created luminous portals that aim at changing our perception and function as a “space within a space” (Turrell). When looking at the artwork, one gradually feels the boundaries of the surrounding space dissolve. Along the same line with *Dhātu* (2010), spatial limits are questioned and reconfigured; with ten years between the two artworks’ production, technology has enabled the creation of a similar dissolution of boundaries within a much smaller work.

In both occasions, the participants’ role is to merely be there and experience the moment. There are no words, documents, or artifacts to observe, and movement (or not) in space seems like the only action to follow. “In the immersive exhibition, the (art) object is transformed into its environment” (3), Wigley argues. In this light, one could suggest that what is being created is a new space, a new map of the space, and a new atmosphere where visitors/ participants constitute part of the final work.

Urban Experiments: Towards a Re-Mapping of Public Space

Moving out of the (interior) exhibition space and into the urban environment, it is interesting for one to explore how the immersive principle has gradually given creative opportunities for the re-mapping of public spaces. The more technology advances, the more the examples of works engaging with large urban surfaces will become commonplace. Here, Krauss’ diagram can be easily reconfigured to include solely urban spaces (as discussed earlier), but one needs to consider the main factors that are at play when including an exterior setting.

For Rafael Lozano-Hemmer, an artist with more than twenty years of experience in creating large-scale interactive works for public spaces, the concept of including the audience in his works is of paramount importance for the re-mapping of the surrounding environment. His *Relational Architecture* series comprises a number of interactive works that tour around

the world and are usually exhibited in urban outdoor spaces. In one of his first participatory works, *Vectorial Elevation* (1999), he asked from his public to turn their searchlights towards Mexico. In *Body Movies* (2001), projectors showed portraits of people taken from different cities and countries onto tall buildings in city squares. The latter did not initially appear, as they were flooded by projected light. As soon as people walked past the area, their shadow revealed the portraits, and they could either perfectly fit into the shapes of the portraits (by moving closer or further away from the shadows, thus becoming bigger or smaller in size) or move around them. In the same logic, *Under Scan* (2005) maintained a similar model with passengers' shadows activating pre-recorded portraits, only this time the portraits were meant to be as similar as possible to the passengers in question (for example, a man taking a picture with his mobile phone would most likely trigger the short clip of another man doing exactly the same).⁴ The pre-recorded portraits belonged to people living in the host city which, in turn, presented to the world an ephemeral monument for the individuals populating the particular city. In this way, the series title, "Relational Architecture," becomes topical, since it refers to both the people populating the space and the people involved in its appearance (in this instance, the pre-recorded portraits). The projected image here reconstructs the pre-defined image of urban space: all of a sudden, the usual movement in an urban environment is altered, and with this its identity.

The work was initially commissioned by the East Midlands Agency and, before its London appearance, had been installed in squares and pedestrian thoroughfares in Derby, Leicester, Northampton, and Nottingham. On the opening ceremony of *Under Scan* in Trafalgar Square, an East Midlands Development Agency representative shared with the audience the agency's decision to fund an artwork that would not exist passively as one more ornament in a public space, but would instead function pro-actively in order to put some life

⁴ For a detailed presentation of *Under Scan* in relation to the curatorial praxis and new media in public spaces, see Papadaki, "Curating Lights and Shadows, or the re-mapping of the lived experience of space."

back into specific locations in the midlands, such as town squares and open markets.⁵ In short, a dynamic art installation was chosen in order to get people out of their houses and into public spaces. In this sense, and even temporarily, the public space itself is being re-mapped by the changing crowd dynamics. An empty town square suddenly becomes a meeting point; people start interacting with each other in order to trigger different pre-recorded portraits; there is noise where there was silence. A static place is thus turned into a flexible site and a dynamic platform of expression.

By creating a space which was open to all and at all times, Lozano-Hemmer manages to create works that result in the potential bonding of people and the sketching of a “resident’s profile” for each city he visits. François Matarasso, Chair of the Arts Council England East Midlands, explained:

The invitation to Rafael Lozano-Hemmer to work in the East Midlands, in partnership with regional artists, filmmakers and audiences [...] showed a commitment to exploring how new technologies, might bring people from different places and with different backgrounds together in artistic development. Lozano-Hemmer’s innovative use of new media in public spaces, and his approach to opening up shared processes of creation with his audience, made him the ideal choice for this commission.” (qtd. in Lozano-Hemmer and Hill 7)

⁵ Opening ceremony of *Under Scan*, East Midlands Development Agency representative, 15 Nov. 2008, London.

