Employing Virtual Reality for Place-making: Mimicking the Real World in the Virtual World

Hamsa Abd Al-Rahman, & Mohammed Qasim Abdul Ghafoor
Email:hamsa.abd.ibrahim@gmail.com
Email:dr.mohammed.qasim@nahrainuniv.edu.iq

Abstract

Although virtual reality (VR) has been known since at least the 1960s, its impact on place making is yet unknown. The focus of this article is virtual reality and the way it affects the place-making processes. This paper is based on the question, where does place making reside in VR?

The paper employs a comparative method which compares and contrasts place-making in the real world with that of the virtual reality. The attributes employed for the comparison can be used to determine whether a project has been effective in developing a concept applicable for virtual reality through both its design and the level of user immersion in the virtual environment. The study also examines two case studies to ascertain this with the Nxt Museum and the EYE FILM Museum.

The study found that the implementation of the idea of virtual reality of the Nxt Museum was stronger and more successful than that of the Nxt Museum. It concludes that place making in virtual reality serves as a bridge between the actual places and the virtual qualities. Boundaries become flexible, themes are able to be created, and virtual spaces mimic the actual spaces as place making transitions from the real world to the virtual world.

Keywords: Place-making, Transformation, Real space, Virtual reality.

Introduction

Recent years have seen the emergence of place-making initiatives, which are collaborative procedures aimed at enhancing urban environments by fostering a bond between inhabitants and the surroundings in which they live. The public realm is crucial to these projects because it serves as the focal point for all the facets of community engagements and activities. The social evolution of a place has always been influenced by the design of a physical space. This premise is supported by numerous studies that indicate how diverse communities interact with one another and are directly influenced by the layouts of cities, neighborhoods, public areas, and buildings. This article explores how physical and virtual elements in public areas might assist the designers, planners, partners, and the people in creating effective place-making strategies. In order to examine both national and local projects and the extent to which virtual reality is included, this article defines the characteristics of place making in the virtual world.

Theoretical Ideas
Place Making

Place making is often defined as the approach of changing spaces into high-quality places by the promotion of the social component, as well as connecting the meanings and the

functions of the spaces. It involves creating public areas or social spaces that are open to everyone, regardless of gender, color, nationality, age, or the socio-economic status, such as the town squares (Efroymson, et al, 2009:8). Place-making encourages innovative patterns of use, focusing particularly on the physical, cultural, and social identities that characterize a place and promote its continual evolution. It goes beyond simply advocating improved urban architecture. As Wyckoff (2014:2) put it, it involves "place-making of building high-quality locations that people want to live in, work in, play in, and study in". Adjusting spaces to the preferences of the individuals while focusing on the social facts such as motion patterns, behavior patterns, and socialization practices and realities such as social systems, public areas to communicate, and conforming to visual viewpoints and purposes is the contemporary approach to place-making (Cilliers, 2014:2). The current approach to place-making is thus focused on the following (Diagram 1):
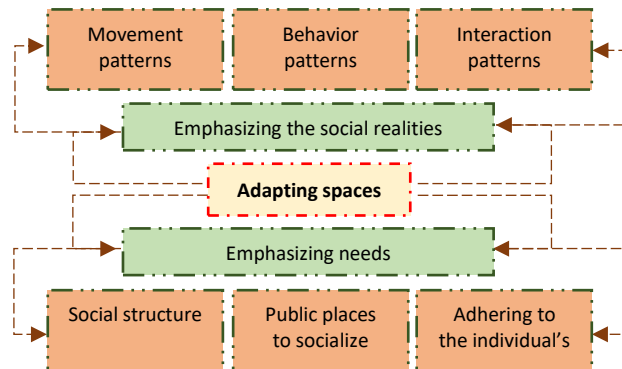

Diagram 1: the key component of the current place making strategy,
Source: Gehl, 2004b:31

A knowledge of culture and society is crucial in creating a sense of location (Cresswell, 2004). However, it is also asserted that place plays a crucial role in the social connections (Malpas, 1999). The material context of a space is given valued and distinguished recognition from an abstract space by how experiences and social interactions occur (Stout, 2008:13). This is shown in the Diagram 2. The foundation of the method of place-making is in creating effective public spaces that are vibrant, secure and distinctive locations that serve the needs of their users (PPS, 2011:10). The fundamental characteristics of place-making include social interactions, actions, accessibility, connections, and comfort in addition to the intangible assets and appearance metrics associated with each characteristic, as depicted in Fig. 1.

Fig. 1: The key characteristics of place-making Place making elements Source: Baltimore City Department of Planning, 2010:90
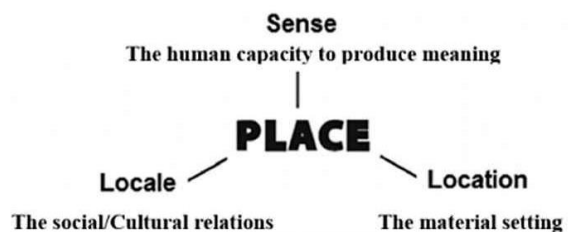
Diagram 2: The element of place
Source: Agnew, 1987

The Gehl Institute has created a set of twelve criteria for assessing the livability of an urban space as shown in Fig. 2 (Gehl Institute, 2018; Hespanhol, 2018:109). The criteria cover three widely desired features of city living:

•Protection: The presence of features in the public spaces capable of sheltering people from potentially dangerous agents in the city, such as motor vehicles, excessive noise or odors, tripping dangers, criminal activities, excessive sun or rain, and so on, is referred to as protection.

•Comfort: This refers to the factors that lessen the efforts in traveling through and using a public space, such as smooth and wide pavements for strolling, suitable areas for playing, and sitting spaces favorable to talks and people-watching.

•Enjoyment: This refers to good aesthetics, cultural events, and ease of passage within a precinct that are examples of objects that enhance the human experiences in public space.

Quality Places

Spaces with a powerful feeling of place are referred to as quality places. People and businesses want to be in these locations. According to Wyckoff (2014), the key components of quality places have been more officially distinguished from those that are the outcome of good form which are shown in the Table 1. The creation of quality places is facilitated by the place-making method. People are conscious of and they get the meaning of quality places when they are there. Yet, putting their traits into an abstract form is more difficult. Locations that consumers value and want to visit are what we're worried about. That is as a result of a strong sense of place in certain locations (Wyckoff, 2014:2). In fact, that is how most people feel about their homes.

Table 1: The key components of quality places
Source: Wyckoff, 2014; Author, 2023

Quality Places
Vibrant
Distinctive
Intriguing
Aesthetically pleasing
Variety of purposes
Pedestrian-friendly
Safe
Well-built
Enticing façades
Good building proportions to the street.
Mixed-uses
Quality public spaces
Broadband enabled
Multiple transportation options
Multiple housing options
Preservation of historic structures
Community heritage
Arts, Heritage creativity
Recreation
Green spaces.

