NANYANG TECHNOLOGICAL UNIVERSITY

SCHOOL OF ARTS, DESIGN & MEDIA

Beyond Interactive and Immersive Media Arts

A Case Study of teamLab in the Construction of Artificial Nature.

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of Master of Arts (Research)

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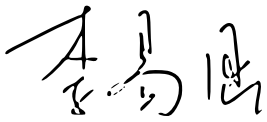

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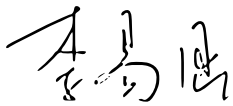

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Abstract

Exploration of nature in art has seen endless forms and expressions and remains a great source of inspiration for global artists. Since the end of WWII, technological advancement has enabled many artists to start working with tools that differentiate their work from the traditional artistic creations of nature, such as landscape paintings or the land art movement. The result is the creation of highly immersive and interactive nature-like environments for visitors to experience, rather than appreciating them from a distance. Among these artists, teamLab - a Japanese creative group that brings artists, programmers, animators, and many other specialists under one roof - further developed such environments, creating many impactful and commercially successful projects globally. By situating and analysing the creation of teamLab among other nature-inspired works since 1960, and considering how total immersion, visitor engagement and participation are incorporated in these artificial nature, the research seeks to discover the special ingredient – the key aesthetics - that sets these projects apart from the previous ones. It also intends to establish a deeper understanding of nature in our current times.

Chapter 1 Introduction

teamLab, a Japanese artist collective, refers to themselves as "ultra-technologists" who set out to explore ways in which a balance between art, science, technology and creativity can be achieved. The group works with light, sound, video, and virtual-reality environments to create technological wonderland, and has gained major recognition on the global art scene. Since 2012, teamLab has become the subject of numerous museum exhibitions, and their works are included in various permanent collections internationally. In 2014, teamLab started to be represented by one of the most prestigious galleries – the Pace Gallery - which established a new branch in Palo Alto, known as the heart of Silicon Valley. They started out with twenty of teamLab's works and it was a big commercial success. The ArtScience Museum in Singapore also reported a significant 83% surge in its visitors since the opening of teamLab's permanent exhibition. After Singapore, there was Tokyo, Beijing, and Paris, and the "teamLab mania" was then said to have spread to another major city, New York, in 2019.[1]

"Nature" is one of teamLab's most prominent subject matter as many of their key works take inspiration from it. Historically, nature and the nature of things have been important subjects of art. It is explained by the concept of mimesis, the Greek word of imitation and representation, which has been a dominant theoretical principle in the creation of art. Polish philosopher, Wladyslaw Tatarkiewicz, listed in the comprehensive *History of Aesthetics* four major types of mimesis dating from 400 BCE that are taken up by civilisations. They are ritualistic concept (expression); the concept of Democritus (imitation of natural processes); Platonic (copying of nature); and Aristotelian (free creation

[1] Henri Neuendorf, "Japanese Art Collective TeamLab Is Bringing Its High-Tech Immersive Art Experiences to New York," *Artnet News*, July 20, 2018, accessed August 09, 2018, https://news.artnet.com/art-world/teamlab-new-york-brooklyn-1320911.

of the work of art based on elements of nature).[2] These expressions remain relevant in the visual art representation of nature from the western landscape paintings depicting natural scenery to the Chinese calligraphic Shan Shui scrolls, to Japanese landscape Ukiyo-e works. Grounded firmly in the ancient traditions of Japanese art, teamLab often reflects on the transience of life and attempts to connect people in their interactive and immersive environments. The group has also opted to display their nature-inspired works outside of galleries and museums to shopping malls, restaurants, and even to parks in the mountains. To this day, among teamLab's largest and most ambitious nature-inspired projects is their use of digitization to turn 500,000 square meters (about the size of 70 football fields) of the Mifuneyama Rakuten Park, on the northwest of Kyushu Island in Japan, into a vast wonderland.[3] These works allow visitors to wander through rice fields, surround themselves with waves, stand beneath waterfalls, chase after schools of fish, scatter trails of petals, and bounce on a galaxy of planets, without leaving the exhibition area. One thing to be found in common in all their exhibits is their use of technology to create interactive and immersive experiences where real-time animations and projections take place.

teamLab belongs to a trajectory of contemporary artists who have been creating environments that provide nature-like aesthetic experiences since the 1960s, and I propose to name them **artificial nature**. Before, the traditional aesthetic appreciation, epitomised in Kantian aesthetics, praised the subjective appreciation of a beautiful object with a contemplative and distancing attitude. However, since mid-1960, led by the American philosopher, Arnold Verleant, the concept of aesthetic engagement emerged which emphasises active

[2] Władysław Tatarkiewicz and Jean G. Harrell, *History of Aesthetics* (Lavergne, TN: De Gruyter Mouton, 2016).
[3] "A Forest Where Gods Live - Earth Music & ecology: TeamLab / チームラボ," TeamLab, - there is a contradiction here-all throughout so far you have been writing 'teamLab' with a common 't',, now here you have "TeamLab." Check which is correct and stick to it throughout.accessed August 06, 2019, https://www.teamlab.art/e/mifuneyamarakuen.

participation in the appreciative process.[4] Additionally, technology has further developed which has made the creation of highly responsive works possible. Artificial nature is based exactly on this concept where the active participation of the visitors plays a key role in the completion of these digital environments.

Famed artists who have taken up the subject matter include Fujiko Nakaya, Christa Sommerer and Laurent Mignonneau, Char Davies , Olafur Eliasson, rAndom International, and Studio Roosegaarde. Yet a few of their artificial nature have achieved the global recognition and popularity like teamLab. By analysing a selection of these environments by the above-mentioned artists, how they are created, interpreted and experienced and by comparing them to the artificial nature of teamLab, this paper aims to explain the reason behind the popularity of teamLab's artificial nature, locate the unique element that contributes to such global recognition, and infer possible effects it has on the understanding of nature in our time.

The following set of research questions is raised to guide the author in this research:

1. What is it, an artificial nature? What is it like to experience an artificial nature?
2. What cultural factors and aesthetic traditions differentiate teamLab's artificial nature from the others? How is nature appreciated when it is artificial?
3. Given the medium made available by the current technology, how does it affect the way such environments are being experienced in teamLab's case? How is nature being appreciated differently when technology is incorporated in the artworks?

[4] Arnold Berleant, "What Is Aesthetic Engagement?" *Contemporary Aesthetics*, December 30, 2013, , accessed August 06, 2019, https://contempaesthetics.org/newvolume/pages/article.php?articleID=684.

4. Comparing to previous artificial nature, what are the unique characteristics of teamLab? Is there any unique aesthetics the group developed that can be said to have underlied the production of these artificial natures?

5. If there is, how does the unique aesthetic developed by teamLab effect our understanding of nature in this current time?

Chapter 2 Literature Review

This literature review includes the following sections. First, the two key techniques, interactivity and immersion, are examined to provide a theoretical foundation and a framework within which the artificial viewing experiences will be evaluated. Additionally, recent scholarly works on the notion of participation in art, especially digital arts, have been reviewed to further provide context for this study. Second, teamLab is known to borrow concepts from traditional Japanese arts, thus literature on the Japanese perception of nature is reviewed to provide a general cultural and historical perspective of the special kind of nature teamLab is interested in with consideration to particular semantic, religious, artistic and societal perceptions. The definition of nature in a world where it is hard to find it in its real pristine form and nature as a frequent subject matter of art are also reviewed briefly. Last, the literature surrounding Japanese aesthetic concepts of interconnection and transience are surveyed because these two ancient ideals have been re-enacted repeatedly in teamLab's artificial nature.

Chapter 2.1 Interactivity, Immersion and Participation in New Media Art

The works of teamLab are most frequently referred to as digital art which Mark Tribe and Reena Jana state is often interchangeable with the other categorical terms of new media, such as "Computer art", "Multimedia art" and "Interactive art".[8] These works, often housed in an immersive environment enabled by digital technology, aim to provide a more dynamic viewing experience to visitors who can interact with the works with their presence or actions.

Interaction

[8] Mark Tribe, Reena Jana, and Uta Grosenick, *New Media Art* (Hong Kong: Taschen, 2009).

The origin of interactivity in art, according to Christiane Paul, dates back to the 1920s when Marcel Duchamp made the work *Rotary Glass Plates*.[9] The viewer had to switch on the device and observe from a distance afterwards. Without the user's input, the work would not be functioning. In her book *Digital Art* where the developments in digital art from its appearance in the 1980s to the present day are surveyed, she claimed that for this genre of art, audience participation was key. In that sense, *Rotary Glass Plates* can only be seen as an earlier attempt which was interactive in a simple sense as participation was limited to a few collaborating artists. In the 1960s, Frank Popper and Roy Ascott, among others, first abolished "the strict antinomy between action and contemplation"[10] and initiated interactive art that launched "an appeal for total spectator participation".[11] This was gradually accomplished as technologies further developed, especially with the appearance of the personal computer and the individual workstation which caused "the pace of change in interactive art to have accelerated significantly."[12] Later on in the 1990s, as a result of the computer entering people's ordinary lives, interactive art gained recognition and appeared in exhibitions in art galleries and museums. The trend continues today while many exhibitions are even dedicated entirely to interactive art.[13]

In terms of evaluating an interactive work, an important historian who has written extensively on interactive art is the artist and theorist Ernest Edmonds. He proposed, together with Cornock in 1973, that the categorization system of interactivity in art was static, dynamic-passive, dynamic-interactive and dynamic-interactive (varying).[14] These categories are still used today,

[9] Christiane Paul, *Digital Art* (New York: Thames & Hudson, 2003), 67.
[10] Roy Ascott and Edward A. Shanken, *Telematic Embrace: Visionary Theories of Art, Technology, and Consciousness* (Berkeley: University of California Press, 2007), 21-23.
[11] Frank Popper, *From Technological to Virtual Art* (Cambridge, MA: MIT Press, 2007).
[12] Ernest Edmonds, "Art, Interaction and Engagement," *2011 15th International Conference on Information Visualisation*, 2011, , doi:10.1109/iv.2011.73.
[13] Christiane Paul, *Digital Art* (New York: Thames & Hudson, 2003), 23.
[14] Stroud Cornock and Ernest Edmonds, "The Creative Process Where the Artist Is Amplified or Superseded by the Computer," *Leonardo*6, no. 1 (1973), doi:10.2307/1572419.

notwithstanding its date of the publication. Briefly put, 'Static' applied to works that do not change and 'Dynamic-Passive' to works that changed, but were not influenced by the audience; 'Dynamic-Interactive' to works that changed as a result of audience actions, and "Dynamic-Interactive (Varying)' applied to interactive works that were also influenced by other factors so that response to them varied.

In 1991, Stephan Bell invented a system to describe the characteristics of interactive artworks. It had forty identifiers which helped to provide a framework to discuss and analyse such works.[15] A much closer to date system was contributed by the V2_ Institute for the Unstable Media. Their research pinpointed several parameters to better archive and preserve electronic art activities, including time flexibility, interaction synchronicity, the interaction location, the user number, the intensity of interaction, and the sensory mode. Additionally, areas for future research were suggested to include the below parameters, the input and output of the interaction, the direction of the communication and a precise description of the user's actions.[16] These two systems – by Bell and V2_ – were adopted to provide the language needed for the description, comparison and discussion of the interactivity in teamLab's works in the later chapters of the study.

Immersion

Another word that best describes the characteristic of teamLab's media is immersive. Defined as "(of a computer display or system) generating a three-dimensional image which appears to surround the user"[17], it has been argued by many artists and historians that immersion in art is hardly a new concept, but

[15] S.C.D. Bell, "Participatory Art and Computers: Identifying, Analysing and Composing the Characteristics of Works of Participatory Art That Use Computer Technology" (Doctoral thesis, Loughborough University of Technology, 1991).
[16] "Capturing Unstable Media," *V2_Institute for the Unstable Media*, June 15, 2011, accessed August 05, 2018, http://v2.nl/archive/works/capturing-unstable-media.
[17] Immersive | Definition of Immersive in English by Oxford Dictionaries," Oxford Dictionaries | English, accessed April 24, 2018, https://en.oxforddictionaries.com/definition/immersive.

has existed as early as the cave paintings in Lascaux 17,000 years ago.[18]Due to the technical complexities and limitations of technology, the earlier immersions were achieved in the various forms of "cave paintings, petroglyphs, ancient artifacts, rituals and other forms of escapism."[19] However, it was not until the 1950s that artists and scientists started to utilise the computer to construct more ambitious immersive tools that provided a multi-sensory experience. Two of the main immersive systems originate from Virtual Reality (VR) and Cave Automatic Virtual Environment (CAVE), respectively. In 1968, the computer scientist, Ivan Sutherland, with his student Bob Spraul invented the head-mounted display system *The Sword of Damocles*.[20] Later in the 1980s, Scott Fisher furthered the design and created the Virtual Interface Environment Workstation (VIEW) which simultaneously engaged multiple senses, including vision, sound and touch, to achieve a more convincing suspension of disbelief.[21] The other system originated from CAVE[22] was created in the early 1990s by Daniel Sandin and Thomas DeFanti. Instead of having the visitors wear helmets that limited their view and mobility in the real world, the human body was directly placed inside a computer-generated environment.

Majority of the immersive environments teamLab created are based on these two archetypal immersive systems – VR and CAVE – because they do not consider incorporating cutting-edge technology as the most crucial part of their work. This was confirmed by the various interviews conducted with their members during which they stated that they often worked with rather customary technologies. Nevertheless, teamLab has successfully devised some neat and

[18] Bonnie Mitchell, "The Immersive Artistic Experience and the Exploitation of Space," in *Ideas before Their Time : Connecting the past and Present in Computer Art*, proceedings of CAT 2010, 98-107, London, February 3, 2010.
[19] Ibid, 99.
[20] Ivan E. Sutherland, "A Head-mounted Three Dimensional Display," *Proceedings of the December 9-11, 1968, Fall Joint Computer Conference, Part I on - AFIPS 68 (Fall, Part I)*, 1968, accessed April 26, 2018, doi:10.1145/1476589.1476686.
[21] "Scott Fisher | Telepresence." *Multimedia : From Wagner to Virtual Reality*, edited by Randall Packer and Ken Jordan, [expanded ed.] ed. New York: Norton, 2002.
[22] Carolina Cruz-Neira et al., "The CAVE: Audio Visual Experience Automatic Virtual Environment," Communications of the ACM 35, no. 6 (1992):, doi:10.1145/129888.129892.

novel solutions to achieve better immersion and to encourage visitor engagement, such as the largest exhibition as well as an experimental work, *A Forest Where Gods Live – Earth Music & Ecology,* with the group adjusting their digital creation to allow it to be displayed in a natural park. This will be examined in detail in Chapter 4.2.2.

Participation

Since Duchamp's early advocation of active involvement in art, artists gradually have opened up their creative process to the audience.[23] Moving away from the more defined product-driven and traiditional art genre, participatory art that focuses on the importance of participation and interaction, start to emerge and mature as a genre. It is defined, in the Manifesto for Participatory Art Practice, as "[a] form of artistic research, in which artists together with citizens seek the right artistic format that allows alternative voices and interpretations to be heard."[24] More recently, it is argued that the digital culture today, which has participation as a central and innate feature, has affected the notion of participation in the arts[25], and that digital technologies have further opened up the disciplinary boundaries of art thus contributing to art focusing more on process, participation, interaction and creation of dialogue.[26]

Especially in site-specific participatory practices, Rutten as well as scholars like Horst and Hjorth have discussed the concept of co-presence, which offers an alternative view to the relationship between artist, technology, audience and the space. New technologies become more than tools that help realize an art work,

[23] "MoMA Learning," MoMA, accessed January 25, 2020, https://www.moma.org/learn/moma_learning/themes/media-and-performance-art/participation-and-audience-involvement/)
[24] Wouter Hillaert and Sandra Trienekens, *Art in Transition. Manifesto for Participatory Art Practices.* Brussels: Demos, 2015.
[25] Kris Rutten, "Participation, Art and Digital Culture," *Critical Arts* 32, no. 3 (April 2018): pp. 1-8, https://doi.org/10.1080/02560046.2018.1493055)
[26] Dirk De Wit and Nele Samyn, *Media Art and Digital Culture in Flanders, Belgium,* Ghent: BAM, 2011

but crucial components that are "also changing our experience of place, conceptions of intimacies and interactions, and to generate new understandings of participation and collaboration."[27] When these projects take place in non-traditional art spaces and having nature as subject matter, issues about what nature has become and how it is being perceived are raised. We will examine in detail in Chapter 4 how this has been demonstrated in various practises of teamLab.

Chapter 2.2 Japanese Images of Nature: the Cultural Perspectives

"Nature" is one of the most prominent subject matters of teamLab and many of their key works take inspiration from it. Historically, nature and the nature of things have been important subjects of art. Nature is defined by the Oxford Dictionary as "the phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations."[28] In the book *Keywords: A Vocabulary of Culture and Society,* which examines the meaning of some of the most familiar and yet confusing words from a cultural approach, Raymond Williams suggests that *nature* might be one of the most complicated concepts that exists in modern English.[29] Various artistic expressions hailing nature remain relevant in the visual art from the Western landscape paintings depicting natural scenery to the Chinese calligraphic Shan Shui scrolls, to Japanese landscape Ukiyo-e works. For an artist collective that is strongly influenced by the traditional Japanese art, the Japanese perception of nature is reviewed to provide a general

[27] Peter Westenberg and Kris Rutten, "'Do You Speak My Neighbourhood?' Language, Technology, and Proximity," *Critical Arts* 31, no. 2 (April 2017): pp. 110-126, https://doi.org/10.1080/02560046.2017.1355399)
[28] "Nature | Definition of Nature in English by Oxford Dictionaries," *Oxford Dictionaries | English*, accessed May 24, 2018, https://en.oxforddictionaries.com/definition/nature.
[29] Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (New York: Oxford University Press, 1983), 184.

cultural and historical perspective in order to help in the understanding of the concept of nature in teamLab's creation.