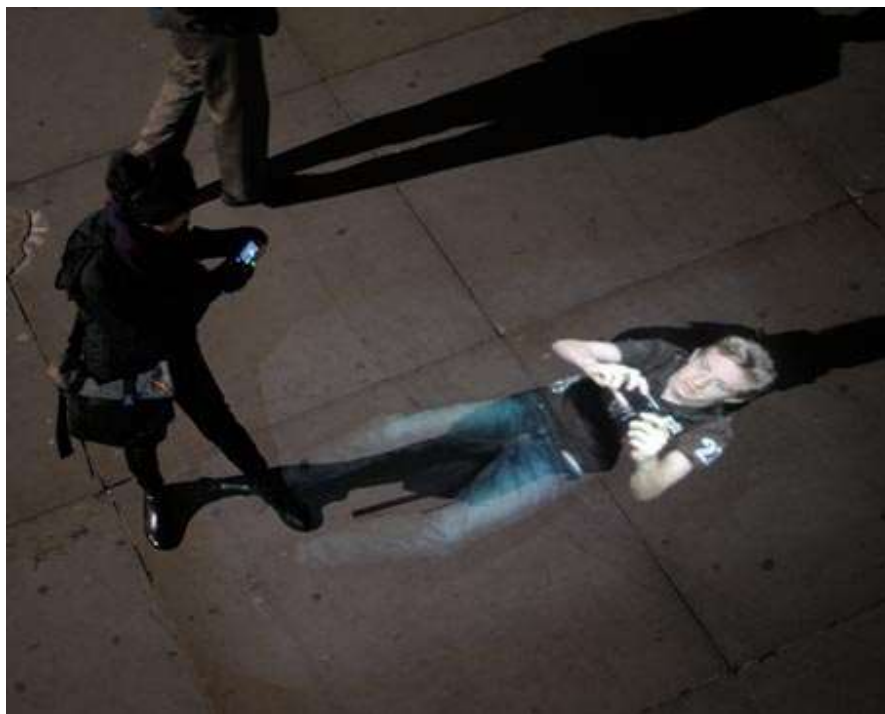


Fig. 2. *Under Scan*, 2008, participant and projected video portrait both with cameras/ mobile phones, Trafalgar Square, London [Antimodular Research] (reproduced with permission from the artist).

The most significant success of the project, according to Matarasso, was in “creating a space for playful interaction between people, and in framing suggestive questions about the meaning of such mediated relationships” (qtd. in Lozano-Hemmer and Hill 7).

The final outcome is an orchestration of processes that relate technology to human relations, urban studies to human relations, tourists to the local population. Besides, Lozano-Hemmer defines his works as “relationship-specific” rather than site-specific (Graham 29). The participants are immersed within the work and mentally re-map the space surrounding them via the said work. The identity of urban space *per se* is temporarily altered in terms of foot traffic, movement, light, noise, and shadows. In this respect, the work is not merely immersive and interactive in terms of product but also in process. And in this context, the urban citizen is put in a central position in the sketching of the contemporary landscape.

Described as an “interactive video installation for public spaces” (Lozano-Hemmer, “Under Scan: Relational Architecture 11”) the work was “intended as a public takeover of a

city by its inhabitants” (Hemmer qtd. in Stoel 115). In this respect, Lozano-Hemmer’s practice constitutes a continuous series of excellent case studies in order to exemplify the paradigm shifts when the interactive projected image operates in public spaces and addresses issues of locality, interactivity and participation in the field of technology-reliant art and mapping technologies.

Lozano-Hemmer calls his works “relational architecture” because he sees them as being “relationship-specific” for each particular audience and public space (Graham 29). His practice is employed here to demonstrate the ways in which an interactive work can be seen as an architectural element not so much because it transforms a specific architectural volume (a building, for instance) but because it turns a static space (like a centrally located square) into a flexible site. In this respect, interactive work for public spaces has the potential of creating new relations between the urban environment and the participants, as well as between the virtual and physical space. The re-mapping of the “expanded” exhibition field, in this instance, becomes closer to Doreen Massey’s definition of space and her propositions about our own perception of it:

First, [...] space as the product of interrelations; as constituted through interactions, from the immensity of the global to the intimately tiny [...]. *Second*, [...] space as the sphere of the possibility of the existence of multiplicity in the sense of contemporaneous plurality; as the sphere in which distinct trajectories coexist; as the sphere therefore of coexisting heterogeneity. [...] *Third*, [...] space as always under construction. Precisely because space on this reading is a product of relations-between, relations which are necessarily embedded material practices which have to be carried out, it is always in the process of being made. It is never finished; never closed. (9)

Whether interactive or not, technology-reliant works for public spaces create a new relational axis between the public and the pre-existing static landscape (Papadaki 2019). Since they visually interfere with our perception of the said space, they create a new space, “under construction” (as per proposition above), which consists of the urban environment, the work in question, and the public. Correspondingly, the immersion within this space directly relates to the axis of landscape/ architecture.