Protection	Against **traffic and accidents**	Against **harm** by others	Against **unpleasant sensory experiences**
Comfort	Options for **mobility**	Options to **stand and linger**	Options for **sitting**
	Options for **seeing**	Options for **talking and listening**	Options for **play**, exercise and activities
Enjoyment	Human **scale**	Positive aspects of **climate**	**Aesthetic qualities** and positive sensory experiences

Fig. 2: Gehl's twelve quality criteria for public urban spaces
Source: Gehl Institute, 2018

The following characteristics of quality places are the outcome of good form as Wyckoff (2014) mentions.

1. Mass, density and scale appropriate to place on transect.
2. Human scale – designed for people.
3. Walkable – pedestrian oriented.

The following traits are present in quality places. They are "safe, connected, welcoming, allow authentic experiences, accessible–able to easily circulate within, along and between public places, comfortable–addresses perceptions about

cleanliness, character and charm, quiet, unless they are designed to be otherwise, Sociable–have a physical fabric where people can connect with one another and imitate civic engagement" (Wyckoff, 2014:4). According to Wyckoff (2014), the preceding description includes a straightforward formula that is vital to comprehending the elements required for successful place making that yields quality places that are shown in the Diagram 3. In the Diagram 4, it will show an example of an analogy which employs what seems to be what has widespread appeal which include forms, activities, responses, economics, and sense of place.
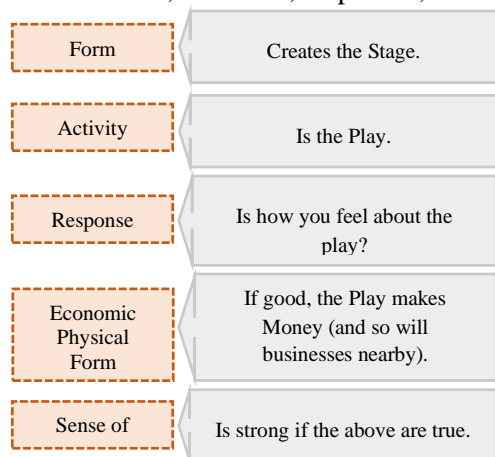
Form	Creates the Stage.
Activity	Is the Play.
Response	Is how you feel about the play?
Economic Physical Form	If good, the Play makes Money (and so will businesses nearby).
Sense of	Is strong if the above are true.

Diagram 4: An analogy of quality places
Source: Wyckoff, 2014:3; Author, 2023

Proper Physical Form → Place
Proper Mix of Land Uses & Functions → Place ← Proper Mix of Social Opportunity
Place → Quality Activities in Quality Places and a Strong Sense of Place
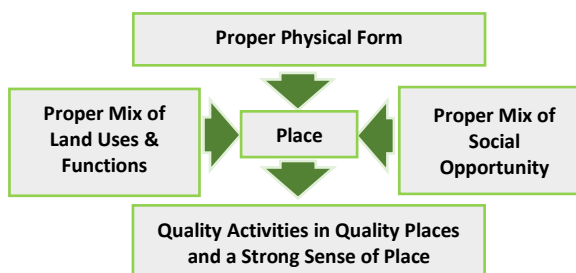
Diagram 3: elements required for successful place making (Author, 2023).

Types of Place Making

In this part, the article describes and distinguishes the four types of place making:

A. Standard place making

Building high-quality areas that individuals desire to reside in, earn in, enjoy in, and go to school in are referred to as standard place making. To accomplish it, people must be empowered and engaged in the process. The relationship between three specialized place making forms and the more general, generic, or "standard" form is shown in the Fig. 3. This encompasses a wide range of initiatives and endeavor's that are actively promoted throughout the age by the social, charitable, and retail industries forever on an incremental or targeted basis. (Land Policy Institute, 2015:10).

Some instances are:

• Improvements to the streets and facades of a downtown, as well as neighborhood-based initiatives. They include: park renovations, small-scale multi-use projects, home rehabs, and residential infills as shown in Fig. 4.
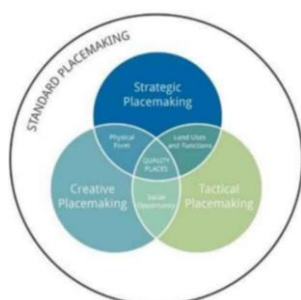
Fig. 3: The relationship between three specialized place making forms
Source: Elgobashi, 2021:95

Fig. 4: old gas station gets new life Source: Campbell, et al., 2016.

• Activities - events that take place in public spaces like streets, town squares, civic structures, etc. (Fig. 5). Music events are frequently used in place making. They attract visitors and unite the populace. The historic downtown of Mason is the site of the Sun Dried Music Festival (Fig. 6). Farmers markets are now a commonplace for creating places. The Lansing City Market is shown here.

Fig. 5: Michigan Festivals
Source: Campbell, et al., 2016.

Fig. 6: Lansing city market
Source: Campbell, et al., 2016.

B. Strategic Place making

In addition to building quality places, strategic place making aims to achieve a specific objective connected to increasing a community's economic, social, and cultural prosperity. It strives to develop high-quality locations that are particularly alluring to brilliant employees, making them desire to work and reside there. In doing so, they draw enterprises that are looking for concentrations of talented workers, which in turn creates the conditions for significant job creation and income increase. The phrase was coined by the Land Policy Institute (LPI) at Michigan State University, in USA after studying the differences between towns that were growing in population, employment, and income (Land Policy Institute, 2015:11). Therefore, strategic place making is a planned process (i.e., it is intentional and not by accident) including initiatives or events in specific locations (specified hubs, pathways and junctions) that leads to which describe the effect of using Strategic Place making (Diagram 5):

• Projects: Mixed-use developments in important urban cores (downtowns), along important thoroughfares (particularly fast transit lines), and at important intersections; these may involve both renovations and new buildings.

• Activities: These include frequently cyclical events aimed at both talented employees and various artistic, cultural, amusing, and recreational pursuits that animate excellent locations and draw a wide spectrum of users (Fig. 7).

Strategic Place making

1. Quality
2. Sustainable
3. Human scale
4. Pedestrian-oriented
5. Bicycle-friendly
6. Safe
7. Communities with:
-Activities in the cultural and artistic fields.
-A variety of housing and transit choices.
-Respect for public places, historical structures, and widespread civic participation.
-Mixed-use
-Broadband-enabled
-Green places.

Diagram 5: the results of using Strategic Place making
Source: Wyckoff, 2015; Author

Fig. 7: The African Arts Festival in Bronson Park is an annual event presented by the African Arts & Cultural Centre in Kalamazoo.
Source: Wyckoff, 2015

C. Tactical Place making

The process of creating high-quality habitats that involve a planned strategy to transformation that is frequently planned, starts with a short-term engagement, and has anticipations that might start right away and often at low cost. It is minimal risk with the potential for huge earnings and targets public areas (Rights-of-Way, plazas, etc.). It may be repeatedly used to situations with numerous parties. It comprises of a number of brief assignments and projects. Strategic place making initiatives have the power to completely change a neighborhood over time. Although positive effects may take time to become apparent, moving "steadily as she goes" nonetheless gets one where they want to go, frequently for less money.