Chapter 2.2.1 Are Humans a Part of Nature?

One major issue that contributes to the complexity of the term 'nature' is whether humans should be considered as an integral part of it. There are three major views. First, historically the Western world views people as superior to animals and other things, as documented in the Bible[30] and the writings of William H. Ittelson, Roderick Nash and Yi-fu Tuan[31]. Secondly, humans, to varying degrees, regard nature as something much bigger than themselves, to which we must "adapt, bend, and be respectful"[32]. Thirdly, humans are seen as an intrinsic part of nature, the same way as animals, trees and flowers, thunder and lightning and this view is best illustrated by oriental philosophy and religions.

The Japanese are generally considered to uphold the third opinion, that people are not the centre of a natural universe; thus, one cannot impose oneself on nature, but flow with it, be part of it, understand its changing patterns, and work within its boundaries. However, humans and nature in symbiosis do not necessarily ensure a harmonious cohabiting relationship. From the beginning of the 20th Century to the 1960s, a number of man-made diseases caused by industrial wastes, such as the mercury poisoning, were discovered in Minamata Bay in 1956. This brought about a serious deterioration in the country's environment and some of these matters remain important issues in contemporary Japanese society. Japan for many years has also remained an

[30] Genesis 1:28: "The first commandment of God to man stated that mankind should increase, conquer the earth, and have dominion over all living things" Roderick Nash and Char Miller, *Wilderness and the American Mind* (New Haven: Yale University Press, 2014), 3

[31] These scholars have also pointed out that the scientific and industrial revolution of the past 200 years further perpetuated these views

[32] Irwin Altman and Martin M. Chemers, *Culture and Environment* (Cambridge: Cambridge Univ. Press, 1993), 18.

active participant in commercial whaling. The lack of environmental consciousness reminds us not to generalise about this complex attitude, but to carefully examine it.[33]

From the semantic perspective, the widely agreed Japanese term for nature, *shizen* 自然, does support such belief. Borrowed from the Chinese about 1500 years ago[34], the word originated from the writings of the 6th-century BC sage Laozi 「人法地，地法天，天法道，道法自然」[35]: "Man learns from earth, earth learns from heaven, heaven learns from Dao, and Dao learns from Ziran."[36] Shizen, as the fundamental law, above Dao (the way things are), governs both the inanimate and man. Even before the above terms were introduced to Japan, *onozukara* 自ずから (what-is-so-of-itself) and *mizukara* みずから (oneself) which are still used in modern Japanese, denote the unity of nature and self.[37] Nature and humans, the two in Japan, were ontologically and conceptually intertwined.

Similarly, the two major religions in Japan, Shinto and Buddhism, teach humans to live in harmony with nature. Buddhism[38] was introduced to Japan through China and Korea in 552 CE[39] and which still has a major impact on the

[33] David Cyranoski, "Japanese View of the Natural World," *Nature* 466, no. 7310 (2010): , doi:10.1038/4661046a.
[34] J. Baird. Callicott and Roger T. Ames, *Nature in Asian Traditions of Thought: Essays in Environmental Philosophy* (Albany: State University of New York Press, 2001), 153-154.
[35] Laozi, "Chapter 125," in *Dao De Jing* (London: Penguin, 1999).
[36] Author's translation.
[37] Hubertus Tellenbach and Bin Kimura, "Some Meanings of the Concept "Nature" in European Vernacular Languages and Their Correspondences in Japanese," *International Philosophical Quarterly* 19, no. 2 (1979): , doi:10.5840/ipq19791923.
[38] I don't intend to distinguish the difference in the teachings of the different schools here, but base my discussion in Mahāyāna Buddhism, the main branch of religion that is prevalent in Japan.
[39] As documented in *Nihon Shoki* (*The Chronicles of Japan*) - the second-oldest book of classical Japanese history. Richard John Bowring, *The religious traditions of Japan, 500–1600,* (Cambridge, UK: Cambridge University Press), 2005, 16–17.

development of Japanese society and the shaping of its culture.[40] When the Buddha became enlightened, he realised that all sentient beings, without exception, have the same nature and potential for enlightenment. This is known as Tathagatagarbha, commonly translated as the Buddha nature or Busshō.[41] Zen master Dōgen, who is arguably Japan‘s profoundest philosopher, preached that Enlightenment could be achieved by observing natural phenomena.[42] Shintoism, as old as Japanese culture itself, remains Japan's major religion alongside Buddhism. The ancestors of Japan understood nature as a "generative...vital force" which connotes the sense of harmoniously creating and connecting.[43][44] Trees, flowers, thunder and lightning were thought to be sanctified by the divine forces[45] known as *kami* - the Japanese word for a god, deity, divinity, or spirit.[46] Rituals of purification (harae 祓い) are performed to remove the dirtiness of the artificial world from men to re-establish balance between nature, humans and kami.[47] Thus, in the view of Shintoists and to the ancient Japanese, to be in close contact with nature and to worship natural objects is to be close to kami which is considered a sacred act.

However, the belief of humans being a part of the nature does not represent how everyone perceives nature in Japan. The interpretations to one key

[40] "Buddhism in Japan," Wikipedia, May 25, 2018, accessed May 27, 2018, https://en.wikipedia.org/wiki/Buddhism_in_Japan.
[41] "Buddha Nature and Zen : Origin and Representation in Japanese Architecture by Prof. Wong Wah Sang," Chikhai Bardo: The Primordial (Clear Light) and the Awareness-Body - Chinese Buddhist Encyclopedia, accessed May 28, 2018.
[42] Dōgen and Thomas F. Cleary, *Shōbōgenzō: Zen Essays* (Honolulu: University of Hawaii Press, 1986).
[43] Simon Blackburn, The Oxford Dictionary of Philosophy (Oxford: Oxford University Press, 2016), 338.
[44] Shinto Purification Rituals - Part I, accessed May 28, 2018, https://jhti.berkeley.edu/shinto/part1.html.
[45] "Shinto," The Metropolitan Museum of Art, I.e. The Met Museum, accessed January 25, 2018, https://www.metmuseum.org/toah/hd/shin/hd_shin.htm.
[46] See Kōdansha, *Kodansha Encyclopedia of Japan*. Tokyo (New York, N.Y., 1983); Kanji details - Denshi Jisho". 2013-07-03. Archived from the original on July 3, 2013, accessed May 2, 2017.
[47] "SHINTO," *Home Page of the Religious Tolerance.org*, accessed May 27, 2018, http://www.religioustolerance.org/shinto.htm.

philosophical term, *Kaibutsu* 开物, shows a completely opposite human-nature relationship in Japan exemplified by an active engagement with nature. Kaibutsu, an ancient Chinese philosophy that traces back to *I Ching*[48], means literally "opening up of things". Scholars, such as Saigusa Hiroto and Tessa Morris-suzuki, have pointed out that it could either be interpreted as "exposing the essence of things" or "making use of the natural world".[49] Initially, the rural philosopher and botanist, Kaibara Ekiken 貝原 益軒 (1630-1714), remarked that a more comprehensive apprehension of the workings of nature helped to improve agricultural activity, and would make society better off.[50] These beliefs were further developed in Miyazaki Yasusada's writings on agricultural techniques. He advocated that human beings help nature fulfil the purposes of itself by the application of agricultural knowledge and techniques to the natural environment (i.e., by seed selection, grafting trees, applying fertiliser, and so on).[51] Later on in the 19th century in Japan, the notion of kaibutsu was extended further by Satô Nobuhiro (1769–1850), a scientist and politician, and Hiraga Gennai (1728-1780), a polymath, to provide philosophical support to take advantage of the most of the resources provided by nature. The expansion was not limited to agriculture, but also included the production of textiles, metals, paper and ships in addition to the brewing of wines and beers, as well as mining as a means of tapping into the potential wealth of nature.[52]

[48] Also known as Classic of Changes or Book of Changes, is an ancient Chinese divination text and the oldest of the Chinese classics.
[49] Hiroto Saigusa, *"Nihon no chisei to gijutsu"*, (Tokyo: Chuo Koronsha, 1973).
[50] Federico Marcon, *Knowledge of Nature and the Nature of Knowledge in Early Modern Japan* (University Of Chicago Pres, 2017).
[51] Miyazaki Yasusada wrote, "of all the myriad creatures of heaven, none is more esteemed than human beings. This is because human beings have inherited the spirit of heaven - a spirit which cares for and nurtures all creatures under heaven. *East Asian History* (Canberra /: Australian National University, Institute of Advances Studies, 1991), 85.
[52] Tessa Morris-Suzuki, *Re-inventing Japan: Nation, Culture, Identity* (1998).

Chapter 2.2.2 Nature as Process

When the Japanese refer to nature, it should not be regarded as a static or an absolute moment, instead, the concept often entails the sense of a process, a situation that is always changing. For example, when 'ume' (often translated as 'plum' in English) is mentioned to a Japanese, not only the images of the fruits emerge in his or her mind, but also ume blossoms in the early spring fighting cold and frost, as well as the sweet, sour taste and aroma of umeshu, a drink made by soaking ume fruits. Similarly, speaking about *momiji* (maple leaves), a Japanese will think about the process of how the leaves catch the autumn colours, turning from green to orange and gradually red.

Japanese has a keen awareness of the seasons. It is common to witness, in Japan, as the season changes, the menus in many restaurants as well as the commercial advertisements and packages adopt the motifs of the time. In the traditional Ukiyo-e paintings, master Utagawa Hiroshige, in his renowned series *Fifty-three Stations of the Tokaido Raid*, represented all four seasons, despite his actual tour to those places took place only during the summer and the spring.[53] For the Japanese, the four seasons signify the ever-changing cycle of birth, growth, decline and death, and they are always repeated and returned to.[54] Many scholars believe that this perhaps originated from the country being an agrarian society that instinctively adjusted itself to live according to the rhythms of nature.[55]

Going back to Laozi's statement[56] that introduced the term 'shizen' to Japan, it can be seen that the term is also explicitly defined as the fundamental law that

[53] "The Fifty-three Stations of the Tōkaidō," Wikipedia, April 27, 2018, accessed May 28, 2018, https://en.wikipedia.org/wiki/The_Fifty-three_Stations_of_the_Tōkaidō.
[54] Santo Yuriko, "The Japanese Appreciation of Nature," *British Journal of Aesthetics,* Vol. 25, No.3 (Summer 1985), 248
[55] C.W Nicol et al., *Japan: The Cycle of Life* (Tokyo: Kodansha International, 1997), 235-244.
[56]「人法地，地法天，天法道，道法自然」: "Man learns from earth, earth learns from heaven, heaven learns from Dao, and Dao learns from Ziran."

governs everything and implies that all phenomenon should follow their natural inclination, being as it is.

Chapter 2.2.3 Nature as Subject Matter of Art

"Nature" is one of the most prominent subject matters of teamLab and many of their key works take inspiration from it. One of the earliest cultural forms of nature, as the German art critic Volker Adolphs sees it, is the garden as a Paradise theme, an area set apart from the surrounding wilderness and desert, in which man develops and cultivates the abundance of nature.[57] The ancient cave art, like the ones in the Cave of El Castillo in Spain dating at around 40,000 years, depicted mostly animal figures generally considered to be of a symbolic or religious function, or maybe both. Even though much of their exact meanings remain unknown, some experts consider them to have been created for shamanic beliefs and practices.[58] Landscape paintings are also good examples of human's depiction of nature. Natural landscape as an art subject in both Western painting and Chinese art also go back well over a thousand years in both cases. In the West, the earliest "pure landscapes" without human figures were done in the form of ceiling frescos around 1500 BCE in Minoan Greece.[59] [60]In the East, there are "shan shui" (mountain and water) paintings which are called "China's greatest contribution to the art of the world" by art historian Sickman[61]. It is said to be "a theme unvarying in itself, but made the vehicle of infinite nuances of vision and feeling."[62] Initially nature as subject matter in

[57] *Gardens, Knowledge and the Sciences in the Early Modern Period*, edited by Hubertus Fischer, Volker R. Remmert and Joachim Wolschke-Bulmahn, (Switzerland: Birkhäuser, 2016).
[58] "Prehistoric Cave Painting (40,000-10,000 BCE)," *Cave Painting, Prehistoric: Characteristics, Origins, Types,* accessed August 07, 2018, http://www.visual-arts-cork.com/prehistoric/cave-painting.htm.
[59] Mark Cartwright, "Minoan Frescoes," *Ancient History Encyclopedia,* May 29, 2012, accessed August 07, 2018, https://www.ancient.eu/article/390/minoan-frescoes/.
[60] Hugh Honour and John Fleming, *The Visual Arts: A History* (Harlow: Pearson Education, 2011), 53.
[61] Laurence Sickman, *The Art and Architecture of China* (New Haven: Yale University Press, 2001), 182.
[62] William Watson, *Style in the Arts of China*, (Penguin, 1974), 72.

Japanese art history has shown much similarity to that in China. Gradually, the Japanese developed their unique style, e.g. ukiyo-e (coloured woodblock prints) which japanese art masters Hokusai and Hiroshige excelled in, depicting travels scenes and pictures of nature, especially birds and flowers. Hokusai, bold in his usage of colour, popularised the landscape genre with *Thirty-six Views of Mount Fuji,* which includes his best-known print *The Great Wave off Kanagawa.*[63] Considered Hokusai's greatest rival, Hiroshige has displayed a more realistic, subtly coloured and atmospheric aesthetics in his depiction of birds and flowers and serene landscapes.[64] Nature and the seasons were key elements as mist, rain, snow, and moonlight were prominent parts of his compositions.[65] In the 1960s and 1970s, contemporary artists were drawn to the natural environment and largely turned their backs on the city. They embraced the context and inspiration offered by the natural environment, and worked in the landscape and made use of the materials and processes of nature. For instance, Land art, also known as Earth art, is often made directly in the landscape, sculpting the land itself into earthworks. An example is seen in the monumental earthwork *Spiral Jetty* by American artist Robert Smithson and which is the artist's rejection of the idea of a work of art as a commodity that is bought and sold in a gallery or museum.[66] It is also interpreted as the artist's wish to reconnect with the environment.

Nature in a broad sense has also found its expression in some unique forms of art in Japan,[67] including Nihon teien (Japanese garden), Bonsai (miniature trees), Ikebana (flower arrangement), Chanoyu (tea ceremony), Haiku (poems)

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[63] "「富嶽三十六景　神奈川沖浪裏」," *The Metropolitan Museum of Art,* accessed August 07, 2018, https://www.metmuseum.org/art/collection/search/60013238.
[64] "『諸國六玉川』," *The Metropolitan Museum of Art,* accessed August 07, 2018, https://www.metmuseum.org/art/collection/search/53449.
[65] Hugo Munsterberg, *The Arts of Japan, an Illustrated History* (Tokyo: C.E. Tuttle, 1962), 158-159.
[66] "Robert Smithson, Spiral Jetty," *Dia Art Foundation*, accessed March 07, 2019, https://www.diaart.org/visit/visit/robert-smithson-spiral-jetty.
[67] "Japan's Natural Arts," *Taiken Japan*, accessed August 08, 2018, https://taiken.co/single/japans- natural-arts.

as well as the art of cookery.[68] The essence of nature seen in "flowers, trees, plants or animals and even insects", is symbolised and celebrated by these unique art forms.[69] For example, while creating Ikebana, known as the Japanese "Way of the Flower", the practitioner needs to listen to "each flower, leaf and branch" and let the materials dictate where they are to be placed.[70] Additionally, this nature also provides a spiritual sanctuary for the purposes of contemplation and meditation,[71] particularly the Nihon teien which is designed "to be toured mentally with the eye rather than with the legs."[72] Also, the fact that many of these art forms include living materials that are growing and changing, they reflect the Shinto and Buddhist worldviews which embrace the fleeting beauty, the aesthetics of transience.

In view of these unique expressions of nature in art, many Japanese and Western scholars have argued that the nature appreciated by most Japanese is not necessarily the wild and sublime nature, but often the idealised and cultivated version of it.[73] Saito pointed out that the gentle and intimate elements of nature are chosen over the devastating natural disasters when it comes to the selection of subject matters for appraisal in literature and the visual arts.[74] Royall Tyler, a scholar and translator of Japanese literature, also supported his argument by saying that the attitude towards wilderness in Japan could be

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[68] M. Watanabe, "The Conception of Nature in Japanese Culture," *Science* 183, no. 4122 (1974): doi:10.1126/science.183.4122.279.
[69] Charlotte Jirousek, *The Language of Design*, An Interactive Textbook, 1995, accessed August 8, 2018, http://char.txa.cornell.edu/.
[70] Shōzō Satō, *The Art of Arranging Flowers: A Complete Guide to Japanese Ikebana* (New York: Harry N. Abrams, 1966).
[71] David E. Young and Michiko Young, *The Art of the Japanese Garden: History, Culture, Design* (Tokyo: Tuttle Publishing, 2011).
[72] "Chapter 6: The Contemplation Garden", *Japanese Gardening | Karesansui Pulling the Rake,* Accessed August 08, 2018, http://www.japanesegardening.org/site/contemplation-garden/.
[73] See Ian Buruma, *A Japanese Mirror: Heroes and Villains in Japanese Culture* (London: Phoenix, 2001); Yuriko Saito, "The Japanese Appreciation Of Nature," *The British Journal of Aesthetics* 25, no. 3 (1985): doi:10.1093/bjaesthetics/25.3.239; Kalland Arne, "Culture in Japanese Nature," in *Asian Perception of Nature: A Critical Approach* (1995).
[74] Ibid

compared to the way they regard 'uncultivated' people.[75] Unlike in the West, where nature usually entails pristine places where human interventions are minimal, it seems when referring to nature in Japan, both the pristine and controlled fall under the category of "nature."