The architecture of a public space becomes relational at the moment it begins to connect to other elements (from the crowd populating it to the history behind its existence) and to the people involved. Even the term “architecture,” if one is to see it as a relative concept, could be referring to the actual “end-product” of the artwork, in other words referring to the activated—by living agents—volume of a space with the pre-existing construction, plus the participation of the audience. In this respect, the latter is immersed within this holistic model of space-work-public as one.

Re-Mapping the Territory in Indoor Exhibition Spaces: The First All-Digital Museum

Moving away from outdoor public spaces, one should pay attention to how the interactive participatory paradigm can be applied to exhibition spaces via mapping technologies and how this affects both the conceptualisation of space itself and the visitors’ behavior within it. In his study *Inside the White Cube*, which focuses on the ideal exhibition conditions and the relationship between context and space, Brian O’Doherty famously claimed that “a gallery is a place with a wall, which is covered with a wall of pictures” and where the wall itself “has no intrinsic aesthetic” (15-16). The idea of the plain white walls with no windows as the ideal exhibition space has been gradually re-appropriated and given a new identity with the introduction of new technologies and projection mapping within the exhibition space.

Borderless, the permanent exhibition by the art collective TeamLab at the Mori Building Digital Art Museum in Tokyo which opened to the general public in June 2018, stands as a witness to this change by being hailed as “the world’s first all-digital museum” (Mori). The exhibition, spanning across 10,000 square metres, does not have a single painting or sculpture in sight; it does feature, though, 520 computers and 470 projectors. In fact, if one took away the projected images, the space would be nothing more than a series of carpeted rooms and corridors with uneven floors and a big number of grouped objects (such as lamps or plastic tubes) hanging from the ceiling. It is precisely the multisensory and interactive aspect of the exhibition that turns it into a re-mapped space. Throughout the venue, motion and touch sensors trigger the installations and projections; if you stand still, flowers will begin shaping around your feet. If you touch your body against the wall, lines will form around it. In other rooms and corridors, touching the walls triggers different shapes and patterns.

Before entering the exhibition space, a member of staff raises a series of paper cards to the queuing public that introduces the spectacle. These alternate between the Japanese and the English language. “Enjoy this borderless, continuous and unified world, where no two moments are ever the same” (Mori), one of them reads. Indeed, the exhibition space is literally mapped by the visitors populating it. They are the ones creating a big part of the imagery by touching, walking or standing. Never can the exhibition be the same at any other given moment.

The exhibition website does not offer much information (such as the names of each room, the activities that one can engage with there, the history and/ or meaning behind some of the recurring patterns in TeamLab’s work, and so on) other than psychologically prepare us for what is to be experienced:

TeamLab *Borderless* is a group of artworks that form one borderless world. Artworks move out of the rooms freely, form connections and relationships with people, communicate with other works, influence and sometimes intermingle with each other. Create new experiences with others, immerse yourself in borderless art, and explore the world with your body. (TeamLab, “Borderless World”)⁶

Although the statement might sound slightly abstract and poetic, it is nevertheless perfectly accurate in communicating the conditions of experiencing the spectacle. After the visual shock of extreme color that prevails everywhere, the first thing that could strike one as unique in *Borderless* is the non-horizontal viewing regime. Moving projections fill the whole space and, as such, they re-map both the territory and the visitors’ behavior within it. There are vast corridors from which one sees flowers blooming, animal-like characters running, waterfalls, and sea waves that indeed, often intermingle with one another. Apart from the open-plan spaces, there are also rooms with specific themes, such as “Forest of Lamps,” “The Crystal World,” “The Tea Room,” “Sketch Aquarium.” They all have different navigational modes and visual patterns running across them. In the “Crystal World,” for instance, one is found in a large space with mirrored walls and plastic crystal bars hanging from the ceiling to the floor. In a separate room with a monitor (or via the downloaded app), the visitor can choose a “crystal world” character (such as fire, firefly, light, water, forest, sky, rainbow, and other), slide the character to the top of the screen while the world it represents is spread onto the physical space.