Tactical place making combines two distinct but related methodologies. The first is referred to as "Tactical Urbanism," from two books: "Tactical Urbanism: Short-Term Action, Long-Term Change, Vols 1 and 2" (Lydon, 2012) by the Streets Plan Collaborative .The second is "Lighter, Quicker, Cheaper," a name given to set of activities by the Project for Public Spaces.

- Tactical Urbanism: "Improving the livability of our towns and cities commonly starts at the street, block, or the building scale. While larger scale efforts do have their place, incremental, small-scale improvements are increasingly seen as a way to stage more substantial investments. This approach allows a host of local actors to test new concepts before making substantial political and financial commitments. Sometimes sanctioned, sometimes not, the actions are commonly referred to as "guerrilla urbanism", "pop-up urbanism", "city repair", or "D.I.Y (Do it yourself) urbanism." (Lydon, 2012) (Fig. 8).
- Lighter, Quicker, Cheaper: As characterized by the Project for Public Spaces[1] (pps, 2007) LQC refers to a local development strategy that has resulted in a number of the most successful public spaces in the world. This strategy has lesser risks and cheaper prices, and it makes use of the community's creative energy to effectively create additional uses and incomes for areas that are undergoing change.

The variety in time, cost, and effort requirements, and the range of interventions should be viewed as an iterative way to create long-lasting change. Amenities and public art frequently come first, then events and intervention projects, and finally light development initiatives for long-term change. LQC interventions find a balance between offering comfortable spaces for people to enjoy while producing the cash essential for upkeep and management by emphasizing use above design and capital-intensive construction (pps, 2007) (Fig. 9).

Fig. 8: The PLOT Neighborhood Spot in Norfolk—3D plan and images of families, vendors, artist market, and the Virginia Symphony performance
Source: STEUTEVILLE, 2021

Fig. 9: A selection of interventions and projects from around the world. Refer to our great LQC intervention site for case studies.
Source: PPS. 2015.

---

[1] Project for Public Spaces (PPS) is a non-profit organization based in New York dedicated to creating and sustaining public places that build communities, in an effort often termed place making.

D. Creative place making

Creative place making is characterized as revitalizing public and private areas, restoring buildings and streetscapes, enhancing local economic viability and public safety, and attracting a variety of individuals to celebrate, be inspired by, and participate in creative place making (Markusen, et al., 2010:379). It focuses on using artistic, cultural, and creative methods to draw greater attention to a location (Cohen, et al., 2018; Ramli,et al., 2020). The Kuala Lumpur Declaration on Cities 2030's unique solution, which promotes a culture of creativity and innovation within the way that cities operate is closely related to creative place making. Innovation fosters not only original creative ideas but also a variety of new jobs (Ramli,et al., 2020:7).

The "creative" in "place making" refers to the element of a location where people are actively involved and making places, celebrating the history and unique culture, adding layers of meaning, and forging a common vision for the neighborhood (Redaelli, 2018:403). The physical form, social opportunity, and quality settings are required for creative place making to occur. Place-based orientation, art-based orientation, community engagement, and cultural development are the components of creative place making that are of interest (Diagram 6). According to Forsyth (2014; Vazquez, 2012; Zitcer, 2020 and Vazquez, 2012):

> 1. Place-based orientation put an emphasis on the relationship that results in how individuals react and feel about the surroundings in their communities.
> 2. Using the arts and culture to create cultural spaces, igniting the creative potential of communities, and bringing performance and participation activities to public spaces are all examples of asset-based orientation.
> 3. The goal of cultural development is to make areas where the arts and creativity can flourish.
> 4. Community development focuses on enhancing quality of life by constructing locations that cater to social and human needs.

Creative place making is able to address the intangible factors that contribute to successful and vibrant communities. The community's ties to an area encompass the draw of tourists, companies, and investments, which mobilize social capital (Markusen & Gadwa, 2010; Forsyth, 2014). Creative place making has an impact on economic growth when it results in the creation of new jobs. Creative place making improves the creative economy, opens up additional doors to prosperity for people and communities, and raises quality of life overall. (Diagram 7).
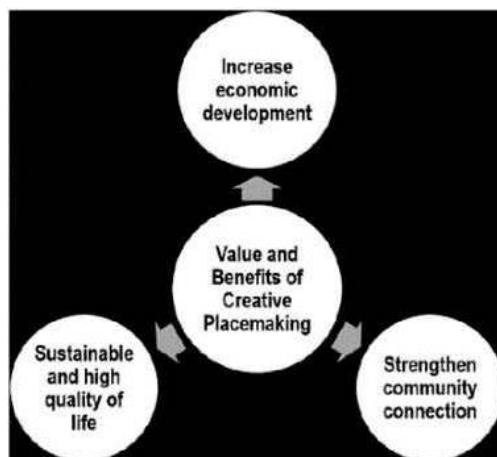

Diagram 6: Creative place making and its elements
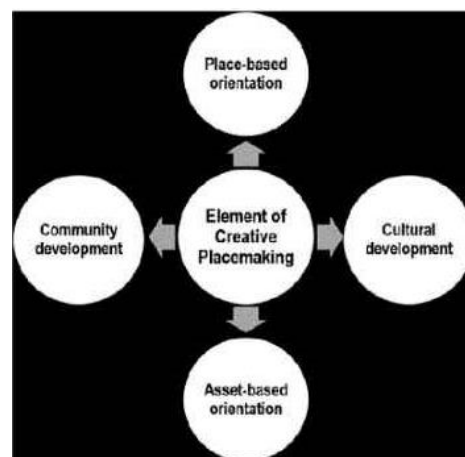Sourcea:Wyckoff, 2014

Diagram 7: Value and benefits of creative place making
Source:Markusen Gadwa, 2010; Forsyth, 2014 ; Vazquez, 2012;Ramli et al. 2020

The Transformations

The definition of transition is a change from one state to another, "a passing or passage from one condition, action, or (rarely) place, to another; change;" 'a style of intermediate or mixed character'. 'The passage from an earlier to a later stage of development or formation; 'is a metamorphosis. Change of a substance's shape is a physics concept. From solid to liquid, from gaseous to liquid or solid, or the other way around (Repenning, 2003:12).

Place Making in the Physical and Virtual worlds

Harrison and others write that "Space is the opportunity; place is the understood reality" (Harrison, et al, 1996). They describe how a place is viewed as the notion behind the activities of the individuals in a space, directed by the cultural understanding of a society, which when combined gives a place meaning. A space is understood as a three-dimensional chamber that leads and moulds human interactions.

Place Making in the Physical World

In terms of the structure and spatial organization, the physical world such as a city is better equipped for place making than the virtual one since urban planners have already established the fundamental rules that architects and developers must abide by (Tan, et al, 2010). Thus, the majority of research on the topic of place-making focuses on real-world observations and, as a result, does not offer insightful information on how to build places in the virtual world. Both Canter (1977) and Relph (1986) have investigated the idea of place making in the physical environment (Table 2).They have comparable views about three linked elements in the physical universe, although having slightly different techniques. They are actual places, things to do, and things to experience.