In a world where there is almost no place that the seven billion-plus population has not reached, the environmental and ecological studies have acknowledged that Anthropocene activities have made pristine nature an obsolete concept. Justin Adams, global managing director for lands at the Nature Conservancy, attested that humans are "undoubtedly influencing the entire planet...So on one level, there's nowhere left on Earth that's not touched by man."[76] Richard Hobbs, an ecologist at the University of Western Australia, mentioned that non-pristine places like parks often are "more accessible than so-called pristine areas, and, hence, are the ones that humans will interact with – and likely value – most."[77] Thus, it would be a mistake to praise pristine wilderness over all other elements of nature. Therefore, for this thesis, the notion of nature was broadened to include that which has been influenced and altered by human activities as well as that which was mediated by technologies as an extension of nature, forming the notion of nature in *Artificial Nature*.

In summary, teamLab shares the general Japanese belief that people are not the centre of a natural universe, that one cannot impose oneself on nature, but flow with it, be part of it, understand its changing patterns, and work within its boundaries. However, considering that the Japanese attitude towards nature is a very complex one, it cannot be generalised, but would need to be carefully examined. For this reason, three particular cases of teamLab will be examined

[75] Royall Tyler, "Kōfuku-ji and Shugendo," *Japanese Journal of Religious Studies* 16, no. 2-3 (1989): , doi:10.18874/jjrs.16.2-3.1989.143-180.
[76] Rachel Nuwer, "Future - There's No Such Thing as Truly 'pristine' Nature Anymore," *BBC,* February 08, 2016, accessed March 07, 2019, http://www.bbc.com/future/story/20160208-theres-no-such-thing-as-truly-pristine-nature-anymore.
[77] Richard J. Hobbs and Denis A Saunders, *Reintegrating Fragmented Landscapes Towards Sustainable Production and Nature Conservation, (*New York, NY: Springer, 1993).

in Chapter 4 to find out what nature entails in each of them. Additionally, nature in Japan is not regarded as something fixed and definite, but dynamic, evolving and progressive. With the above in mind, this study is built on the argument that the nature appreciated by most Japanese, including teamLab, belongs to a broader notion of nature where not only the wild and sublime can be found, but also the idealised, cultivated and artificial versions of it.

Chapter 2.3 Japanese Aesthetics of Interconnection and Transience

The Japanese aesthetic is a set of ancient ideals that underpins much of Japanese cultural and aesthetic norms of what is considered beautiful. As a result of its historically integrated art, aesthetics, ethics and religion, the concept of aesthetics in Japan is seen as an integral part of daily life.[78] As a group formed mostly by Japanese members, much of teamLab's digital creation is intend to convey two key aesthetics – interconnection and transience. These two concepts, thus, entail great cultural depths which can be interpreted through examining the traditional aesthetics.

Interconnection

One of the key concepts teamLab sets out to convey can be summarised as interconnection, which is defined as "a mutual connection between two or more things" in the *Oxford Dictionary*, and corresponding to the Buddhist concept of Interdependent Co-arising. Coming from the Assutava Sutta, Samyutta Nikaya 12.2, Interdependent Co-arising is explained to be the principle that all dharma ("phenomena") arise in dependence upon another dharma, which is to say "if this exists, that exists; if this ceases to exist, that also ceases to exist".[79] This Buddhist teaching of interconnection inspired a traditional act of drawing ensō,

[78] Mara Miller, "Teaching Japanese Aesthetics," Polybius at The Clickto Network, , accessed August 04, 2018, https://web.archive.org/web/20081202060957/http://www.aesthetics-online.org/articles/index.php?articles_id=3.
[79] Assutavā Sutta (The Discourse on the Uninstructed), Thanissaro Bhikkhu trans, 2005, 12.2.

a traditional and spiritual practice of drawing a circle which represents the exploration of "beginning, middle and end" of all things, the circle of life, and the interconnectedness of all existence.[80] The act of drawing Enso is also re-enacted in teamLab's "spatial calligraphy" series which displays the brush stroke suspended in space and being viewed from different angles. It is the digital reconstruction of the traditional Enso drawing in three-dimensional space, expressing the depth, speed and power of the brush stroke.

1. Hakuin Ekaku(白隠 慧鶴), *Circle Ensou (円相) and poem,* mid Edo period, early 18th century C.E.

[80] "Enso," *Modern Zen*, accessed April 26, 2018, https://www.modernzen.org/enso/.

2. teamLab, *Ensō,* 2017

Transience

The concept of transience is deeply rooted in the ancient Japanese belief, *mujō*. Usually translated to "transience" or "impermanence" in English, *mujō* is explained and documented as early as in the writings of the thirteenth-century Zen master Dōgen,[81] arguably Japan's most profound philosopher. A Buddhist priest, Yoshida Kenkō, explained it in *Essays in Idleness* by saying that no matter how young and strong one can be, death is closer than one expects, thus, providing further aesthetic insights to the theme of the impermanence of life. He stated that the fact that we are living today is a miracle and we shouldn't have even "the briefest respite in which to relax."[82] Additionally, Parkes has

[81] Dōgen, Kazuaki Tanahashi, and Peter Levitt, *The Essential Dogen: Writings of the Great Zen Master* (Boston: Shambhala, 2013).
[82] Kenkō Yoshida and Donald Keene, *Essays in Idleness: The Tsurezuregusa of Kenkō* (New York: Columbia University Press, 1998).

pointed out that transience is a key theme in Japanese art history.[83] Another concise and powerful statement that manifests *mujō* is used to start *The Tale of Heike*, an important ancient piece of literature about the civil wars of 1185 that destroyed the power of the court.[84] This is the mujō statement in the first chapter of the ancient chronicle.

> *"The bell of the Gion Temple tolls into every man's heart to warn him that all is vanity and evanescence. The faded flowers of the sala trees by the Buddha's deathbed bear witness to the truth that all who flourish are destined to decay. Yes, pride must have its fall, for it is as unsubstantial as a dream on a spring night. The brave and violent man - he too must die away in the end, like a whirl of dust in the wind."*

The Western scholar, Peter Ackermann, also pointed out that to understand the law of nature, one needs to grasp the basic concept of change - mujō.[85] According to this view, the sheer brevity of one's own life, the fragility of all existence elevates and reinforces our perception of beauty. The finite time all beings possess is subject to the never-ending and unpredictable changes; therefore, the realization of the bittersweet impermanence is imbued with a sense of grief, and is yet capable of recognizing the beauty of change in itself.

The review on concepts, like interconnection and transience, elucidates the unique aesthetics that is informed by Japanese religious and philosophical ideas. teamLab use technologies to connect with contemporary audience, however it is important to note that the concerns in their work are based exactly on these two Japanese aesthetic concepts, which have developed over the course of thousands of years and still remains relevant.

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[83] Graham Parkes, "Japanese Aesthetics," *Stanford Encyclopedia of Philosophy*, October 10, 2011, accessed August 08, 2018, https://plato.stanford.edu/entries/japanese-aesthetics/.
[84] Hiroshi Kitagawa and Bruce T. Tsuchida, *The Tale of the Heike = Heike Monogatari* (Tokyo: Univ. of Tokyo Press, 1990), 5. This ancient chronicle was as an oral text originally, being recited around the country by blind minstrels.
[85] Pamela J. Asquith and Arne Kalland, "Japanese Perceptions of Nature, Ideals and Illusions," in *Japanese Images of Nature: Cultural Perspectives* (Richmond, Surrey: Curzon, 2004), 45-48.

Chapter 3 Methodology

This chapter discusses the research design, methods of the study and the data acquired. The purpose of this qualitative study is to reveal the phenomenon of artificial nature – manmade technology mediated environments that provide nature-like aesthetic experiences - in new media art and explore the peculiarity of teamLab's creation comparing to others. Furthermore, the study aspires to provide a relevant investigative approach to study digital media art of a similar discipline. Sharan B. Merriam defines a qualitative case study as "an intensive, holistic description and analysis of a single entity, phenomenon or social unit."[86] Besides this, a case study is supposed to be "particularistic, descriptive, and heuristic", thus, being able to illuminate a phenomenon.[87] Therefore, for this study, the case study method was adopted and three representative instances of artificial nature created by teamLab were chosen to reflect on this genre of artwork. The examples of artificial nature chosen consisted of one artwork, one exhibition and one dining experience. This study employed the in-depth interview method for data collection to reveal the effect play has in the production and exhibition process of teamLab's artificial nature. Face-to-face interviews were conducted with key members of teamLab and their gallerists in Singapore and Japan. Electronic interviews were used to follow up with some of them to provide a further context for facilitating the answering of the research questions.

[86] Sharan B. Merriam, *Qualitative Research and Case Study Applications in Education: Revised and Expanded from Case Study Research in Education* (San Francisco: Jossey-Bass, 1998), 27.
[87] Ibid, 29.

Chapter 3.1 Historical Context of the Study

The exploration of nature in art has seen endless forms and expressions and still remains a great inspiration for global artists because it provides such an abundance of inspiring phenomena. In the 1960s, there was a growing interest among visual artists, dancers, and composers in applying new technology and the new technical materials generated by rapid technological developments to artistic creations.[88] Initiated by Billy Kluver, a research engineer at Bell Telephone Laboratories, Experiments in Art and Technology (E.A.T.) was founded to connect the well-educated engineers and scientists with the general developments in contemporary art and culture in New York at the time.[89] Expo 70, the world fair, was held in Osaka, Japan in 1970, showcasing the latest technology, design and architecture of the world's culture and innovations. As the first expo hosted in Asia, themed "Progress and Harmony for Mankind", Expo 70 was hosted by Japan together with 76 nations (plus a British Crown Colony − Hong Kong), as well as three American states and one German city.[90] To present daring designs, concepts and technological skills, E.A.T. built the Pepsi Pavilion, an experimental immersive dome with a fog sculpture by Fujiko Nakaya exploring real-time interaction between spectators and the environments. It was considered as the pinnacle of E.A.T.'s activities. Since then, following such trends, artificial natures were also observed to incorporate technologies that were innovative in their times, setting themselves apart from the more traditional nature inspired art forms, such as landscapes paintings, historical earth/land art and many other environmental art. Within this context, the projects of teamLab were selected to be studied for their remarkable degree

[88] Julie Martin, "A Brief History of Experiments in Art and Technology," *IEEE Potentials* 34, no. 6 (2015): , doi:10.1109/mpot.2015.2443897.
[89] Ibid, 14.
[90] Culture Trip, "Expo 70 Osaka: A Futuristic Experience," *Culture Trip,* November 06, 2013, accessed May 07, 2019, https://theculturetrip.com/asia/japan/articles/expo-70-osaka-a-futuristic-experience/.

of interactivity and immersion when compared to their predecessors from the 60s to recent years.

Chapter 3.2 Selected artworks

A method of criterion sampling based on the purposeful sampling approach detailed by educational psychology researcher John Creswell and Merriam[91] was used. Purposeful sampling, as Merriam describes it, is the method of non-probability sampling "based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned".[92] Furthermore, Merriam states that purposeful sampling usually occurs before the data are gathered, and includes two features:

> *Purposeful sampling as outlined earlier is used to select the sample within the case, just as it is used to select the case itself. However, a second set of criteria is usually needed to purposefully select whom to interview, what to observe, and which documents to analyze.*[93]

Three elements that are innate in all artificial nature by teamLab are the usage of technology, the rich cultural reference in the works and the exploration of exhibiting in untraditional venues. By adopting Merriam's concept of purposeful sampling, the three selected artificial nature representations in this study had to demonstrate a strong indication of the above-mentioned elements in their construction process and in the final display.

In addition, this study employed purposeful sampling strategies for case studies which "employ maximum variation as a sampling strategy to represent diverse

[91] Merriam, *Qualitative Research,* 77-81.
[92] Ibid, 71.
[93] Ibid, 100.

cases and to fully describe multiple perspectives about the cases".[94] The three selected works in this study were designed for completely different spaces and to target different audiences. *Sketch Aquarium*[95] was designed for a traditional art exhibition space, like a gallery or museum setting, and intended to mainly attract young children as visitors. *Mifuneyama Rakuten* is essential located in a natural park with focuses on blurring the boundaries of artificial and non-artificial nature. *MoonFlower Sagaya Ginza*[96] brings artificial nature to a fine dining restaurant. This purposeful criterion sampling of artificial nature that interacts with and immerses visitors respond directly to the set of research question, intending to pinpoint the secret sauce that sets teamLab's artificial nature apart from other artistic creation.

Chapter 3.3 Type of Study

This is a multi-case research which takes on the structure dictated by the set of research questions that were to be answered. Three cases of artificial nature by teamLab were selected according to the purposeful sampling strategies described in the earlier section. To collect data, interviews were conducted in person and by emails with three members of teamLab who were proficient in English, as well as preliminary conversations were held with the dealers of teamLab in English and Mandarin. The main interviewees were:

- Takuya Takei: teamLab Asia Regional Director
- Adam Booth: teamLab Artistic Director
- Kazu: teamLab Catalyst
- Ikkan Sanada: Art Dealer for teamLab
- Emma Cheng: Associate Director at Pace Beijing

[94] John W. Creswell and Cheryl N. Poth, *Qualitative Inquiry and Research Design: Choosing among Five Approaches* (Los Angeles: SAGE Publications, 2018), 129.
[95] "Sketch Aquarium: TeamLab / チームラボ," *teamLab.art*, accessed August 07, 2018, https://www.teamlab.art/w/aquarium.
[96] "MoonFlower Sagaya Ginza, Art by TeamLab, Tokyo: TeamLab / チームラボ," teamLab, accessed August 07, 2018, https://www.teamlab.art/e/sagaya.

The interviewer, also the researcher, according to Merriam, was "the primary instrument of data collection and analysis".[97] A series of unrestricted and exhaustive interviews were conducted with teamLab members to find out the role of play in their artificial nature. During the entire process, as a passive observer, the researcher's observation of the activities did not influence any member of teamLab, thus, the researcher was not involved in the creation process of any of the three selected artworks.

Chapter 3.4 Data Collection

For data collection, face-to-face and email interviews were used in this study. The use of both in-depth and episodic interviews was adopted to collect the data. The most important feature of an in-depth interview, as described by the American scholar Irving Seidman, is "an interest in understanding the lived experience of other people and the meaning they make of that experience".[98] To convey such interest of the interviewer to the reader, Seidman pointed out that the researcher has to "present the experience of the people he or she interviews in compelling enough detail and in sufficient depth that those who read the study can connect to that experience, learn how it is constituted and deepen their understanding of the issues it reflects".[99] As for the episodic interview method, this study combined the features of both the semi-structured and the narrative interview. As German scholar Uwe Flick explained, the episodic interview "starts with episodic-situational forms of experiential knowledge" and "yields context-related presentations in the form of a narrative".[100] The episodic interview, as utilised in this study, provided access to the artists' own views about the role of play in their artificial nature.

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[97] Svend Brinkmann and Steinar Kvale, *InterViews: Learning the Craft of Qualitative Research Interviewing* (Los Angeles: Sage Publications, 2015), 134.
[98] Irving Seidman, *Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social Sciences* (New York, NY: Teachers College Press, 2019), 9.
[99] Ibid, 51.
[100] Uwe Flick, *An Introduction to Qualitative Research* (Los Angeles: SAGE, 2019), 185-186.

The interviews were also intentionally semi-structured to explore new knowledge in a flexible and fluid way, as Merriam suggests:

> *"The largest part of the interview is guided by a list of questions or issues to be explored, and neither the exact wording nor the order of the questions is determined ahead of time. This format allows the researcher to respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic."*[101]

Interviews in this study were also particularly designed to probe interviewees' subjective experiences. (e.g., Dr. Adam Booth as the main brain behind the work *Sketch Aquarium* had his interview questions altered to focus on that project). "Abstractive relations" in the interviewees' responses to their past experiences were also taken into consideration when the questions were being designed. For example, Dr. Adam Booth was asked "what are some of your inspirations that informed the appearance of these animals in *Graffiti Nature*.

Chapter 3.5 Data Analysis

To answer the research questions, two stages of data analysis - within-case analysis and cross-case analysis - were done. Starting with within-case analysis, Merriam suggested that "each case is first treated as a comprehensive case in and of itself"[102]. Therefore, data were collected to provide abundant contextual information that would contribute to the overall understanding of the case. In this study, to provide an independent and close examination of each selected artificial nature, the within-case analysis examined the artworks and visitor behaviours and the collected interview data, including the email interview responses, the verbatim transcriptions of the face-to-face interviews as well as the interview records available online. For each case, firstly, the artwork was

[101] Merriam, *Qualitative Research,* 90.
[102] Ibid*,* 234.

reviewed comprehensively covering its subject matter, the intended message, the impression it left on the visitors, and the exhibition venues. Secondly, characteristics of the nature being represented were closely examined with respect to the cultural, historical and aesthetic perspective of the Japanese society or people. Lastly, the author attempted to pinpoint one aesthetic principle that guides the artificial nature by teamLab. Next, this qualitative case study research moved to the next stage - cross-case analysis - which Merriam noted was to be used to unify "categories, themes, or typologies" and, thus, offered "an integrated framework covering all cases" and built "abstractions across cases".[103]

Chapter 4 Artificial Nature

The exploration of nature in art has seen various forms, expressions and remains a source of great inspiration for global artists, because it provides us with such an abundance of inspiring phenomena. Since the end of WWII, technological advancement has enabled many artists to start working with tools that differentiated them from their predecessors, who worked on traditional genres, such as the landscape painting, or the land-art movement. This has given birth to a genre of works that can evoke nature-like aesthetic experiences within a mixed-reality installation. The researcher proposed to name them "artificial nature". As discussed in Chapter 2, we are currently in a post-natural era, a time where the scope of nature is forcibly broadened to include environments that are influenced and altered by human activities, as well as those that are mediated by technologies. An understanding of artificial nature, the artists' creation is salient. So how may the very category of artificial nature affect the human perception of nature?