⁶ For further information on the exhibition and its technical characteristics, see <https://borderless.teamlab.art/> [last accessed: 6 Aug. 2021].



Fig. 3. TeamLab, *Borderless (Waterfalls)*, 2018, Mori Art Building, Tokyo, Japan [photo by the author reproduced here with her permission].

One could easily deduce that the group’s central point of reference has always been the physical space and the ways in which it can be enhanced by the digital. Indeed, although the TeamLab’s technological capacities seem to be endless, they always use them in relation to their respective exhibition sites and in order to find new ways in which viewers can become active participants and ultimately part of the work itself (Toshiyuki Inoko, qtd. in Biswas). What *Borderless* achieves, via a radical re-mapping of space and the active use of its participants/ visitors, is the creation of a new type of “total work of art” (“Gesamtkunstwerk”) (Wagner); in other words, a work that combines numerous different types of art while guaranteeing full immersion.

Going back to spatial politics, one should consider how the near future and technological developments will accommodate a move beyond an interior space where black walls and floors serve as a blank canvas for interactive image projection. While walking in the immense exhibition space of *Borderless*, I caught myself thinking how the same projection principle could be applied to an exterior space, where the projected image would interact with physical reference points. Indeed, in September 2019 the Chief Executive and

founder of TeamLab, Toshiyuki Inoko, presented the collective's current work towards transforming an Edo period garden into a digital art museum. The same principle of immersion as in *Borderless* also applies here, but instead of a "blank canvas," nature serves here as a binary to the projected image. The work is located in the Japanese countryside and combines Japanese aesthetic consciousness with frontline digital innovation. Faithful to the Edo and pre-Edo period of Japanese paintings, it also recreates the same principle of spatial perception, which ignores the rules of linear perspective with space viewed as two-dimensional. Apart from an absolute "re-mapping" of the garden based on specific rules and guidelines, this latest project by TeamLab offers visitors an insight into the future of immersive exhibition practices in public spaces. Inoko's future aspiration is to "create a borderless space within an urban environment" (interview with Campbell 2019); it becomes evident that technology has reached the point when this is doable. Also, the public is by now acquainted with the physical/ virtual binary as well as with immersive participation which paves the path towards a holistic and immersive exhibition model that can lead to the re-mapping of any given territory.

Conclusion

Substantial research has already been conducted on the effects of digital interactive works and projection mapping in relation to space, the curatorial praxis, and the presentation of digital images. However, the original contribution of this article lies in the exploration of the active re-mapping of space via these technologies. Consequently, it would be interesting to conduct further research on technology-reliant works for urban spaces and on the effect that this potentially has for institutions, curators, artists and their respective audience. There are two main theoretical threads here: a holistic approach towards the exhibition event (as a synthesis made out of different points of reference, such as the space, the work, its audience),

and the immersion within the exhibition space. To this end, the mentioned examples have been essential in emphasising a paradigm shift between the changing exhibition space and context. Further research could equally be carried out on the spectators/ participants in relation to their engagement with the interactive projected image and with their own individual conceptualisation of space. The purpose here is to demonstrate the interaction that exists between space and interactive projected image, as well as the cultural conditioning involved in the reception of the work.

One of the main challenges during the integration of interactive projected technology within the realm of exhibiting practices is the necessary re-mapping of space. In this context, spatial politics can be used as a methodological tool in order to understand and interpret contemporary exhibition practices. Thinking in terms of binaries (space/ site, landscaped interior/ projected image, screened image/ site construction, and so on) and in terms of the discursive and/ or immersive elements of an exhibition may help in defining the visitors' experience as well as the exhibition's aims and goals as far as physical space is concerned. Most importantly, it helps keeping focused on the most central figure in nearly all interactive projected image exhibits: the public as an active participant that defines and shapes both work and exhibition site.⁷

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⁷ My warmest thanks to Miwa Takamura, art project coordinator and curator, for graciously and efficiently coordinating the meeting at the TeamLab's headquarters in June 2018; Kasumasa Nonaka from TeamLab for a pleasant and smooth discussion on the art collective's history, present exhibitions, and future aspirations; Antimodular Research and Rafael Lozano-Hemmer for the kind permission to use visual material from *Under Scan*.

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