The three elements of physical locations, activities, and cultural experience have been expanded in Diagram 8. The theme is comparable to Relph's description of place settings, in which he noted that the site's physical layout is essential when addressing the physical settings, activities, and cultural connotations. Any visible and aural activities or objects are described by the elements. Depending on the observational location, the table's items change. The avatars' activities are described because they may have an impact on their views and behaviors. It is divided into two sections:

- Fun and play (promoting interaction through physical contacts with objects)
- Interaction (emergence of interaction through activities).

The ability to adapt physical items or actions to the environment is referred to as adaptability. Additional data were also captured, including time, scale, experience, and social tendencies.

Table 2: The three components necessary for place-making defined by Relph and Canter source: Canter, 1977 and Relph, 1976

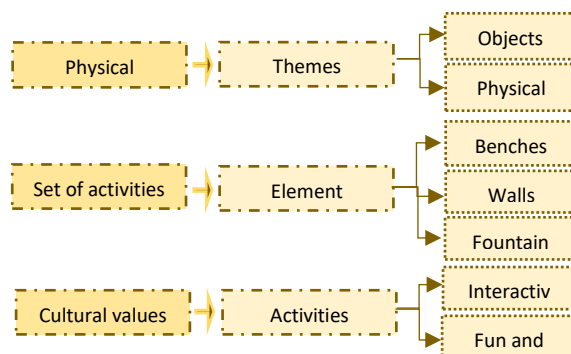| David Canter (1977)	Edward Relph (1986)
Form	Physical settings
Function	Set of activities
Concept	Cultural values

Diagram 8: the three elements of expanded by Edward Relph
Source: Tan, et al, 2010:4).

Place making occurs not only through direct interactions with a location, but also through how that place is represented in social media. The Diagram 9 shows the impact of spatial context on the creation of a place.
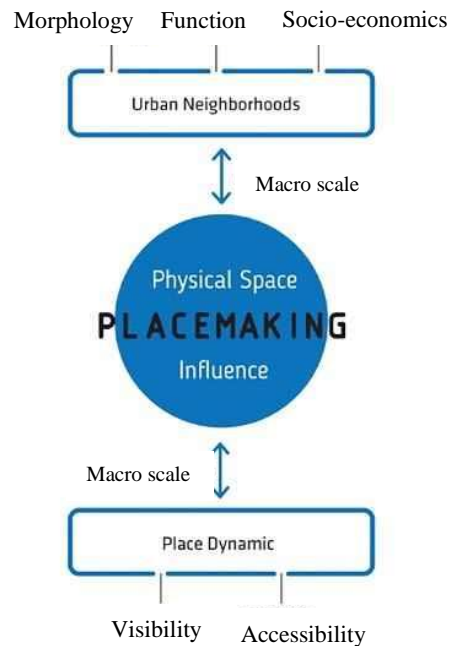

Diagram 9: The influence of physical space on place making
Source: Maldonado, et al., 2020:32

Place Making in the Virtual World
In order to build a place in cyberspace[2], Kalay and Marx (2001, 2003) provided the requirements that must be met. They outlined eight criteria for cyber-place making in their 2001 work, "Designing Places in Cyberspace." They are as follows:

1. Events.
2. Presence.
3. Relative locations.
4. Authenticity.
5. Adaptability.
6. Variety of experiences.
7. Transitions.
8. Memorable.

As they said, these eight criteria serve as a meaningful framework for designing virtual places. They are, however, modified from actual place making in urban design and architecture and are hypothesized to function in virtual environments. According to Champion et al. (2002), while useful, they do not specify which qualities are most crucial, required, or desired for the virtual environments, Additionally, it was created prior to the development of 3D multiuser virtual worlds like Second Life SL and features made possible by advanced game engines[3].Twinity[4] was introduced in 2008, and SL debuted in 2003. Since they are not intended for gaming, these worlds differ from the online spaces in a 3D virtual world called 'Second Life'. In them, the users are referred to as "residents" and can interact socially, take part in both solo and group activities, manufacture and exchange virtual goods and services, or travel together. This is as same as in the real world; they socialize in the public places. In addition to the Criteria 1 to 8 from Kalay and Marx (2001, 2003), Beng-Kiang tan in his paper "Place and placeness in 3D online virtual world" (Tan, et al., 2010) identified four additional criteria. They are:

• Context
• Gestures
• Improvisation
• Graphic representation.

Here. the work of Kalay and Marx is built upon by the end criteria. They are not exhaustive or meant to be the only method for creating virtual spaces. Future advancements in some of the sub elements criteria feeling of place because of modern technology's amazing features. These standards may not entirely apply to the environment of massively multi-player online games (MMOGs), as they are intended for multi-user online virtual environments (MUVEs). Through digital value, enhanced by digital application which stimulates the realization of the real architectural values and enhances them, virtual making can be produced in the urban environment (Qabshoqa, 2018). The notion of virtual place-making is relevant to all types of technologies that facilitate the blending of the virtual and the real, such as augmented reality glasses and peripheral devices, and is not just restricted to the usage of mobile devices (Mitchell, 1999).

Virtual Space and Place

The concept of virtual space and place (VSP) separates the ideas of space, location, and existence and aims to clarify how they relate to one another.

Virtual Space

In VW (virtual world), space is the container's apparent three-dimensional world (Hartford, et al., 2006). Events and the manipulation of items take place inside the container. When considering containers in the virtual space, it's vital to understand that all borders are conceptual, and thus mental, rather than physical (Harrison, et al., 1996; Lakoff, et. al., 1999). In virtual space VSP, cognitive and perceptual spaces are frequently not segregated. By manipulating items, communicating with others and engaging in other sensory-based activities in the virtual world, a perceptual space is initially generated. The cognitive spaces in the minds of people who have sensed the virtual world are constructed using this perceptual space. Then, by creating a metacognition that reflects the interactions in their thoughts, people attempt to understand a new cognitive space. Thus, in order to create new mental images of locations in virtual space, cognitive and perceptual spaces are both required (Saunders, et al., 2011). Finally, it was determined that a virtual space is the total of all cognitions and perceptions of the existence of an actual three-dimensional space. It builds on the visual image of the actual world to create another visual image of the virtual environment.

Virtual Place

Virtual place is the experience of a constrained space infused with meaning. It extends the idea of place as the collection of related mental images produced by managing virtual objects in addition to social encounters in a virtual environment (Saunders, et al., 2011). Four techniques can be used to enlarge the concept of place beyond that of a container. Saunders, et al. (2011) say that it should:

(1) Suggest that the boundaries of a place are dynamic and fluid.
(2) Focus on the importance of meaning in creating place.
(3) Tie our view of place to mental representations formed through repeated interactions.
(4) Link it to the concept of presence.

---

2 cyberspace the environment in which all electronic communications and communications via computer networks take place. While not precisely a space in the conventional sense, cyberspace is a metaphor for the "place" where people interact using computers on the internet.

3 Gaming engine: is a software development environment, also referred to as a "game architecture" or "game framework," with settings and configurations that optimize and simplify the development of video games across a variety of programming languages.