[103] Ibid, 234.

The following chapter will review a selection of these types of works, created by global artists, assessing the extent of their similarities with, and possible influences upon teamLab, whose creations also fall under such a category. It also provides an overview of the degree of pervasiveness of artificial nature in this post-natural era.

Chapter 4.1 Artificial Nature as a Pervasive Phenomenon in the Art World

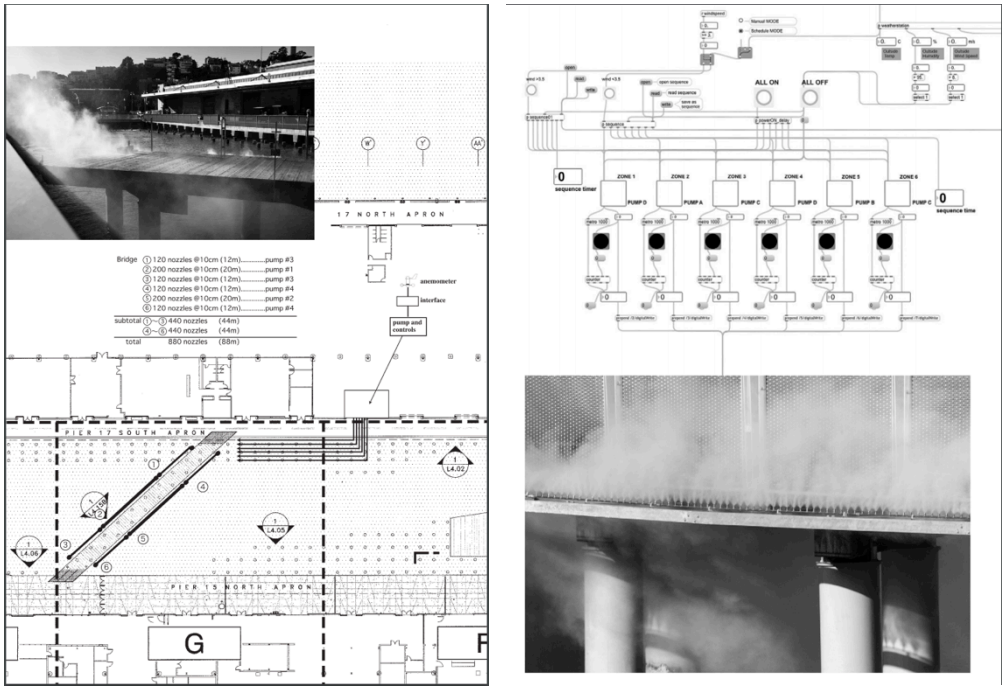
5. Pepsi Pavilion *Fog Sculpture* (1970) installation view at EXPO '70, Osaka.

In the Expo' 70 at the world's fair in Osaka Japan, Japanese artist Fujiko Nakaya presented her first fog sculpture, an ephemeral art installation that featured synthetic fog around The Pepsi Pavilion.[104] Fog, which she considers as a medium for the transmission of light and shadow, possesses the power to

[104] Uncube, "All You Can E.A.T.," *Uncube Magazine,* July 14, 2014, accessed March 09, 2019, http://www.uncubemagazine.com/blog/13753251.

transform landscapes, as it is “the breathing of the atmosphere”, as described by Japanese poetry.

As a medium that exists between the realms of space, movement, reflexivity, and time, in the artist’s hands, fog forms a transcending environment where humans and animals are simultaneously onlookers and elements within. Since that first project, Nakaya has created more than 80 fog gardens, falls, and hot springs all over the world, including the Guggenheim Museum in Bilbao, the Nakaya Ukichoro Museum of Snow and Ice in Ishikawa, the Australian National Gallery in Canberra, and the Jardin de L'Eau in the Parc de la Villette, Paris.



6. The Max program of *Fog Bridge #72494*, 2013

The technology involved in making that first fog sculpture is supported by Experiments in Art and Technology (E.A.T.), an organization dedicated to facilitating and promoting collaborations between engineers and artists. In 1970 E.A.T. designed the Pepsi-Cola Pavilion for Expo '70 in Tokyo, the first

international exposition held in Asia and a watershed for members of the Japanese avant-garde. With the support of other E.A.T. members, Nakaya enveloped the pavilion in artificial fog, a feat she accomplished with the aid of an atmospheric physicist Thomas Mee. For the first installation, 2200 specially designed nozzles were installed based on wind conditions, weather patterns, and potential interferences. The technology developed during this collaborative project has served, with some modifications, in all of Nakaya's subsequent fog sculptures. Nowadays, the tools Nakaya uses to create and meticulously control the work includes nozzles, high pressure pumps, water lines, anemometer, Max program, and so on.[105] The above images show a glimpse of the structure of the planning and logistics of one of her fog sculptures The Exploratorium at Piers 15 and 17, on the edge of the San Francisco Bay in 2013.

In Nakaya's fog sculptures, the boundary between the artwork and the viewers disappeared with the immersive quality of the environment, which coincide with teamLab's intentions - to create "one borderless world", where "artworks move out of the rooms freely", creating "new experiences...and explore the world with your body."[106] As a significant figure in Japan's media art scene, it is highly likely that teamLab members have come across Nakaya's whimsical fog sculptures before.

Another artist duo that may have influenced teamLab with their artificial nature is Christa Sommerer and Laurent Mignonneau. Since the 90s, they have been invited to conduct research at the ATR Media Integration & Communications Research Lab in Kyoto, Japan, as well as teaching at the IAMAS International

[105] "The Foggiest Notions: Fujiko Nakaya at Art Tower Mito," *Artscape Japan*, accessed March 05, 2019, http://www.dnp.co.jp/artscape/eng/ht/1812.html.
[106] "TeamLab Borderless Tokyo," *TeamLab Borderless Tokyo Official Site: MORI Building DIGITAL ART MUSEUM,* accessed March 07, 2019, https://borderless.teamlab.art/.

Academy of Media Arts and Sciences in Gifu, Japan.[107] Below are three representative projects of their artificial nature.

7. Christa Sommerer & Laurent Mignonneau, *Interactive Plant Growing*, 1992

8. Placement of each component in *Interactive Plant Growing*, 1992

Interactive Plant Growing[108] is an interactive installation that consists of real plants, generative video and visitor participation, made in 1992 by pioneer

[107] "SOMMERER / MIGNONNEAU," *ADA | Archive of Digital Art,* accessed June 07, 2019, https://www.digitalartarchive.at/database/artists/general/artist/sommerer-mignonneau.html.
[108] Christa & Laurent, Interactive Plant Growing (c) 1992, Christa Sommerer & Laurent Mignonneau, , accessed March 11, 2019, http://www.interface.ufg.ac.at/christa-laurent/WORKS/CONCEPTS/PlantsConcept.html.

media artists Christa Sommerer and Laurent Mignonneau. Real and living plants were spaced out in an arc formation, and as plants can pick up natural electricity in the human body, transducers were placed near the roots of these plants to detect signals of human touch. They were even able to detect a more stealthy human approach. The signals were then sent to a computer which generated a real time video which was projected onto a 3 x 4 meters screen. Depending on the visitors' interaction with the plants, the virtual plants were influenced and grew in a controlled way. If the bush and the leaves were touched, the virtual garden grew, and if the cacti were touched, the garden disappeared. As the virtual growth of the plants was projected onto the screen instantly, viewers learned about the principles of these organisms, steadily learning to control and modify the growing process. Five or more people could interact at the same time with the 5 real plants in the installation space.

The interaction between visitors and plants is crucial to this work, as all events depend solely on the human-plant interaction. Stemming from the intimate physical interaction, visualisation of the growth directly established the cause-effect relationship between the real and the virtual world. The more obvious connection is how viewers' actions on the real plant instantly result in the development of the artificial life projected on screen, which in turn informs further actions from the viewers. The less evident layer recounted the connection between the real and artificial plants, which is referring back to the controlling algorithms that govern the virtual transformation. Designed to mimic the structure of the natural development of plants, Italian art critic Pier Luigi Capucci concluded "the artificial is one evolutionary development of the natural" while bearing the vitality of the actual evolution.[109] As the interaction continues, the viewers begin to realise these relationships and thus develop a

[109] Pier Luigi Capucci, "New Perspectives about Nature and Life," *Technoetic Arts* 12, no. 2 (2014): , doi:10.1386/tear.12.2-3.375_1.

deeper understanding of both organisms, and particularly a greater awareness of the vitality of the real plant.

In terms of visualising the interactions between visitors and artificial nature, we may consider that teamLab has taken the idea of Christa Sommerer and Laurent Mignonneau out of the rather small and confined room and into much larger settings. This is scrutinised in the cases studies, where three versions of artificial nature took place in a museum, a natural park and a restaurant respectively. But, the artist duo might also have influenced teamLab in bringing the interaction to a more active level.

9. Christa Sommerer & Laurent Mignonneau, *A-Volve*, 1993-1994

A-Volve[110] is an interactive environment where visitors can interact in real time with artificial creatures living in the space of a water-filled glass pool. Initially viewers are asked to create a two-dimensional shape on a touch screen. This

[110] Christa Sommerer and Laurent Mignonneau, *A-Volve*, 1993-1994, in *Media Art Net*, accessed March 11, 2019, http://www.medienkunstnetz.de/works/A-Volve/.

shape later on will be transformed into a three-dimensional creature coming alive in the pool. Depending on the shapes, various variables are assigned to each creature which determine their survivability, such as combat, fitness, energy level, speed of movement, reproduction and lifespan. These creatures are enabled to swim in the water with a naturality similar to that of a jellyfish. Their path follows their fitness level, as well as the real time events happening in the pool around them. Thus, some become predators and the others prey. After designing the creatures, visitors could still participate with hand movements in the water, manipulating the existing creatures. A prey could be protected by visitors' actions, thus avoiding an attack. Similarly, two strong creatures could meet under the influence of the visitors, producing a virtual offspring that inherited the genes of its parents, much like a natural reproduction mechanism. The new creature then joins the pool of existing lifeforms, interacting with viewers and other creatures.

A-Volve functions almost like a natural ecosystem, yet the process of life is determined by the laws of human selection instead of natural selection as in the Darwinian theory. The stronger a creature is, the more likely it will become more dominant and consume the weaker ones, and mate with an equally strong creature to give birth to an offspring that contains the characteristics of both parents. The development of the species is to certain extent fixed and protected by the rules, but is also subject to disruptions that come from the external environment. In this case, humans can perform various actions to interfere with the creatures, such as touching them; instigating their approaches to each other leading to mating; helping the weakest to hide from a predator; or even inducing it to clone itself. It is designed so that the artificial creatures have different personalities, which will lead them to behave differently to the human interaction; for instance, one may react with confidence and play to a human hand, while another might try to escape, appearing more timid and reserved. Although the artificial form created in *A-Volve* follows certain evolutionary

rules that occur in nature, they are no longer based on carbon compounds, but on the commands of the computer. The intention of the artists is to raise awareness about the possibilities of the manipulation of nature, and thus of the human responsibility with regards to nature.

A very similar set of possible interactions between visitors and the artificial creatures can be observed in teamLab's artificial nature, especially in the series *Graffiti Nature*,[111] which also contains a small ecosystem that is based on real natural relationships.

10. Christa Sommerer & Laurent Mignonneau, *Eau de jardin*, 2004

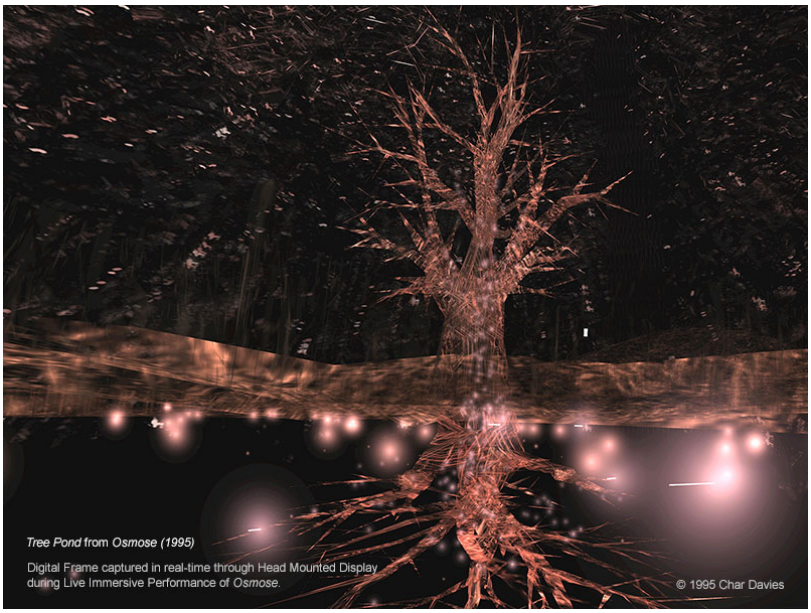
[111] "Graffiti Nature: TeamLab / チームラボ," *teamLab*, accessed March 07, 2018, https://www.teamlab.art/w/graffiti_nature.

Eau de Jardin[112] is another more recent interactive installation that transported visitors into the imaginary world of virtual water gardens. The installation consisted of a vaulted projection screen and 8-10 vases of amphorae hung from the ceiling. These pots were completely transparent, containing water-plants such as lilies, lotus, bamboo, cypress and other aquatic plants. It was a small mix-reality environment which teamLab paid homage to in their ambitious artificial nature *A Forest Where Gods Live – Earth Music & Ecology* (see Chapter 4.2). In *Eau de Jardin,* when visitors approach the amphorae, the plants capture the visitors' presence and draw virtual water plants on the large projection screens. The virtual plants on the screen resemble the real aquatic plants in the amphorae. The more visitors interact with the real plants the more the virtual scene of aquatic plants builds up on the screen and all changes in the users' interactions are translated and interpreted. This leads to constantly new water garden images as their composition reflects the visitors' amount of interaction with the real plants. Comparing to the work *Interactive Plant Growing* done in 1992, the same sensor technology is used for this work. But additionally, the artists have added a water surface in the projection, which shows another layer of the reflection of the generated virtual plants. The virtual pond thus becomes a mirror of the "reality" of virtuality. Several layers of virtuality are created by blurring the borders between real plants, virtual plants on the screen, and their reflected virtual images on the virtual water's surface.

In addition to the various artists who have resided in Japan and whose artificial natures have struck direct dialogues with teamLab, below are a few international artists who pioneered the field of artificial nature with their thought provoking works. Their ground breaking approaches and poetic

[112] Christa Sommerer and Laurent Mignonneau, *Eau De Jardin*, 2004, in *University of Art and Design Linz*, accessed March 8, 2019, http://www.interface.ufg.ac.at/christa-laurent/WORKS/CONCEPTS/EauDeJardinConcept.html.

expressions have laid the groundwork for many artificial natures which have come since, including those by teamLab.



11. *Tree Pond from Osmose* (1995). Digital Frame captured in real-time through Head Mounted Display during Live Immersive Performance of *Osmose*

In 1995, Canadian artist Char Davies who is recognised for pioneering artworks using virtual reality created the work *Osmose*.[113] An immersive and interactive VR environment, achieved with three-dimensional computer graphics and sound, a head-mount display and real-time motion tracing technology, the work is responsive to the breathing and balance of the visitor.

At first, the participant sees a three-dimensional Cartesian Grid, which helps to orient the space. With the breathing, the grid clears out and the participant enters a forest-like world. The spaces in *Osmose* are mostly based on metaphorical aspects of nature, including semi-representational, semi-abstract and translucent forests, trees, leaves, clouds, ponds, subterranean soils and so

[113] Char Davies, *Osmose*, 1995, in *Immersence Inc.*, accessed August 8, 2018, http://www.immersence.com/osmose/.

on. By using breath and balance, participants were able to navigate within these worlds slowly, subtly and weightlessly, as it was designed to simulate the sensation of scuba diving. Viewers are given around fifteen minutes to be immersed in this world before it gradually recedes. It is a space created for exploring the perceptual interplay between self and world, facilitating an awareness of one's self, due to one's embeddedness in enveloping digital space.

12. *Osmose* Immersant

25,000 participants experienced it in 1995, describing the profound experience to be "surprising" and sometimes "emotional". Participants felt as if they had discovered a new side of themselves. They felt alive and free. As the artist explained, for her, the immersive virtual environments of *Osmose* were intended to "facilitate a temporary release from our habitual perceptions and culturally-biased assumptions about being in the world, to enable us, however

momentarily, to perceive ourselves and the world around us freshly."[114] Davies is one of the first artists to use virtual reality as a means of artistic expression to create total immersion.

13. Olafur Eliasson, *The Weather Project*, 2003

In 2003 Icelandic-Danish artist Olafur Eliasson, who is known to work with digital technology and elemental materials such as light, water, and air-temperature to enhance the viewer's experience, installed *The Weather Project*[115] in the Turbine Hall of the Tate Modern, London. In this work, an impression of the sun and sky is replicated in a monumental scale that spans the whole hall, with a fine layer of artificial mist, permeating the space. Gazing skyward, the ceiling of mirror will reflect the space below, doubling the visual

[114] Char Davies, "Virtual Space," in *Space: In Science, Art and Society*(England: Cambridge University Press, 2004).

[115] *The Weather Project*, 2003, Tate Modern, London.

volume of the hall, producing an almost dazzling feeling.[116] The man-made miniature nature attempted to give viewers the impression of being close to the sun within the clouds, which intended to remind us that the truth as we understand it is based on a construction. As Elliason put it in his conversation with art critic Hans Ulrich Obrist, "someone might have something to say that is relevant in a certain context at a certain time, but there is no hierarchical system of truth."[118]

Comparing to *Osmose,* bodily immersion is achieved with a totally different approach. The sheer scale of this counterfeit environment has certainly contributed to its impactfulness, likely having given rise to other artificial natures, taking up more physical spaces to be created.

14. Olafur Eliasson, *Little Sun*, 2012

On the contrary to the scale of *The Weather Project,* in 2012, together with engineer Frederik Ottesen, Eliasson worked on the art and social project *Little*

[116] Tate, "Olafur Eliasson the Weather Project: About the Installation," *Tate*, accessed October 06, 2018, https://www.tate.org.uk/whats-on/tate-modern/exhibition/unilever-series/unilever-series- olafur-eliasson-weather-project-0.
[118] "Modern Classics: Olafur Eliasson - The Weather Project, 2003," *Artlead*, accessed March 6, 2019, https://artlead.net/content/journal/modern-classics-olafur-eliasson-the-weather-project-2003/.

Sun,[119] which produced pocket-sized solar powered LED lamps, providing clean and affordable light to communities living in areas without electricity. In these off-grid parts of the world, many people don't have access to light sources other than the toxic and unsafe fuel-based kerosene lanterns. Eliasson designed the lamp to take on the shape of the Ethiopian meskel flower, which symbolises positivity and beauty. An initial introduction to the clean solar energy, the initiative has distributed 500,000 solar lamps in sub-Saharan Africa, changing the lives of more than one million people in the first five years. In addition to its practicality, this project reconfirms the truth that art - especially as artificial nature - does not have to be bound within the gallery walls, which teamLab proved again by bringing their projects back to nature (see Chapter 4.2.2) and restaurants (see Chapter 4.2.3).

15. rAndom International, *Rain Room,* 2012

In 2012, rAndom International, an artist collective creating digital art, built a perpetual rain shower inside the gallery, which changed as the visitors moved

[119] Olafur Eliasson, *Little Sun*, 2012, in *Olafur Eliasson*, accessed March 8, 2019, https://olafureliasson.net/archive/artwork/WEK107424/little-sun.

around. Upon entering the space of *Rain Room*, visitors feel the moisture in the air, hear the sound of water, and see a field of rain that spans 100 square meters.[120] Walking towards the edge of the rainy field, sensing the location of the visitors, the rain stops. The installation is a complex engineering project as much as an artwork, with the media consisting of water, injection moulded tiles, solenoid valves, pressure regulators, custom computer software, 3D tracking cameras, steel beams, water management systems and grated floors. Human presence prevents the rain from falling, poetically creating a unique atmosphere and exploring how human relationships to each other and to nature are increasingly mediated through technologies.

16. Studio Roosegaarde, *Waterlicht,* 2018

Waterlicht is a public lighting installation designed by Dutch artist Daan Roosegaarde, displaying the power and poetry of water. It is composed of larger-than-life virtual waves of blue lights, simulating a virtual flood through the use of LEDs, special software and lenses. The ethereal projection

[120] RANDOM INTERNATIONAL, *Rain Room*, 2012, in RANDOM INTERNATIONAL, accessed October 06, 2018, https://www.random-international.com/rain-room-2012/.

immediately above the heads of viewers serves as “a memorial as well as a warning” of the “rising sea levels and potential floods”.

This genre of creation has various novel qualities compared to earlier artworks depicting nature. First, the previously discussed reviewed artificial natures make use of various different technologies, such as Virtual Reality, projection mapping, motion tracking sensors and computer programmes, to achieve audience engagement and interaction. This sets them apart from the traditional depiction of nature, such as landscape paintings, which Cornock categorised as Static Art - works which do not change, meaning that there is no viewer/work interaction that can be observed by a third party, although the viewer may be experiencing psychological or emotional reactions. Additionally, participation is key in the realization of these works to the extent that in some cases, such as *Osmose* and *A-Volve,* without the presence of audience, the work doesn’t exist.

Second, these artificial natures created after the 1960s appear highly responsive, because of the real-time generated images, made possible by the powerful computers, such as *A-Volve,* which should be considered Dynamic-Interactive (Varying) in Cornock’s interactivity categorization system. The others present more atmospheric environments and “interact” with the viewers in a more passive way, such as *Waterlicht,* which is Dynamic-Passive, and *The Weather Project*, which is Dynamic-Interactive. Furthermore, some of the works depend entirely on the virtual presentation to convey their message, such as Char Davis’ *Osmose*, and others incorporate physical matters like water drops, mist and plants in their compositions.

Third, the role of nature in these environments is fluid. Some of these projects directly copy nature as the Platonic school advocates, while some are based on elements of nature in the Aristotelian sense. Some deal with environmental and climate change issues, some do not. But all these artificial natures evoke nature-

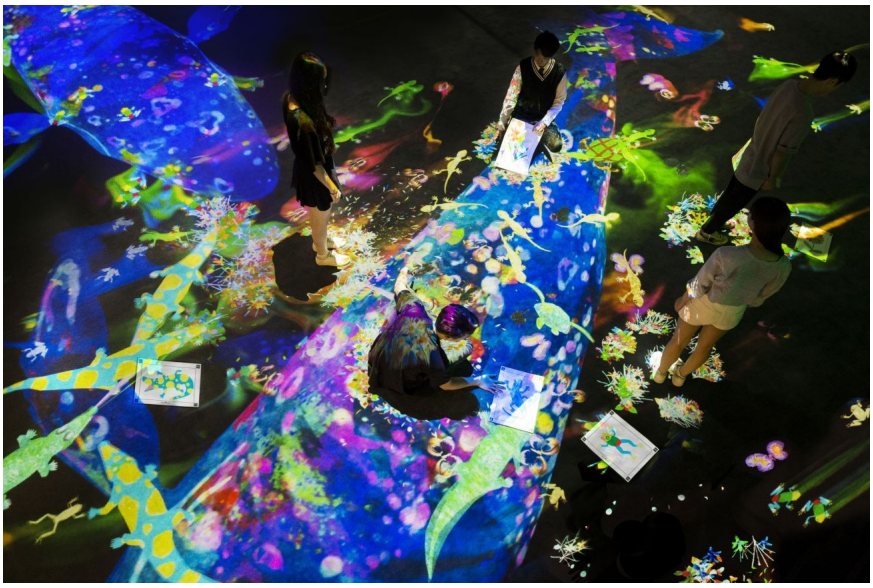
like aesthetic experiences in the visitors within mixed-reality installations. teamLab belongs to this trajectory of works, which they are aware of, and may have been influenced directly by some of them. But, as each one of these constructed environments is unique in its own way, the next part looks at the peculiarities of teamLab's artificial nature.

Chapter 4.2 Artificial Nature by teamLab

Based on reviewing teamLab's catalogue of 2001-2016, multiple visits to teamLab's exhibition worldwide, as well as a series of interviews conducted, three case studies (one standalone artwork, one exhibition and one dining experience) are pinpointed to be examined in the following subchapters, which respectively explore how teamLab constructed artificial nature in three completely different settings. The selected case studies are: *Graffiti Nature*, an interactive digital installation; *A Forest Where Gods Live – Earth Music & Ecology,* an exhibition hosted in Mifuneyama Rakuen, Takeo Hot Springs, Kyushu, Japan; and a dining experience at the interactive restaurant, *MoonFlower Sagaya Ginza*. These highly popular projects provide a comprehensive view of the group's innovative creation, and illustrated their ability in working with both traditional and non-traditional venues.

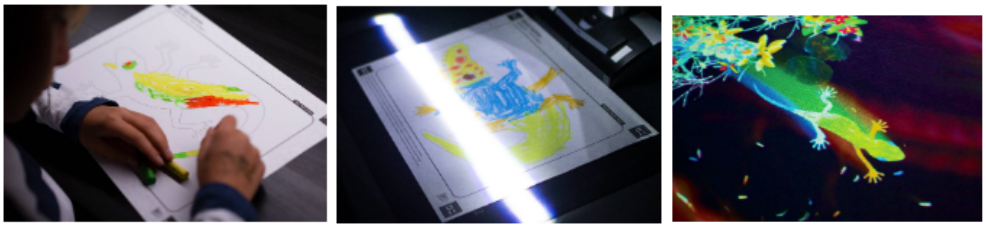
Chapter 4.2.1 Graffiti Nature

This is an interactive digital installation that is part of teamLab's permanent exhibition *Future World: Where Art Meets Science* in the ArtScience Museum in Singapore. The work, one of the biggest installations of the show, takes up major space in the museum and transforms it into a menagerie of animated animals, plants and flowers that travel freely across the floor as they are given birth to by drawings made by visitors.



17. teamLab, *Graffiti Nature,* 2016.

Upon entering the animated space, visitors are invited to contribute to the prosperity of the world by colouring an animal that is outlined in a piece of blank paper. There are crocodiles, lizards, frogs, butterflies and birds to choose from. Crayons of the entire spectrum of colour are provided at the colouring stations, which are located at a slightly brighter corner of the space. Depending on the individual, their colouring schemes often vary significantly. Some people use natural colours of the respective animals in nature, while the many add designs like human clothes or decorative patterns to their creations. Then, the piece of paper is scanned and the imagery of the animal is projected into the space at a random location. Visitors are invited to search for their creations, which are wandering around somewhere deep in space.



18. Steps that visitors were advised to follow

As visitors stand still, flowers will bloom around their feet, yet once they start moving around, the flower petals will scatter. The projected animals move across the blossoming flowers on their respective paths, which are unknown to anyone but the computer that is controlling the world with its massive power of calculation. The animals wander through this chaotic world, and if they come across smaller creatures on the way, they devour them just like in the real-world ecological system.

A food-chain that is similar to the one in the real world is installed in this system, where crocodiles go after lizards, lizards go after frogs, and frogs go after butterflies. If visitors are too close, these animals will keep their distance and move away. However, they are designed to move slowly, so that some are stepped on in the back or tail, which over time makes these projected animals fade and disappear. So in a way, humans were introduced to sit at the top of this food chain. As the animals disappear, teamLab explained the invisible link as "when animals die bacterial decompose their bodies, allowing the plants to use them for nutrition"[121] to complete the man-made ecological circle.

19. The ecological system in *Graffiti Nature*

[121] "Graffiti Nature," *teamLab.art*, accessed March 11, 2019, https://www.teamlab.art/pt/ew/mountains-valleys/.

The space is designed similarly to a black box theatre to encourage audience interaction, as well as to make lighting projections easy to be seen. However, different from the usual black box, some parts of the floor are designed to be hilly, to encourage visitors to climb up with their hands instead of just passively standing there as an observer. The space is covered in soft carpet to give visitors a welcoming feeling, encouraging them to spend time wandering around. Various motion and location sensors are placed around the space, mainly in the ceiling among the projectors, to detect the location of each visitor. This information is fed back instantly into the system to generate a nearly real time response from the virtual world to the visitors' actual presence and actions. Additionally, there are stereoscopic sound devices all over the space to immerse participants seamlessly into the organic virtual ecosystem.

The visitors display a range of different behaviours while experiencing this artwork. Some will quietly observe from the edge as they spot their creations moving around in space; others step into the midst of these buzzing worlds, taking their time to pause, contemplating their surroundings, and for this group of visitors - as their stillness encourages the growth of flowers and plants - a small circle of butterflies and animals are attracted by the thriving plants and flowers. Many younger visitors run around freely stepping on and touching everything that they come across, without seeming to understand their actions as having an impact on this world. Some parents are seen to take time explaining the ecological system and the relationship between human and nature with the example of this artificial nature playground.

A series of other interactive installations by teamLab are modelled after *Graffiti Nature,* such as *Sketch Animals*, *Sketch Town,* and *Sketch Aquarium.* These works feature different environments than the underwater world in *Graffiti Nature.* For instance, *Sketch Town* shows a virtual three dimensional townscape

that is made of the two dimensional drawings of the cars, buildings, UFOs, and spaceships by visitors. *Sketch Animals* features a world with a pasture-like landscape with animals like lions, foxes, penguins and bears from visitors' drawings. But they are similar in the way that visitors are guided to appreciate and interact with the works, with experiences drawn from real life settings.

Nature in Graffiti Nature:

A visual assessment of the artificial underwater world in *Graffiti Nature* gives a very cheerful impression for the following reasons. Firstly, the colour scheme of the setting is polychromatic. Even though the work is located in a dark room, the majority of generated objects - such as the flora, and the fauna created by visitors - appear in brightly-coloured high-saturation tones, providing a very lively and festive look. Despite the fact that the real underwater world might impress people, with their colourful corals and schools of fish, it is nothing compared to the various primary and secondary hues that sit tightly within one frog. This is mainly because there are no rules given when it comes to colouring the sketches. Of course, the variations of human creation have no limits. Secondly, the way these artificial creatures are designed to move about are highly animated and unnatural. For instance, as an artificial crocodile moves, the body and half of the tail rise from the ground with a very slow and almost showy gait, it's tail wiggling dramatically as compared to the silent and powerful killer, stalking its prey for hours beneath the water in the wild.

20. Crocodile hidden at water's surface

The depiction style of this artificial world is rather standardised and singular, as except for the patterns which are drawn by the visitors, there are no other ways one can tell apart one frog from another, or one butterfly from another, and so on. Take the image of the bill of a bird as an example. The below picture shows in reality how the different forms of bills result in the various feeding styles, from tearing flesh with a short and strong bill of a hawk, to digging insects out of softwood with the chisel-like bill of a flicker. As for the model bird provided by teamLab, from the look of its bill, it has a close resemblance to a Northern Cardinal, which limits reference to a very small group of the feathered community.

It is understandable that stylistic decisions and choices like this have to be made, because the group doesn't intend to replicate the entire animal family in this artificial world. Logistically, it is simply impossible. However it is important to take note - especially for the many young visitors of the exhibition who are still learning about the natural world - that this is a reductive version of wild nature, and the many representatives appeared merely as stereotypes of the actual wildlife.

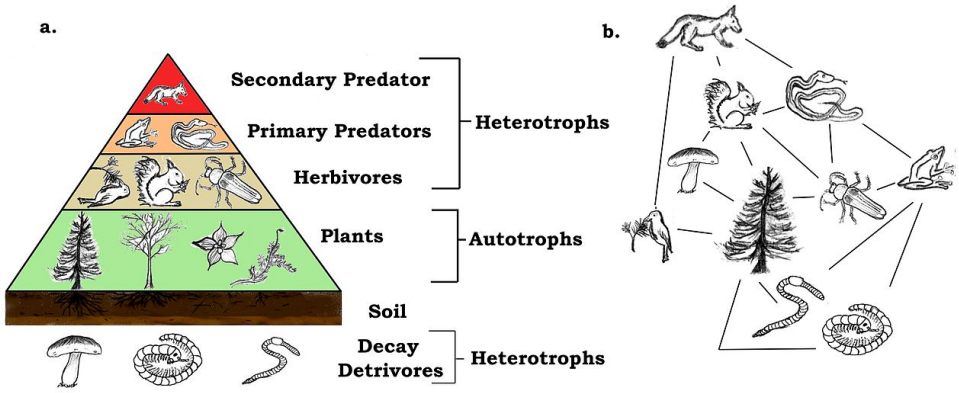
21. Birds have different kinds of bills to help them eat different kinds of food

22. A rather naturalistic colouring by one of the participants of *Graffiti Natur*e

The rules that formulate this nature are also notably simple and straight-forward, to the extent of near vacuousness, by contrast to the complexity of real nature. As the description of this work on teamLab's website indicated, the group is interested in the fact that there are more than 10 million living species said to exist on Earth, and for each and every one of these species, they live while interacting with the others. The artificial ecological system consists of

only a select few participants, modelled after the ones in the real world whose roles in this artificial food-chain are clearly defined.

It is rarely the case, as the below image showing a food-web illustrates, which is a better representation - realistic, and true to life - of the interactions that take place within the ecosystem. For example, a frog could be prey to one type of snake, yet predator to another. Additionally, a food-chain, which only follows a direct and linear path of one animal at a time differs from a food-web, which captures the complex networks of various animals' feeding relations. It is important to acknowledge that teamLab has invented a chain that epitomises the idea that "everyone plays a specific role in the real natural ecological system, and the balance is destroyed if any one player's intervention becomes overly powerful". However, certain links are misleading as animals whose habitats seldom overlap in reality are put together in this fictional model. Thus, it is crucial to recognise that the simplified relationships present do not, in any case, represent what is actually happening in the real nature.