4 Twinity: is a 3D online virtual world. Initially developed by Metaversum GmbH, it is currently held by Exit Reality

There is no argument that interactions or activities create a place. People in these new settings can only share the "representation of activities" when they can find a sense of place (McCullough, 2004). They depend instead upon the imagined reality of a personal, sociable, and sensitive contact in the medium, which we define as the social presence (Short et al., 1976) constructed via repeated contacts, behaviors, language games, and other practices which are slowly and dynamically built in a novel environment (Sarker,2004). Through repeated encounters in the virtual world, these spatially connected interactions aid in the establishment of an abstract level that is subsequently necessary to function well in the virtual environment. Finally, it was determined that a virtual place is a collection of network nodes representing the viewpoint and other relevant information or beliefs characterizing that location. It is a psychologically significant area where the associations between people and places are created by the exchange of experiences within a given area.

Sense of Place in Virtual Environments

The virtual spaces inside a virtual community offer a setting for interrelations (Harrison, 1996). Relph asserts that an involvement and an engagement lead to the development of a sense of virtual place in virtualization, which is likely to be similar to a sense of real place. Because it is transmitted electronically, "It (a sense of virtual place) will involve many senses and emotions because it is mediated electronically" (Relph, 2007:24). Both familiarity and presence are complex ideas (Gefen, 2000). The intricacy of familiarity is due to its complexity (Gale, et al., 1990; Peron, et al., 1990). The definition of familiarity is "an understanding, often based on previous interactions, experiences, and learning of what, why, where and when others do what they do" (Gefen, 2000:727). Understanding and, consequently, identification of (rooted in the past) the behaviours of others or of remembered objects are the topics of familiarity.

Gefen discusses familiarity in relation to technological use. He sees it as a specific activity-based awareness derived from prior knowledge or instruction on how to utilize the specific interface. Different perspectives have been taken on the idea of presence. It concentrates on two viewpoints: public appearances concentrate on the social presence and immersion viewpoints. The perception of intimate, friendly, and sensitive human contact in the environment describe social presence (Short, et al., 1976). When media are utilized for interaction, different levels of social presence may result (Witmer, et al., 1994). Social presence is "about the technology users' perception of the social virtual objects," according to Lee (2004:45). In contrast to where the user's actual body is situated, presence has been defined as the user's strong sensation of being in (e.g., immersed in) a medium space (Nowak, et al., 2003:482; Lee, 2004). Social cues are less important during immersion than sensations. Six different sorts of presence produced by lopping computer technology are described by Lombard (1997) as follows:

-Presence as social richness
-Realism
-Immersion
-Social actor within a medium
-Medium as a social actor
-Medium as transportation.

Indeed, two of these stand out as being very pertinent to our examination of place:

• Presence as social richness (based on social presence theory): the degree to which a medium is regarded as sociable, cosy, or personal when used to communicate with others (Short, et al. 1976).
• Presence as immersion: the degree of psychological and visual immersion. i.e., how much a person appears to be involved or immersed in the virtual environment (Biocca, 1995).

Digital Place Making

The use of technologies like virtual reality in the practice of urban design and planning is a key factor for the future of place making. The place-making digital place, describes new

technologies that add a layer of digital information to actual settings (Creswell, 2015; Gomez, et al, 2019). The concept of digital place-making has emerged as a result of the expanding influence of technology on actual space. As a result, it is now essential to take into account the digital media as a component of any place making initiative. Place making occurs not only through direct interactions with a location, but also through how that place is represented on social media (Diagram 10).

In practical terms, digital place making is the place-making utilizing internet devices in social places to advance culture, support urban regeneration initiatives, provide training and cultural activities, encourage public engagement, and empower the shared sphere. The term "digital place making" designates an emerging, but rapidly developing discipline that imaginatively manages the effects of the virtual place. Digital place making could help create a link among the new urban innovations and social issues that aren't necessarily thought to have technology innovations (Gomez,et al, 2019:54).
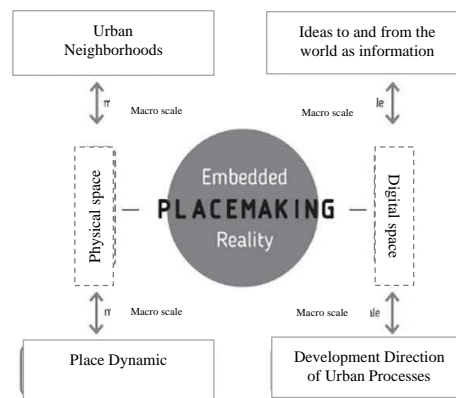

Diagram 10: Diagram of the influence of physical/digital embedded space on place making
Source: Maldonado, et al., 2020:32.

Review of literature

Rzeszewski and Naji (2022) contends that in order for a wider audience to grasp geographical data, a more comprehensive and interdisciplinary understanding of the idea of immersion is necessary. Rzeszewski and Naji (2022) aim to highlight the distinctive affordances and potentials of extended reality (XR) narrative style GIS digital representations through an interdisciplinary theoretically led analysis of project outputs called Building City dashboards. Rzeszewski and Naji (2022) take this a step further by examining the integration of extended reality (XR) technologies in this space to provide a more meaningful and educational experience for the user in line with the objectives of the development of virtual geographical environments (VGEs). Álvarez & Duarte (2018) point out that creators of video games have been efficiently utilizing spatial design techniques to generate virtual settings that interest users and develop storylines, recognizing and utilizing many aspects of what made a place unique. The goal of Álvarez & Duarte (2018) is to provide the reader with a broad overview of the manner in which the video game industry has developed its ability to alter artificial worlds on both a macro and micro scales, with an emphasis on urban simulations. Additionally, Álvarez & Duarte (2018) make the case that interactive and dynamic design approaches, understanding of spatial legibility, place-anchored narrative design, the function of non-player characters (NPCs), and the aspects of unpredictability, required to give the space life may all be useful to physical designers. Through the literature reviews, it can be noted that most of the research did not address the concept of transforming the place industry from real reality to virtual reality as it is, but by linking it to other sites.

Research Methodology

This research analyzes two projects that integrate the use of virtual reality within them. After reaching indicators that represent a comparison between virtual reality and real reality, these indicators show better qualifications for expressing immersions in virtual reality, as there are eighteen indicators that represent the place industry in virtual reality and three indicators that represent real reality. The green dots (●) indicate that it met the requirements while the red rectangular (■) ones indicate that it fell short, and that the project that is most engaged in virtual reality will be the one that has the most green dots. Every dot has one point which in total will be 18 points.

Case study

This research examines two case studies that dealt with two initiatives for two museums that integrated the idea of a virtual reality into the actions of the exhibits as shown in the Fig. 10, Fig.11, and Fig.12 where both the museums are located.

Fig.10: Eye film museum in Amsterdam
Source: Gerard, 2021.

Fig.11: google map image of the both museum Source: https://ww w.google.com/maps/search/Nxt+Museum +plans/@52.3881623, 4.9040192, 1781m/data=! 3m1! 1e3? hl=en

Fig.12: the outside of the Nxt museum
Source: ARTSTALK MAGAZINE, 2022.