23. A trophic pyramid (a) and a simplified community food web (b) illustrating ecological relations among creatures that are typical of a northern Boreal terrestrial ecosystem

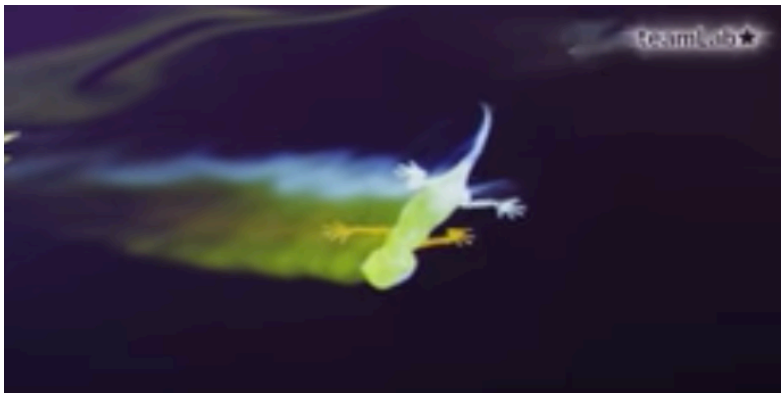
If we consider these artificial creatures to be brought to life by the computer, their lives are of a most primitive kind, because of the limited looks they are given and actions they are programmed to perform. In response to this

observation, chief artistic director, Dr. Adam Booth, who is also responsible for the making of *Graffiti Nature* said, "perhaps we will add more in the future to build a more complex world, but simple can be more understandable and less visually confusing."[122]

Another notably artistic rendering adopted by the group is how death is represented. When a creature in this artificial nature is being annoyed or stepped upon, we notice the wagging tail or stretching arms and legs. These rather gentle struggles of the artificial creatures hardly register as trying to break free, but more like playing with the visitors. Gradually, their projected images become dimmer and their seeming struggle-actions become weaker, before finally disappearing quietly into the darkness. Additionally, when a creature is being devoured by another, the scene is rendered romantically. The prey is firstly frozen in its place, but then the body dissolves under a faint beam of light, slowly being sucked into the nearby predator.

It has been reviewed that many Japanese creators tend to shy away from depicting death in their traditional artworks, and in the cases that do depict death, a romantic filter often applies. For example, the death of a warrior in feudal Japan is symbolised by a fallen cherry blossom or petal, because Sakura, as the embodiment of beauty and mortality, exemplifies the war hero's appreciation for the inevitability of death, and their willingness to sacrifice their lives in battle for a noble cause. What's more important is that death is seen not as the end, but the start of a new cycle. Thus, there is no need to place importance in the cruelty of it, which explains the frequently peaceful rendering of death in artworks.

[122] Transcript of the interview can be found in Page 147.



24. A lizard in *Graffiti Nature*, seconds before being eaten by a bird.

As various interviews conducted with members of teamLab and the literature review of Japanese philosophy confirmed, human beings are thought of as integral parts of nature. Therefore, it is of great importance that we look at the human presence and role in this artificial nature.

Before any visitors join the artworks, there are only a few creatures moving about in the rather empty space and they are designed to follow the above mentioned food-chain. As soon as visitors step into the picture, the system is designed to respond to their stillness, encouraging the growth of flowers and plants, in turn contributing to the birth of more animals that feed on the flora. However, human action is rather unpredictable, as it has been observed that some visitors pause to contemplate their surroundings. Yet, the majority tend to run around and explore their influence on the environment with more audacious actions as inspired by the inviting looks of the animals and their playful behaviour. Besides, visitors are invited to colour, sketch and introduce their own creations into the system to add to the existing creatures.

The reality of this rule as observed in the space is that many visitors will draw one after another creature and have them added to the small artificial ecological system, before they have a chance to really apprehend the complete food-chain and the balance of this nature. These collective behaviours do correspond to

what is happening in the real world, where humans exploit natural resources without being fully aware of the consequences of their actions. One of the intentions of the group by making this work, is to show that "all living things play a specific role in the ecosystem, when an animal or plant greatly changes in number due to climate change or human intervention, the ecosystem's balance is destroyed, thus affecting all that live inside it."

Chapter 4.2.2 A Forest Where Gods Live – Earth Music & Ecology

This is by far teamLab's largest exhibition and experimental work. The group adjusted their digital creation to be displayed in a natural park, Mifuneyama Rakuen, located in a remote part of Kyushu, Japan. 2019 marks the fifth edition of this yearly exhibition, and this year there are 22 digital works by teamLab being displayed here, in order to transform the 500,000 square meter gardens with sensors, lights, music and scents, creating a digitised and interactive park. The exhibition is open to the public throughout the summer and autumn, both during the day time and night time.

Mifuneyama Rakuen Park was created during the Edo period in 1845. Inside the park, there are various historical, religious and natural sites, such as the 3,000-year-old sacred Okusu tree of Takeo Shrine, which attracts numerous visitors every year, even before the collaboration with teamLab. Although this year there is day time and night time entry to the exhibitions, the majority of the artworks by lights are only viewable in the evenings after dark, until 10.30pm. One special thing about this park is that the majority of it is designed and maintained well by humans. The border between the garden and the wild forest is ambiguous, and when wandering through the garden, before visitors know it, they might find themselves entering the woods and animal trails. Reflecting the fogged boundary between the human nature and the non-human nature, that boundary itself appearing as an imaginary figment.

25. Mifuneyama Rakuen Park during the day

Unlike art exhibitions in a gallery or museum, *A Forest Where Gods Live* is not so easy to access. The exhibition venue is a 10-minute drive from the nearest train station - the JR Takeo Onsen Station - which is located in a very small town, known for its hot spring in Kyushu. The nearest big city, Fukuoka, is nearly an hour and a half away by car. The road to the mountain is quiet after dark and there are no street lamps along the slopes, differentiating it from the crowds and buzz outside a major exhibition space of, for example, teamLab. The seniors from the nearby villages are hired to direct visitors to park their vehicles half a kilometre away from the entrance, and visitors will have to walk towards the entrances. The walk is mostly in silence and the only sounds are the insects and the leaves brushing each other under the breeze.

Once visitors set their feet inside the park, the roads are no longer paved and rocks of different sizes decorate a path that leads into the dense forest. Along the path, the first encounter is of two artworks centred on the rocks, *Sea of Rocks of Oblivion,* and *Split Rock and Enso.* The former features various rocks

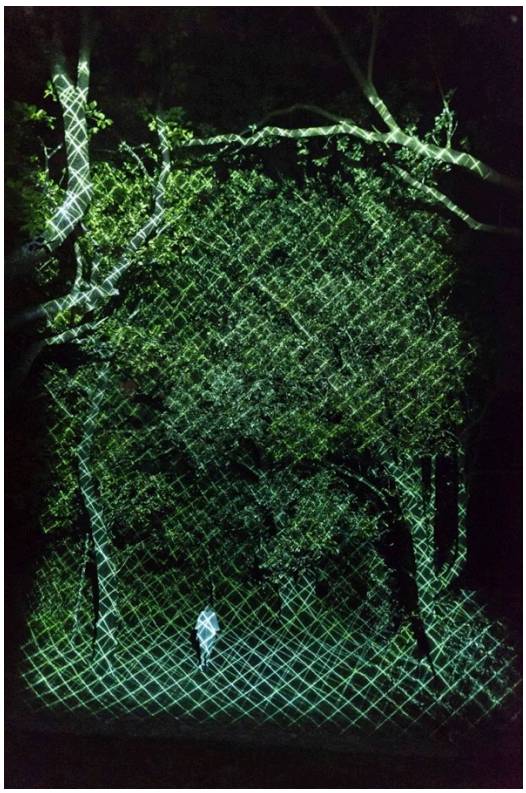
that glow brightly, then fading with a breathing rhythm, if they detect human presence nearby. The latter is a projection of a calligraphy enso drawing, viewed from various spatial perspectives onto a large rock (about 2.4 m in height, 4.7 m in width) that has been split by a maple tree. Up until this point, the atmosphere remains very peaceful and relaxed.

26. teamLab, *Sea of Rocks of Oblivion*, 2016.

27. teamLab, *Split Rock and Enso,* 2017.

Once visitors walk deeper into the green, approaching the border between the garden and the forest of Mifuneyama Rakuen, they will encounter a giant green morphing net. Titled *Abstract and Concrete - Forest Entrance,* this is an

interactive digital installation that constantly changes. Like many other teamLab creations, there are no two states that are exactly the same because the system is programmed to evolve and respond to its environment. If anyone steps inside the net, a new set of lines will be generated, stretching across the space. Seen through the matrix, the forest almost looks flattened, and while the net morphs, it is as if a portal to the digital realm that is parallel to the organic forest has been opened up. By joining the two worlds, this work provides a glimpse into the sublimity of nature and digital technology, that both shrinks and awes visitors with its complexity and incomprehensibility.



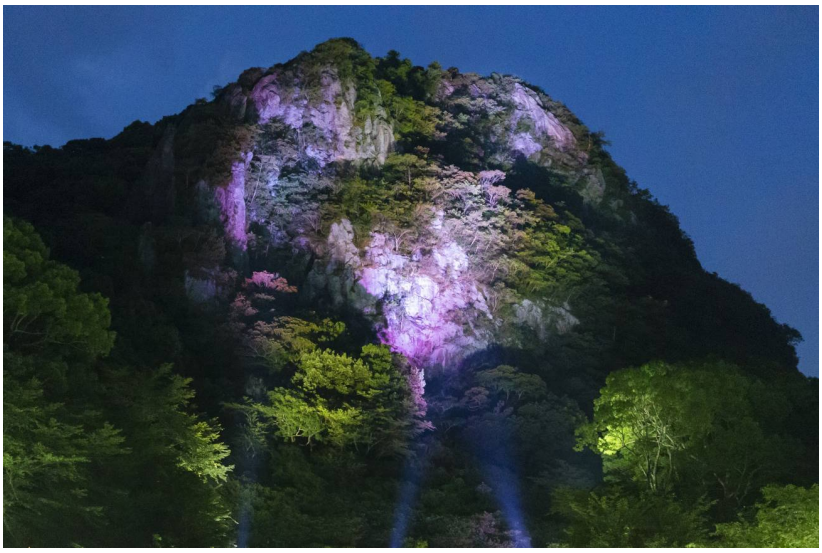
28. teamLab*, Abstract and Concrete - Forest Entrance*, 2018.

Following the path, stone stairs start to appear and visitors are led to climb higher to achieve a better view of the entire park. Through the branches and rocks, visitors could see the changing lights of the two massive artworks that engage the forest and the mountains. Once reaching the hillside where the

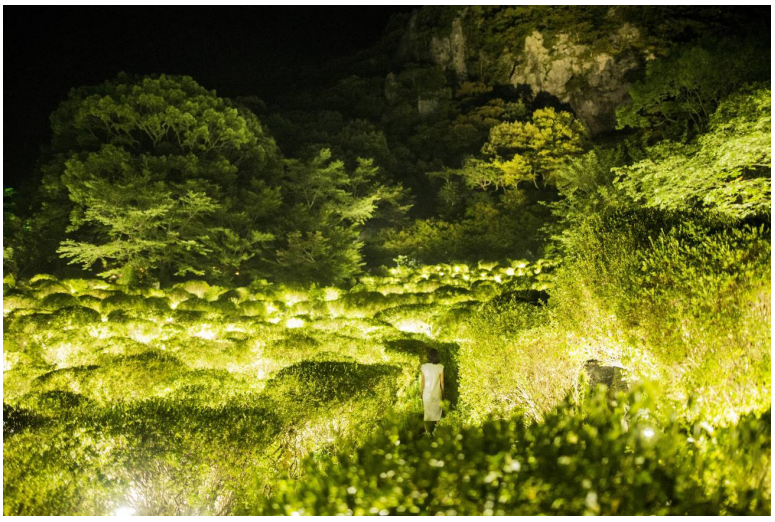
viewpoint is located, the two works, *Resonating Mt. Mifuneyama* and *Life is Continuous Light - Azalea Valley*, reveal themselves fully.

The park is built around Mt. Mifuneyama, which is around 200 meters tall. Resonating Mt. Mifuneyama turns the rocky side of the mountain, as a projection screen casts atmospheric lights onto it. The lights change in intensity, and the tone is autonomous. It shines brilliantly, then dimming as if a reciprocating spirit, breathing within the mountain. At the base and right in front of the viewpoint is the Azalea Valley, which hosts the work *Life is Continuous Light - Azalea Valley*. This interactive digital work contains thousands of lights shining rhythmically onto the flowers. When the azaleas sense a passer-by, the colour of the light changes and a new colour resonates out into the vast flower field. As the light travels, it is transmitted to nearby azaleas in the valley, until it spreads to the base of Mt. Mifuneyama, resulting in the lights resonating on Mt. Mifuneyam, augmenting the brilliant shine.

Shintoism, the traditional Japanese belief that many still believe in today, is convinced that kami – the spirit or deity – frequently resides in mountains, trees, unusual rocks, rivers, waterfalls, and other natural things. Thus, the autonomous light is a reminder of their existence, rethinking our relationship to nature. Additionally, when observing from the view-point, it is easy to notice the encountering of different ripplings, caused by the presence of different people. This is felt even stronger when inside the forest, as the light ripples off others close in from the neighbouring Azaleas. It helps people become more aware of the presence of others in the space, which teamLab declares in many of their works. They are interested in using digital technology to aid interpersonal communication.



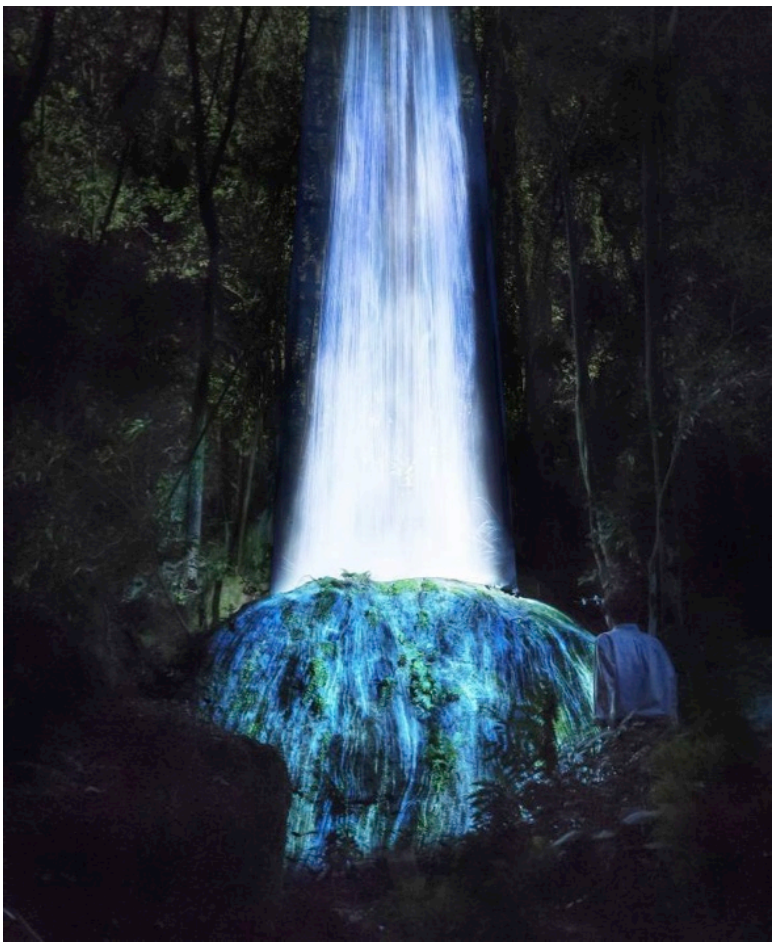
29. teamLab, *Resonating Mt. Mifuneyama*, 2018



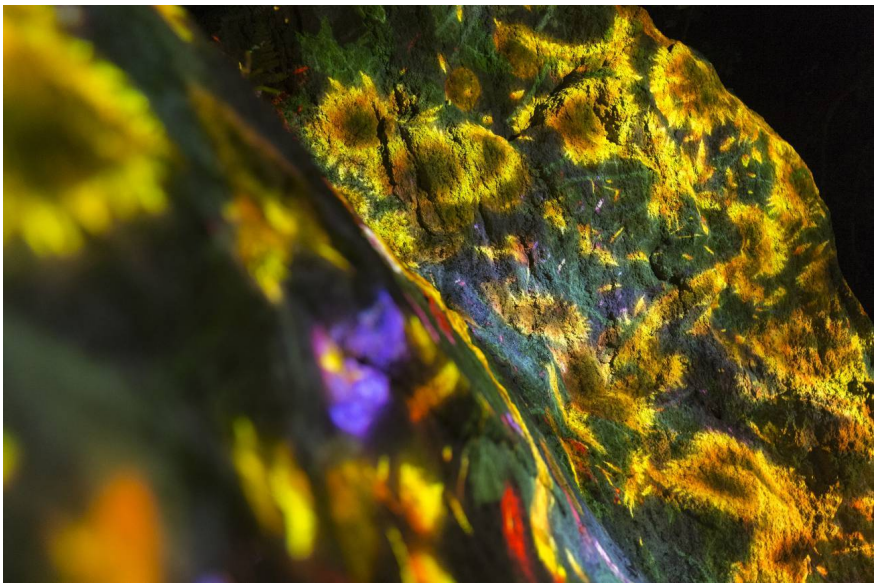
30. teamLab, *Life is Continuous Light - Azalea Valley,* 2017

Walking further up, visitors will come across the work *Universe of Water Particles on a Sacred Rock*, which is a monumental digital waterfall pouring down from the trees onto a piece of large rock (about 3m in height, 4.5m in width) in the Inari Daimyojin shrine of the park. The fine details of each water particle could be seen clearly, and each interaction between every digital water particle is carefully calculated and presented to create a realistic feeling. The flattened but serene rendition immerses visitors with its peaceful atmosphere.

As the wind moves the nearby trees, the grass and moss on the rock and the moving shadows of the plants blend into the world of the artificial waterfall. The mixed reality installation provokes the feeling that this otherwise quiet piece of rock has woken up from a long sleep, becoming alive. It is showing the thousands of years of history it has witnessed with visitors, as the artificial water flows across its surface. Similar to this work, deep in the forest there is the work *Ever Blossoming Life Rock*, portraying a digital projection of thousands of seasonal flowers being projected to a monumental rock (5.5m in height, 4.6m in width, and 6.5m in depth), covered in moss.



31. teamLab, *Universe of Water Particles on a Sacred Rock*, 2017



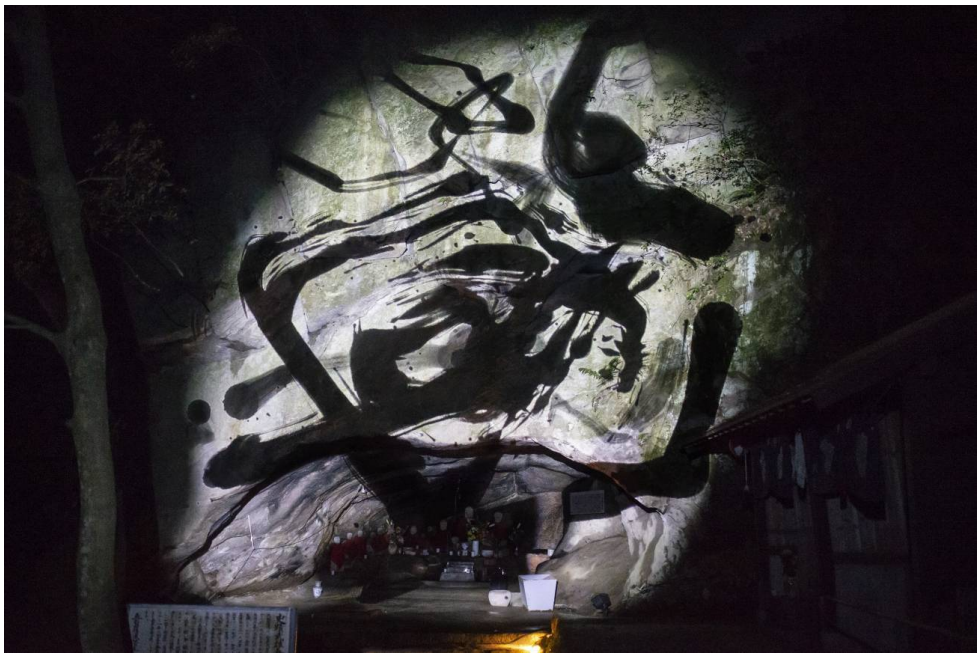
32. teamLab, *Ever Blossoming Life Rock,* 2017

Coming down from the waterfall, visitors are led by the path to three caves of Mifuneyama, which are home to 500 engraved arhat figures, believed to be the works of Buddhist monk Gyoki from 1,300 years ago. The water from these caves is of great purity and is regarded as medicinal by tradition. It is at this sacred location which teamLab has projected an artwork that is based on calligraphy in three-dimensional space, attempting to display depth, speed and power with the brush strokes.

Traditionally, calligraphy is an artform using Chinese characters written with a variety of brush movements, compositions of dots and strokes. Regarded by many Chinese and Japanese as "the supreme art form", it is able to express lofty thoughts and feelings better than words, paintings or sculptures.[123] Thus, given the historical significance and cultural importance of the Buddhist shrine of 500 arhats, it is a fitting location that brings the best out of teamLab's contemporary interpretation of the ancient artform. One of the caves is large enough to let

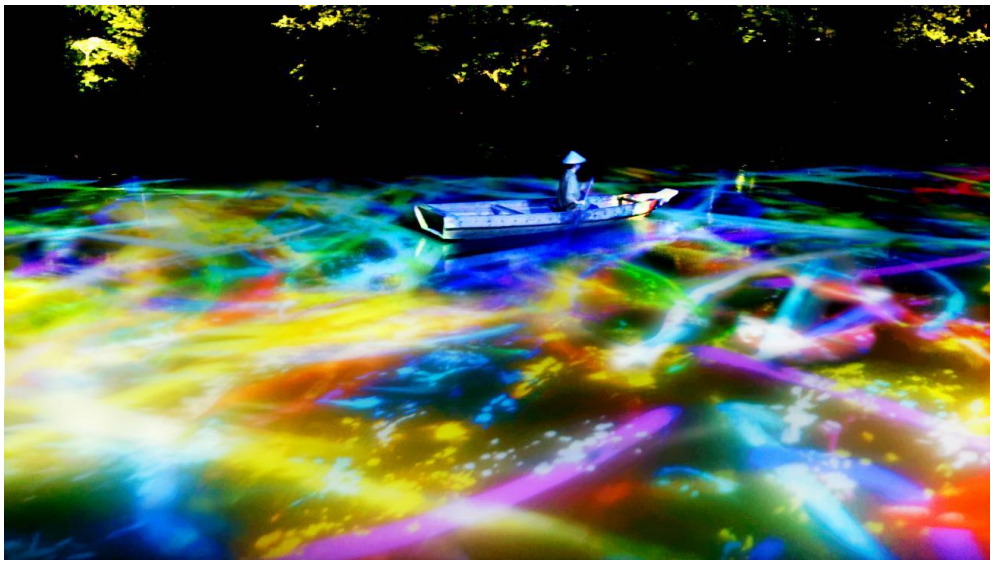
[123] "The Art of Calligraphy in Asia | Princeton University Art Museum," *Princeton University,* accessed June 08, 2019, https://artmuseum.princeton.edu/object-package/art-calligraphy-asia/104193.

visitors walk in, and as they step in further, the imagery of the projected calligraphy starts to lose its form, twisting into abstracted shapes. With the shadow of visitors casted on the glimmering wall, the atmosphere brings to mind those ancient cave paintings, along with some sort of shamanistic practices.



33. teamLab, *Rock Wall Spatial Calligraphy, Continuous Life - Five Hundred Arhats*, 2017

Coming down from the mountain, visitors will find themselves by Mifuneyama Rakuen Pond. There are small boats that gently float on the water, while artificial koi are projected around them. When a boat moves, the koi disperse leaving trails behind them. Each koi is also independent of the others and their behaviour are influenced by the nearby koi. Gradually, all the trails left behind by the koi form a digital painting of magnified vividness.



34. teamLab, *Drawing on the Water Surface Created by the Dance of Koi and Boats – Mifuneyama Rakuen Pond*, 2015

Those who are tired could sit down, having some tea, while appreciating flowers blooming from their cups. This is one of the works that happens inside a room in the park. If the cup moves, flower petals will scatter. When the cup becomes still again, a new flower will bloom out of it. As long as there is tea, flowers will keep appearing. It is teamLab's attempt to accentuate the transformative power of tea, which is considered an important beverage to the Japanese culture. Additionally, the collective pays tribute to the beauty of changing seasons, by changing the types of flowers in the cups, following the actual species that are blooming in the real nature.

35. teamLab, *Flowers Bloom in an Infinite Universe inside a Teacup*, 2016

A series of other artworks can be found indoors in the various houses and ruins in the big natural park. There is an infinity room of interactive lamps, titled *Forest and Spiral of Resonating Lamps in the Forest - One Stroke, Summer Forest*, where lights propagate through the space upon sensing human presence; a smaller version of the *Graffiti Nature* displayed in the ruins of a bathhouse inside the park - a fantasy underground world of butterflies, named *Butterflies Dancing in the Depths of the Underground Ruins, Transcending Space.*

Additionally in this exhibition, visitors might notice a range of different sounds being part of the experience. Starting from the walk towards the main entrance, the sound of nature - like the chirping bugs and rustle of leaves - eases their minds, preparing them to enter the exhibition in a relaxing mood. Once they enter the park, most of the artworks have a soothing and stereophonic component. It is often designed by a Japanese musician named Hideaki Takahashi, who is in charge of creating various spacious and ambient melodies

for teamLab's works, immersing visitors with relaxing, meditative and stress-relieving qualities. The combined sounds of the music and nature helps to send visitors into a mindful state, becoming more observant of their surroundings. In this state, visitors are seen to lower their voices, quietly appreciating what they come across. The meditative qualities of the sounds seem also to induce contemplative behaviours, unlike many other popular works by the group. Another sense the group attempted to engage was scent, which was achieved subtly. As the park is already full of scents - from nature as well as from visitors - the group has worked with specialists to create a few notes that merge well and underline the relaxing aroma of the natural.

Depending on the visitors and the particular works, various behaviours ranging from running wild in the forest, to standing quietly and contemplatively, to touching the trees and flowers are observed. But in any case, these visitors would not be seen in such a remote venue at this hour of the night if not for the exhibition. The visitors' presence is also key to the activation of some of the works. Visitors are integral components of the artworks, which rely on their autonomous subjectivity to determine their own form. Without interaction, some works will only remain in an idle state. For works like *Resonating Mt. Mifuneyama* and *Life is Continuous Light - Azalea Valley*, that means the field remains in darkness. Others, like *Universe of Water Particles on a Sacred Rock* and *Rock Wall Spatial Calligraphy, Continuous Life - Five Hundred Arhats*, that are not interactive in nature, will not be affected at large. However, as teamLab works with light, the shadows of the moving visitors do play a significant role in how the works are being perceived - thus the human presence does influence the works passively.

Importantly, teamLab highlights with the series of works situated in nature, that digital technologies used to superimpose light, sound and scent on top of real nature do not have physical impacts upon the real, and thus will not harm it. The effect is transformative and mesmerizing, as the serenity of the natural

world and the fantasy of the digital technologies meet and merge. It took the group four years to put together the first edition of *"A Forest Where Gods Live",* during which 20 members stayed on-site in the park for more than a month, carrying out the installation. But it provides experience to open other exhibitions that are hosted in similar natural settings, often in a much smaller scale, featuring one or two of the works mentioned above. For example, two modified works from the "*Resonating Tree"* series were placed in Jewel Changi Airport, a nature-themed entertainment and retail complex in Changi Airport, Singapore in 2019. An exhibition at the site of Shimogamo Shrine, Kyoto, featuring works that transform the historical and cultural site with animated figures interacting with visitors by the river bank, along with lights enlivening the forest.

Nature in A Forest Where Gods Live:

Unlike the usual black box theatre settings in which teamLab or other new media artists like to work, this series of works are placed in environments that appear to be more natural. Obviously, the park is not a pristine nature where human activities are minimal, and there are no big animals in it. But comparing to the traditional art exhibition venues like museums and galleries, it appears to be closer to nature with all the tall trees, rocky mountain paths, real blooming flowers and chirping insects. Though Mifuneyama Rakuen is a park designed and maintained by humans, there are elements that are not completely under the control of humans, such as the unclearly defined border between the wild forest and curated garden.

36. Katsushika Hokusai, *The Waterfall at Ono on the Kisokaido Road (Kisokaido Ono no bakufu),* circa 1832

The image of nature teamlab takes on, as analysed in the previous case study *Graffiti Nature,* remains ideal and simplified, which is an artistic decision made by the group. Take *Universe of Water Particles on a Sacred Rock* as an example, believed to have been influenced by the indigenous religion Shintoism where water is considered to have the ability of purification, this waterfall adopted a calming visual style. Other Japanese artists, from the traditional Shanshui and ukiyo-e masters, to the better-known contemporary Nihonga painter Hiroshi Senju, who has collaborated with teamLab on water-themed works, also share this portraying style when it comes to painting waterfalls.

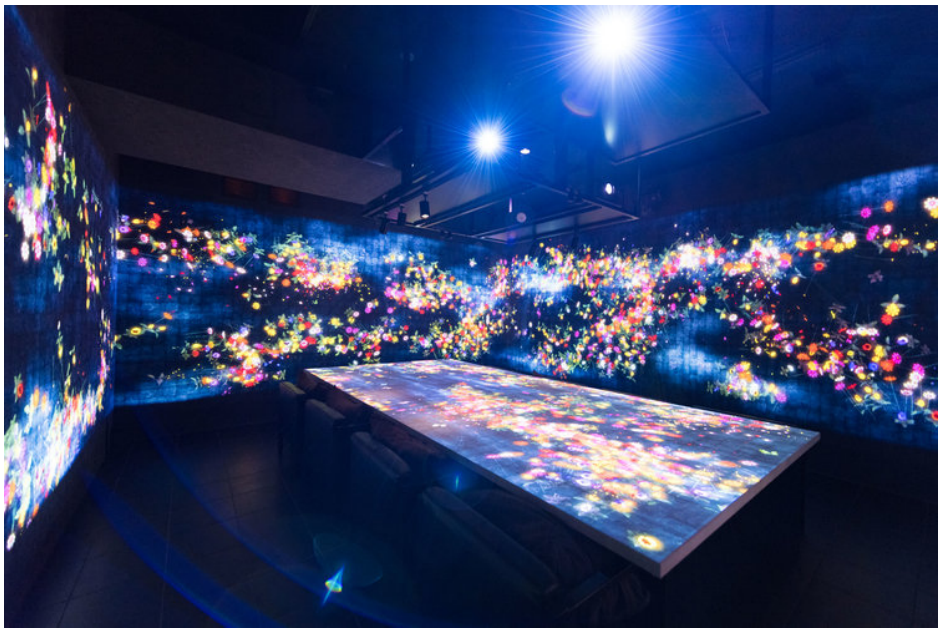
37. Hiroshi Senju, *Waterfall*, 2018.

What is novel about this experience of the artificial nature is the union of the real nature and the man made nature. With the virtual worlds created by the advanced technologies becoming more and more believable, embodied interaction - an area that emphasises the role the human body plays in shaping the mind - comes to importance for researchers. And *A Forest Where Gods Live*, a good example of a well-designed embodied interaction, shows that a mixed-reality environment has the power to present the sensual qualities of a real nature and the steerable ones of a digitized nature at the same time.

Chapter 4.2.3 MoonFlower Sagaya Ginza

Digital media have made it possible for artists to bring their works out of a confined and controlled environment. Additionally to bringing artificial nature back to nature, teamLab has also attempted a novel collaboration, creating a version of artificial nature in a fine-dining restaurant in Tokyo. The restaurant

offers lunch and dinner to eight diners at one time. Often reservation need to be made a few weeks in advance to secure a seat at the table.



38. teamLab, *MoonFlower Sagaya Ginza,* 2017

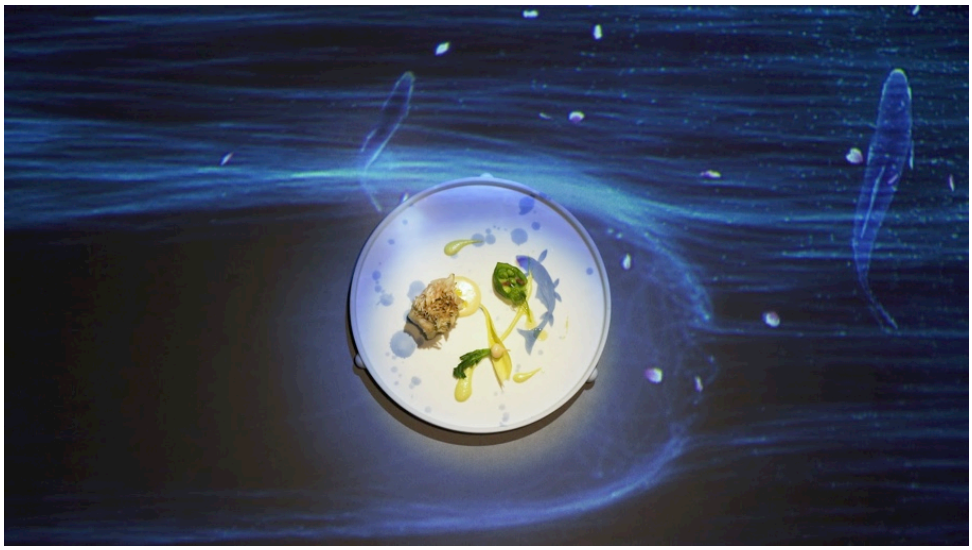
The diners will first walk into a dark and dimly lit room. Hidden carefully in the ceiling and walls are projectors and sensors, which will later transform the space with interactive imagery. In the centre, there is a big table and 8 chairs. As soon as all the diners have finished ordering and have settled in, all the lights go off. To start, according to the month, moving images of seasonal plants and flowers are projected onto the walls to set the mood. Some pedals, leaves and snowflakes for the winter months are programmed to fall from the branches. As they drift down, some end up on the table, eventually fading away. As a dish is placed onto the table, changes centred on the plate take place, traveling onto the table and into the surrounding spaces.

Depending on the particular food being served, changes could be from seeds sprouting from where the plates are placed, or digital butterflies and birds flying onto the table to “peek” inside the plates. The digital trees and animals are not

prefigured, but generated to vary in sizes, shapes, and locations, having different behaviours according to the digital world and the diners around them. The environment of the active participants, to some extent, demands the form of the work. If the diners stay still, a bird may even alight on their hand; and it will fly away when startled by sudden movement. The digital and artificial worlds that are freed from the dishes react to the actions of diners - and also to each other. For example, a bird generated by the presence of one plate might perch on the branch of a tree, unleashed from another diner's plate.