Nxt Museum

The first museum in the Netherlands devoted only to media technology art is called Nxt Museum. Nxt Museum is the brainchild of Merel van Helsdingen, founder and managing director. The Nxt Museum opened in Amsterdam in August 2020. It focuses on art that reflects the present day by utilizing modern tools. The mediums employed for artistic expression are a reflection of our era. Because of this, they serve as the ideal tool for comprehending the intricacies of the modern world and enabling us to recognize, relate to, and consider our realities. The facility, which has its headquarters in North Amsterdam, was created with the express purpose of examining media technology art that pushes the boundaries of advancing technology and applications. It is dynamic and formless, and creates movement whether it be physical, mental, or emotional (ARTSTALK MAGAZINE, 2022). The environment is ideal for these modern art forms to develop, grow and flourish.

The Nxt Museum is housed in a former TV studio. It is obsessed with the future they desire, and they exhibit and debate what comes next. What is conceivable outside the confines of the material world? How can we change our appearance in the real world and the virtual one? It investigates how the internet world is blending with our physical reality while looking at the emergence of digital identities (ARTSTALK MAGAZINE, 2022). The Fig. 13 shows on the left the floor plan of the museum, and on the right, there is some of the virtual art work in the museum.
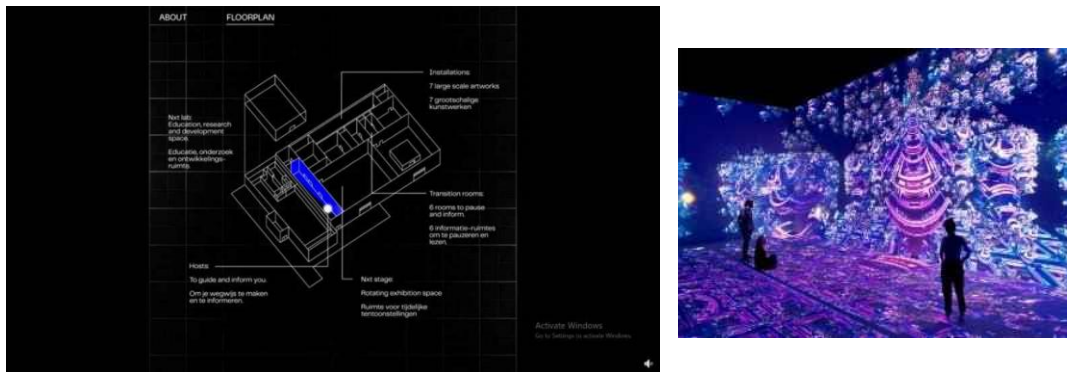
Fig.13: On the left: the floor plan of the museum, on the right there: some of the virtual art work in the museum. Source: ARTSTALK MAGAZINE, 2022, Nxt Museum, 2020.

Eye Film Museum

A movie library, museum, and theatre in Amsterdam that conserves and displays both international and Dutch movies are seen in the Netherlands. The architect of the project is Delugan Meissl Associated Architects (Heinhuis, 2021). In 2010, the Netherlands Film Museum in Vondelpark changed its name to EYE Film Institute Netherlands, and as of 2018, it is now known as Eye Filmmuseum. Rien Hagen, an executive head, lay the cornerstone of a brand-new structure with exhibition space (Bal, 2012). The stunning postmodern white complex was constructed starting in June 2009 on a new peninsula on the northern IJoever in Overhoeks. On April 4, 2012, Queen Beatrix officially launched the structure as "the new film museum on the IJoever" and the neighborhood's first movie theater since the Cleyntheater closed its doors in 1987.

The structure is situated on an island opposite from the city's main train station, and its architecture is reflective of Japanese origami art. It is clearly visible due to its angled white aluminum façade from a good distance inside Amsterdam's Old City. However, the redesigned EYE's exterior is not its sole noteworthy aspect. On the inside, it includes cutting-edge, premium Kinoton projection equipment. Ramps connect the Arena, the center of the EYE, with the four movie theatres and two sizable exhibition spaces. Because it is home to the museum of the moving image, Eye can brag that there are typically two exhibitions running concurrently: one that is permanent and one that is temporary. There are many wonderful attributes on the permanent one. Due to the green screen technology, there was one set where you could have yourself star in a few short movies. A QR code scanner is available at several presentation locations for visitors (Fig. 14). In Fig. 15, it represents the plan of the four floors of the building. On the zero floor, there is an entrance for the disabled, the basement, and cinema 4. In plan number one, there is the main entrance, library, and cashier, in addition to the restaurant and the terrace. As for the plan number 2, there is the exhibition, the workplace, in the fourth plan, it contains the cinema 1 and the lobby.

Fig. 14: Permanent exhibitions
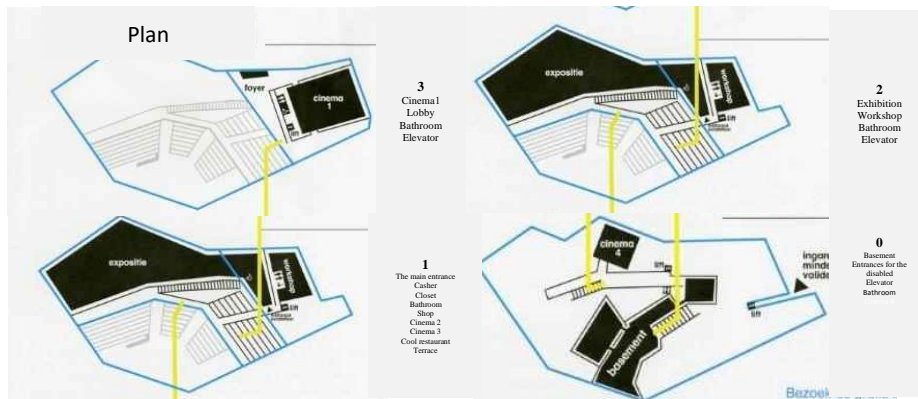Source : Eye Film museum the Basement ,2018.

Fig. 15: the plan of the four floors of EYE FILM MUSEUM
Source: Bal, 2012.

Findings

After analyzing the two projects and after what was presented above, the research reached a comparison table between place making in the real world and in virtual reality. The Table 3 represents the elements of place making in the real world and virtual reality and the characteristics of each.

Table 3: A Comparison between place making in virtual reality and reality.

	Type of reality	Element of the place-making	Properties
VIRTUAL REALITY	Place making in virtual world	-Events.	-Familiarity -Presence -Illusions.
		-Relative locations.	-Resembles actual space. -Boundaries dynamic and fluid. -Not actually three-dimensional.
		-Authenticity.	-Complex meanings.
		-Adaptability.	-Problems can be controlled.
		-Variety of experiences.	-Duplicable.
		-Transitions.	-Complex connections.
		-Memorable.	-Strong spirit of virtual place. -Location with a distinct visual identity.
		-Context.	-Not based in the analogous physical reality.
		-Gestures.	-Focus on meaning.
		-Improvisation.	-Capable of creating. -Bustling with activity.
		-Graphic representation.	-Tie our view to mental representations formed through repeated interactions. -Link it to the concept of presence
REALITY	Place making in physical world	-Form(Physical settings)	-Themes (Objects, Physical).
		-Function(Set of activities)	-Element (Walls, Benches, Fountain).
		-Concept (Cultural values)	-Activities (Fun and Play, Interactive).

The Table 4 represents a comparison between the two projects above, where the two projects were analyzed through the characteristics of the place industry in virtual reality. As indicated in the research methodology, the green dots (●) indicate that it met the requirements while the red ones (■) indicate that it fell short, and that the project that is most engaged in virtual reality is the one that has the most green dots. Every dot has one point which in total will be 18 points.

By observing the Table 4, the characteristics extracted from the Table 3 were placed in the first column of Table 4. Through these characteristics, each of the two projects was evaluated to see the extent of immersion and integration of virtual reality with real reality in the design, activities and structure of the two projects, by putting green points in case it achieved the feature or red rectangles in case it did not achieve that.

The Nxt Museum project achieved 16 points out of 18 in relation to virtual reality and one point out of three in relation to real reality, and the Eye Film Museum project achieved 10 points out of 18 in relation to virtual reality and three out of three in relation to real reality.

Table 4: The comparison between place making in virtual reality and reality.
Source: Author

Type of reality	Properties of place making in virtual reality	Nxt Museum	EYE FILM MUSEUM
Place making in virtual world	-Resembles actual space.	●	●
	-Not actually three-dimensional.	■	■
	-Illusions.	●	●
	-Not based in the analogous physical reality.	●	●
	-Strong spirit of virtual place.	●	■
	-Location with a distinct visual identity.	●	●
	-Bustling with activity.	●	●
	-Capable of creating.	●	●
	-Complex connections.	●	■
	-Complex meanings.	●	■
	-Duplicable.	●	■
	-Problems can be controlled.	■	■
	-Boundaries dynamic and fluid.	●	■
	-Focus on meaning.	●	■
	-Tie our view to mental representations formed through repeated interactions.	●	●
	-Link it to the concept of presence.	●	●
	-Familiarity.	●	●
	-Presence.	●	●
Place making in physical world	-Themes (Objects, Physical).	■	●
	-Element (Walls, Benches, Fountain).	■	●
	-Activities (Fun and Play, Interactive).	●	●
	total point	**17/21**	**13/21**

Discussion

Nxt Museum is stronger and more effective than the Eye Film Museum in the idea of integrating virtual reality in it. That is because the first one achieved 16 points of the characteristics through which it is evaluated that this project has succeeded in using the virtual reality in its interactive environment and in all its parts. While the second one has achieved 10 points only because it's use of virtual reality and the extent of its users' immersion was weak because it's used only a small part of it in this aspect. As for real reality, the Eye Film Museum excelled at the Nxt Museum by achieving all the characteristics of real reality, and this can be seen through the distinguished structural architectural work of the Eye Film Museum in exchange for a simpler and less interest in the virtual aspect.

Conclusion

As a conclusion, place-making in VR has been demonstrated to be a link between its characteristics in VR and actual reality. The capability, features, or features of the place are what transform it from real reality to virtual reality. The article indicates that each locational feature has a dual potential via the real-world boundaries (walls, benches, and fountains) can be virtualized by being fluid and dynamic. Attributes (objects, material) can be virtual by being repeatable, and capable of creating physical space, by being illusionary. When familiarity allows for the interpretation and recognition of recalled items or other people's behaviors that are anchored in the past, a real place can become virtual.

References

Agnew, J., Shelley, F. and Pringle, D.G. (2003) Agnew, JA (1987): Place and Politics: the Geographical mediation of state and society. Progress in Human Geography, 27 (5), pp. 605-614.

Álvarez, R., & Duarte, F. (2018) spatial design and placemaking: learning from video games. Space and Culture, 21 (3). Massachusetts Institute of Technology, pp. 208-232.

ARTSTALK MAGAZINE. (2022) Nxt Museum. HOLLAND: at https://artstalkmag azine.nl/nxt-museum/.acsses

Baltimore City Department of Planning, (2010) Downtown Open Space Plan, Baltimore, Maryland: Project for public places, pp.170, 90.

Bal, J. H. (2012) LARGE SCREEN CINEMAS, A GOODBYE TO FORMAT, AMSTERDAM: ENCYCLOPEDICAL HISTORY OF 70MM SCREEN accessed on December 2022.

Biocca, F., and Levy, M. R. (1995) Communication in the Age of Virtual Reality, Hillsdale, NJ: Lawrence Erlbaum Associates, pp 7-11.

Campbell, J. F. and Mason, M. I. (2016) Michigan: Festivals & Events, pp.10.

Canter, D. (1977) the Psychology of Place. London: Architectural Press.

Champion, E., and Dave, B. (2002) Where is this place? In G. Proctor (ed.), ACADIA (2002) Association for computer-aided design in architecture (2002) USA: annual conference, Pomona, pp. 87–97.

Cilliers, E.J. and Timmermans, W. (2014) the importance of creative participatory planning in the public place-making process. Environment and Planning B: Planning and Design, 41 (3). The Netherlands: Van Hall Larenstein, University of Applied Sciences, Wageningen, pp. 413-429

Cohen, M., Gajendran, T., Lloyd, J., Maund, K., Smith, C., Bhim, S. and Vaughan, J. (2018) Valuing creative placemaking: development of a toolkit for public and private stakeholders. Sydney, Australia: NSW Government, pp.9-13.

Cresswell, T. (2004) Defining place. Place: A Short Introduction. Malden, MA: Blackwell Ltd 12, pp1-10.

Cresswell, T. (2015) Place: An Introduction. Chichester: John Wiley & Sons Ltd, pp7-12.

Efroymson, D., Ha, T.T.K.T. and Ha, P.T. (2009) Public spaces: How they humanize cities. Dhaka: Health Bridge, pp 8.

Elgobashi, A. and Elsemary, Y. (2021) Heritage Sites: Toward Creative Ambiance in Public Spaces Attached Impact of Creative Ambiance on Societal Development. In Towards Implementation of Sustainability Concepts in Developing Countries, International Publishing: Springer, pp. 77-95.

Eye Film museum the Basement (2018). Amsterdam: northern light accessed on January 2023.

Forsyth, M. (2014) Community development investment review: Creative placemaking. In Federal Reserve Bank of San Francisco, Vol. 10, No. 2, pp. 87-98.

Gale, N., Golledge, R.G., Halperin, W.C. and Couclelis, H. (1990) Exploring spatial familiarity. The Professional Geographer: 42 (3), pp. 299-313.

Gefen, D. (2000) E-commerce: the role of familiarity and trust. Omega, 28 (6), Philadelphia: Drexel University, pp.725-737.

Gehl, J. (2004b) Towards a Fine City for People: Public Spaces and Public Life London 2004, London: Transport for London and Central Partnership, pp.30, 31.

Gehl, J., (2018) Institute. Twelve Quality Criteria, at https://gehlinstitute.org/wp-content/uploads/2017/08/QUALITY-CRITERIA-FINAL.pdf.

Gerard, S. (2021) Construction of the EYE Film Museum in Amsterdam, at https://saarberg-fotografie.nl/work accessed on December 2022.

Gomez, E.S. (2019) Placemaking & Augmented Reality: A Theoretical Exploration, pp.54.

Harrison, S. and Dourish, P. (1996) Re-place-ing space: the roles of place and space in collaborative systems. USA: In Proceedings of the ACM conference on Computer supported cooperative work, Xerox Palo Alto Research Center, Palo Alto, pp. 67-76.

Hartford, S., and Leonard, P. (2006) Place, Space and Time: Contextualizing Workplace Subjectivities, Organization Studies: (27), pp. 657-676

Heinhuis, E. (2021) Must See Architecture: Contemporary Architecture in Amsterdam ARCAM, at Www.arcam.nl. Retrieved 2022-12-19.

Hespanhol, L. (2018) Making Meaningful Spaces: Strategies for Designing Enduring Digital. In International Conference on Design, (SAAN): Innovation and Creativity, pp. 108-117.

https://www.google.com/maps/search/Nxt+Museum+plans/@52.3881623,4.9040192,1781m/data=!3m1!1e3?hl=en accessed on January 2023.

Kalay, Y.E. and Marx, J. (2001) The role of place in cyberspace, IEEE: In Proceedings Seventh International Conference on virtual systems and multimedia, (pp. 770-779).

Lakoff, G., and Johnson, M. (1999) Philosophy in the Flesh, New York: Basic Books. pp.16.

Land Policy Institute (2015) USA: Michigan State University.

Lee, K.M. (2004) Presence, explicated. Communication theory, 14 (1), USA: international communication association, pp.27-50.

Lombard, M., and Ditton, T. (1997) At the Heart of it All: The Concept of Presence, (JCMC): Journal of Computer Mediated Communication: pp.3, 2.

Lydon, M., Bartman, D., Garcia, T., Preston, R. and Woudstra, R. (2012) vol. 1: short term action long term change. Miami, New York: The Street Plans Collaborative, accessed June 2022, at http://issuu.com/streetplanscollaborative/docs/tactical_urbanism_vol_2_final

Maldonado Gil, G.J. and Psarra, S. (2020) Placemaking in the Digital Media Era. Bitácora Arquitectura: University of Mexico, pp. 46.

Malpas, J. (1999) Place and experience, a philosophical topography Cambridge: Cambridge University Press, pp.1-33.

Markusen, A. and Gadwa, A. (2010) Arts and culture in urban or regional planning: A review and research agenda. (JPER): Journal of planning education and research, pp. 379-91.

McCullough, M. (2004) Digital Ground: Architecture, pervasive computing, and environmental knowing. , Cambridge: MIT Press.

Mitchell, W.J. (1999) E-topia: Urban Life, Jim but Not as We Know It. Massachusetts: MIT press, pp.1-5.

Nowak, K. L., and Biocca, F. (2003) The Effect of the Agency and Anthropomorphism of Users Sense of Telepresence, Copresence, and Socia Presence in Virtua Environments,Presence: Teleoperators and Virtual Environments , Massachusetts: Institute of Technology, pp. 481-494.

Nxt Museum. (2020) at: //www.facebook .com /nxtm useum /videos/ welcome-to-nxt-museum-we-transformed-a-former-tv-studio-to-provide-a-dedicated-h/26995 94590286199/.

PPS. (2007) Project for Public Spaces: PlacemakingTools, at http://www.pps.org/info/placemakingtools/ casesforplaces/gr_ place_ feat acceded on January 2023.

PPS. (2008) Project for Public Spaces: What is Place making, at http://www.pps.org/info/bulletin/what_is_placemaking? Acceded on December 2022.

PPS. (2011) Project for Public Spaces: Place-making for Creating Lively Cities: Training Manual LICI, at http://www.lively-cities.eu acceded on January 2023.

PPS. (2015) Project for Public Spaces: The Lighter, Quicker, Cheaper Transformation of Public Spaces, at https://www.pps.org/article/lighter-quicker-cheaper accessed on December 2022.

Qabshoqa, M. (2018) Virtual Place-Making-The Re-discovery of Architectural Places through Augmented Play-A playful emergence between the real and unreal ,eCAADe, pp.1-10.

Ramli, N.A. and Ujang, N. (2020) Adaptation of social attributes of place in creative place making towards social sustainability, (AjQoL): Asian Journal of Quality of Life, 5(18), pp.1-18.

Redaelli, E. (2018) Creative placemaking and theories of art: Analyzing a place-based, Portland: NEA policy, pp. 403-410.

Relph, E. C. (2007) Spirit of place and sense of place in virtual realities, Techne: Research in philosophy and technology, 10 (3), pp.17-25.

Relph, E. (1986) Place and placelessness, London: Pion Limited, pp.1-4.

Repenning, S.S. (2003) an architecture of liminality, USA: University of Cincinnati, pp.12.

Rzeszewski, M. and Naji, J. (2022) Literary placemaking and narrative immersion in extended reality virtual geographic environments, International Journal of Digital Earth 15 (1), pp. 853-867.

Sarker, S., and Sahay, S. (2004) Implications of Space and Time for Distributed Work: An Interpretive Study of US-Norwegian Systems Development Teams, European Journal of Information Systems (13), pp. 3-20.

Saunders, C., Rutkowski, A.F., Genuchten van, M., Vogel, D. and Orrego, J. M. (2011) Virtual space and place: Theory and Test Quarterly, pp.1079-1098.

Short, J., Williams, E., and Christie, B. (1976) the Social Psychology of Telecommunications, (Vol. 19, No. 4). London: Wiley, pp. 451-484.

Steuteville, R. (2021) Tactical Urbanism comes of age, CNU journal, at https://www.cnu.org/publicsquare/2021/06/23/tactical-urbanism-comes-age.

Stout, M.D. (2008) Place| Participation+ Contested Space: Local Practices of Placemaking in Over-The-Rhine, Doctoral dissertation, USA: University of Cincinnati, pp.13.

Tan, B.K. and Yee, S.L.T. (2010) Place and placelessness in 3D online virtual world, Singapore: National University Interactive & Digital Media Institute, pp. 1-10.

Vazquez, L. (2012) Creative placemaking: Integrating community, cultural and economic development. Cultural and Economic Development, Montclair: The National Consortium for Creative Placemaking, pp.3-43.

Witmer, B. G., and Singer, M. J. (1994) Measuring Immersion in Virtual Environments, Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, pp.1-7.

Wyckoff, M.A. (2014) Definition of placemaking: Four different types. Planning & Zoning News, 32(3), Michigan State: Land Policy Institute, pp.1-10.

Wyckoff, M.A., Neumann, B., Pape, G. and Schindler, K. (2015) Placemaking as and economic development tool: A placemaking guide, East Lansing: Land Policy Institute, Michigan State University, pp.31-598.

Zitcer, A. (2020) Making up creative placemaking. Journal of Planning Education and Research, Vol. 40 No. 3, pp. 278-288.