39. A cherry tree unleashed from a plate while a bird was startled by a neighbour diner

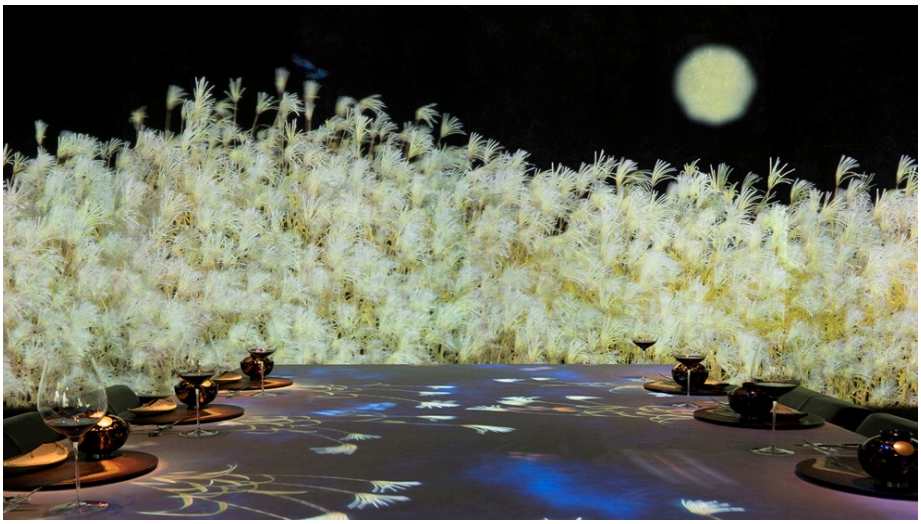
In the duration of a 12-course meal, the themes of artificial nature change multiple times according to the dish served. For example, when a dish made of fish and scallop is served, the room is transformed into an underwater world of blue streams and fish which swim around the plates. The streams flow from one side of the table to the other, separating at the position of the plates. When a diner moves the plate, the gap closes gradually.



40. A stream being fragmented by the presence of a plate

In addition to the interactive digital projection on the table top, the walls also display natural landscapes, creating an ambience matching each dish. These dynamic-passive wall displays, categorised according to Edmonds and Cornock's model, are mostly non-interactive, but are programmed to move in a naturalistic way, in response to the artist's program. For example, the field of reeds moving in the night's breeze underneath a full-moon, and the bamboo forests, swaying gently next to a quiet waterfall.

41. Natural landscape on the wall, matching the themes of each dish



42. Natural landscape on the wall, matching the themes of each dish

The collaboration was deemed a success, with a pop-up restaurant of the same theme being opened in China, Shenzhen, for one year.

Nature in MoonFlower Sagaya Ginza:

The appreciation and interpretation of nature undoubtedly inspired teamLab to create such a room that in many ways resembles real nature. On one hand, the menu is specifically designed according to seasonal themes, with all dishes being made with fresh and seasonal ingredients. On the other hand, clearly in this artificial nature environment, teamLab attempted to illustrate the different natural phenomena seen in the wild. Realists attempt to show an accurate representation of the visual appearance of things, and teamLab here has taken on more realistic expression, presenting animals and plants in a more lifelike light. For example, the look of the maple tree leaves remains the same in the artificial version. Unlike *Graffiti Nature*, the appearance of animals and plants are not finely tuned in order to appear more cheerful or anthropomorphic than they actually are.

Besides, according to the actual seasonal patterns, certain types of plants and flowers are chosen to form the digital version as an accurate representation of that season in the dining room. For instance, hydrangeas are for June, sunflowers for august, red maple leaves for September, wintersweets for the winter months and so on. Furthermore, sounds from nature - such as birds chirping and water flowing - have been added to the background music, contributing to recreating an environment that is soothing and mesmerizing of real nature.

43. Red maple leaves represting September

But again, it is noteworthy to point out that the destructive and uncultivated sides of real nature have been left out in this depiction. As in the previous artificial nature teamLab had created, the group shares the belief of many Japanese people that not everything in nature can be considered art, and that only selected phenomena should be considered in the pursuit of aesthetic pleasure.

Furthermore, the artificial nature – as in the previous two cases - has sped up the timeframe, where things happen much faster than they do in real life, thus; the environment appears overall highly responsive and interactive.

This idealised and controlled version of artificial nature is rich in cultural references. Firstly, by situating the diners in a simulation that harmoniously hosts animals, trees, flowers, waterfalls, thunders and lightnings under one rooftop, teamLab is promoting the view that many Japanese people share; that human beings are part of nature. Secondly, the changing themes - according to the month - are proof that teamLab, like many Japanese citizens, have a strong love for the changing seasons. Thirdly, as Japan has a high-context culture, where the usage of messages or symbols often entails more, some expressions in this artificial nature request in-depth cultural knowledge from viewers. For example, the month of April features the blooming of cherry blossoms, not only showing the admiration Japanese people have for the prosperous beauty of this specific type of flower, but also the tragically short lifespan of the flowers that mirror the transient human existence and our struggle with mortality. The streams reacting to the presence of plates is another example that demonstrate the Japanese appreciation for transience. Going further, it also manifested how humans and their actions always have an impact on nature, in return being affected by that nature, which is summarised by a Buddhist concept: Interconnection, denoting that everything is part of the self-same network.

Chapter 4.3 Nature Surrounding teamLab's Members

Various forms of nature are present in teamLab's Tokyo offices, such as how plants are used to decorate the space. In a city with one of the world's largest population densities, the forms of these nature are fascinating. The author has visited the group on 3 different occasions between 2016 and 2018 in both their old and new offices, and documented the following observations.

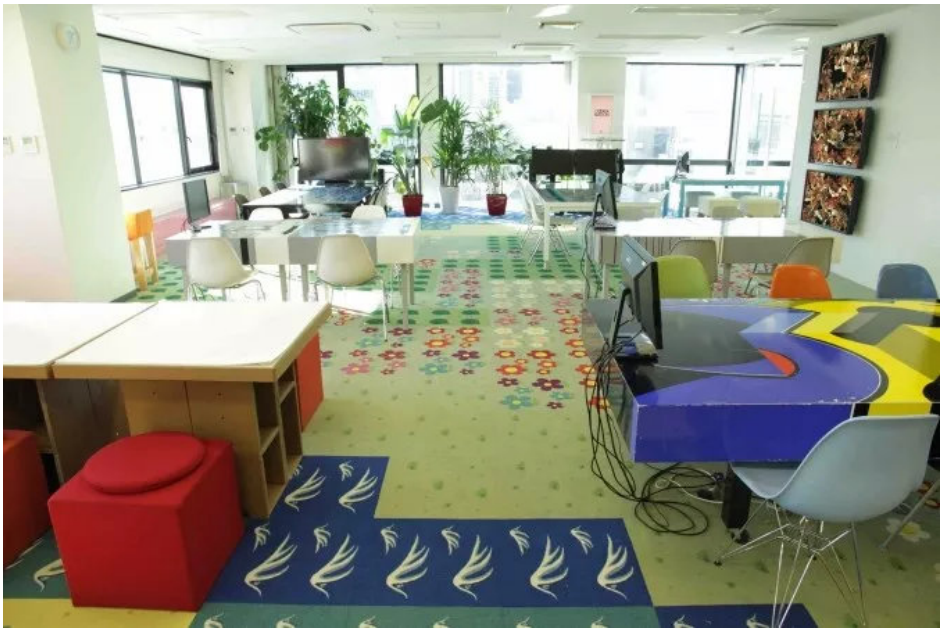
teamLab's old office has a corner that is almost totally covered by green leaves, and the new office, being more spacious, has an entire glass wall shadowed by

potted plants. In the new office, there are even well-groomed green plants, meticulously placed atop one of the meeting desks.

44. A green corner in teamLab's old Tokyo office

45. A table for meeting in teamLab's new Tokyo office

It appears that a specific type of nature is chosen and adored by teamLab, but it might not look so natural at first glance. For instance, the flower motifs on the carpet in their office looks highly simplified and cartoon like, reminiscent of those playful images of Takashi Murakami, like the smiling flowers, which also come in vivid bright colours. Similarly, the waves in the carpet are streamlined, with a series of them forming a calming and rhythmic pattern, resembling the iconic depiction of *The Great Wave Off Kanagawa* by the Edo Ukiyo-e master Katsushika Hokusai. The potted plants and meticulously aligned grass on the unique tables brings to mind the exquisite and unthreatening Japanese art forms of *Nihon Teien* (Japanese garden), *Bonsai* (miniature trees), and *Ikebana.* As Japanese scholars have argued, while the wild and pristine nature may be beautiful, it is only after being carefully examined by a pair of trained eyes, selected and shaped by an experienced pair of hands, that nature can become art. This point is confirmed by the various conversations I had with teamLab's Asia Regional Director, Takuya Takei, who explained that teamLab upholds the principle, "not all nature is art".



46. At teamLab's offices in Tokyo, a patch of the carpet shows the seasonal representations, a nature phenomena favoured by the group

Chapter 4.4 The Notion of Nature to teamLab

Like the look of the carpet, the nature central to teamLab's expression appears harmless, quiet and cute. It is often presented in a comic rendering with vivid colours, capturing the visitors' attention with its friendly appearance, such as the colourful animal figures in the work *Graffiti Nature* (see Figure 17).

Japanese culture is known to favour the comic medium over realistic depiction. As explained by Bill Tsutsui, a Japanese-American historian and author of *Godzilla on My Mind,* this obsession with cuteness, avatars and virtual reality games can be seen as one instance of national reaction to stress. As one of the countries that has a long history of getting affected by natural disasters, such as tsunamis, floods, typhoons, earthquakes, nuclear explosions and various other geotectonic phenomena, it is reasonable to believe that the stress comes from a Japanese fear of nature. Additionally, the cultural psyche encourages de-emphasizing the individual, attaching negative attitudes towards emotional expressions. When people are less likely to exhibit the "weakness" of asking for help, a less confronting style will be the natural decision.

Though it may seems gentle and sweet, the depiction of nature contains a culturally specific type of sublimity, which teamLab advocates. Unlike the West, where sublimity in art is often suggested by extent - the capacity in a thing for exacting awe - these depictions illustrate the unique Japanese appreciation for the sublimity in interconnection and transience. *Flowers and People, Cannot be Controlled but Live Together – A Whole Year per Hour*,[124] is an artwork where flowers bloom upon detecting the presence of a visitor. They

[124] "Flowers and People, Cannot Be Controlled but Live Together - Transcending Boundaries, A Whole Year per Hour: TeamLab / チームラボ," *TeamLab*, accessed August 08, 2018, https://www.teamlab.art/w/flowerandpeople-transcendingboundaries.

thrive upon touches attracting butterflies, and over time, slowly shed their petals, withering and fading away. The moment could never be repeated, as the viewers and the installation are in a constant state of flux, raising awareness of the brevity of existence, as well as evoking a gentle sadness at their passing.

Another example is how the four seasons are used to separate the various sections of the group's office. Season specific motifs could be seen in the carpet design, including the big sun icon to represent the hot summer days, the golden forests for autumn, cherry blossoming for spring and snowflakes resting on the treetops for winter. Sharing the cultural fascination for seasons, teamLab presents, through their artificial nature, the charm of the changing seasons, with a transient and gentle sadness at their passing. But the sense of sadness is also balanced out by presenting the season changes in a format that shows life functioning cyclically. Through repeating motifs, and having the next cycle of the four seasons following the previous one, the philosophy of interconnection representing exploration of the "beginning, middle and end" of all things, firmly established the circle of life. It is the same philosophy behind the act of drawing ensō, a traditional and spiritual practice of drawing a circle, which has been re-enacted by teamLab with new technologies in their work, *Ensō*.

The nature seen in teamLab's artificial creations and their offices are unique, because Japanese culture and individual preferences are informing these stylistic decisions. However, for as long as art history could trace back and in a much bigger geographic scale, the fragmentary depiction and understanding of nature has been taking place. Historically, when a painter paints a landscape, he or she has to have a frame of mind that determines what to be included in the picture and what is extraneous. Though, in the East, the lack of scientific perspective allows an artist to depict more than one can see with the naked eye within that frame, the paintings are still the result of a chosen subject, and the experience of artists taught by tradition.

This selected depiction of nature also occurred with all of the artists whose artificial nature works have been reviewed in Chapter 4.1. Fujiko Nakaya picked fog, this single natural phenomena, as her medium to explore ways to transform the landscape in pursuit of a greater connection between humans and nature. Artist duos Christa Sommerer Laurent Mignonneau saw the potential in plants, the first and lowest link in a food-chain and most prevalent components of nature. These quiet lives were used to raise awareness of the vitality and potential of both artificial and virtual organisms.

They have also worked with aquatic-like life forms in the work *A-Volve*. Disregarding the complex ecological picture, the roles of prey and predator are appropriated rather arbitrarily and assigned to the virtual life forms. In the pioneering virtual reality work *Osmose*, a nature like environment consisting of forest, trees, leaves, clouds, ponds and subterranean earth, is directly copied and recreated in the computer program, accessible by a different navigation mechanism and by the laws of physics. Among these artificial nature creators, the Icelandic-Danish artist Olafur Eliasson who has staged various well-attended exhibitions including *The Weather Project*, is dedicated to working on larger-scale public art projects, to bring the artificial nature to a wider audience globally. Nature images like the sun, flowers, fog, waterfall are a big part of his visual vocabulary. The same applies to Random International's work *Rain Room* and *Waterlicht* by the Dutch artist Daan Roosegaarde. And for all of the above mentioned artificial natures, natural phenomena and elements are taken out of their habitual context, existing solitarily in a new man-made environment.

I infer that this phenomena will further spread with consideration of the disappearing pristine nature, due to urbanisation and human activities, and of

the progressive cultural assimilation that is happening worldwide due to immigration and globalisation.

Chapter 4.5 Interact with and be Immersed in Artificial Nature

One keyword that appears most frequently when describing artificial nature is "interactive". Interactive art, defined by Christiane Paul in *Digital Art*, as a genre of art that requests viewers' participation by providing an input that deduces an outcome. Contrary to traditional art forms, wherein the interaction of the spectator is kept to a minimum mental level, interactive art demands navigation, assembly and/or contribution to an artwork. For instance in teamLab's artificial nature *Flowers and People, Cannot Be Controlled but Live Together – A Whole Year per Year*, participation from the audience is crucial to its completion, because the environment is triggered by the presence of people. When there is no one, the space goes pitch dark. Such quality is written clearly on the label of the work as "Interactive digital installation". Other labels and wall-texts of artificial natures by teamLab are listed below, and though some of them didn't specifically use the keyword interactive, words like "digital" and "multimedia" imply that they are non-static, thus temporally evolving.

Interactive Digital Installation, Endless
Interactive Digital Installation, Endless, Calligraphy
Interactive Digital Installation + Light Sculpture, LED, Endless
Digital Work (loop), Calligraphy
Digital Work, Endless
Digital Work, 5 channels, Continuous Loop
Multimedia
Mixed media
Interactive VR Installation, Endless
Interactive Kinetic Installation, Endless
Interactive Digitized Nature, Endless

Digitized Nature

Interactive Digital Installation, Paper

…...

One common approach artists adopted to facilitate interaction is to create immersive environments. Defined as "(of a computer display or system) generating a three-dimensional image which appears to surround the user"[125] in the oxford dictionary, "immersive" has been the subject of research for many Virtual Reality (VR) artists since the 1950s. Two of the main tools teamLab utilised to achieve the immersive effects are based on VR and Cave Automatic Virtual Environment (CAVE).

Interactivity and immersion as outstanding qualities are also present in the other artificial natures reviewed, where different technologies are used by different artists in various times to achieve them. For example, Fujiko Nakaya's fog sculptures in the 60s rely simply on the specially designed nozzles to create fog, and in recent years she incorporated computers to gain more control of the system.

Almost all of the other artists have embraced some form of digital technologies in their creations. *Rain room* listed "water, injection moulded tiles, solenoid valves, pressure regulators, custom software, 3D tracking cameras, steel beams, water management system, grated floor from 100 sq m" as its media, and the earlier creation *Interactive Plant Growing* also employed "interactive computer installation, live plants, projectors," and so on. As technology advances, a series of tools gradually becomes available to be used in art production, and they are combined with pre-existing equipment to create artificial natures. For instance, Olaful Eliasson's *The Weather Project* utilised "Monofrequency lights,

[125] "Definition of Immersive in English," *Lexico Dictionaries | English,* accessed August 08, 2018, https://www.lexico.com/en/definition/immersive.

projection foil, haze machines, mirror foil, aluminium, and scaffolding", among which the haze machines were invented and became commercially available in the 1960s. Mono Frequency lights, which are normally created with lasers, LEDs or certain filtering technologies, certainly are the product of recent years.

Different approaches are adopted by different artists to create artificial natures, but teamLab has pursued further total immersion and visitor engagement by the amplifying certain element, achieving a new level of novelty in creating more convivial artificial environments.

Chapter 5 A Unique Art Collective – teamLab

From the comprehensive review and comparison on the artificial nature projects in Chapter 4, the author has closed in on what truly sets teamLab apart from other artificial nature creators. The following chapter examines in great details the particularities of teamLab from the corporate structure of the group, design of the brand, to the way different members work together. By scrutinizing the identity of this unique collective, the author further closes in on the peculiarities that set teamLab apart from other producers of artificial natures.

Chapter 5.1 Corporate Culture and Working Principle of teamLab

Founded in 2001 by Toshiyuki Inoko together with a few of his schoolmates, teamLab initially started as a technology company, consisting mainly of software engineers working on projects like designing website and mobile apps. The group started to be known more widely in the year 2011, when they created a video wall for the stage performance of the popular Japanese singer Arashi. The colourful and playful video appeared as an animated backdrop in sync with the singers' dance moves. Gradually, teamLab shifted their focus to making works of art with better recognition, bringing more area specialists on board. In

the same year, teamLab was invited by Takashi Murakami, founder of the Superflat movement, to exhibit at the Kaikai Kiki Gallery Tapei, Taiwan. This was the first gallery exhibition that recognizes teamLab's inauguration as fine art, leading to their first museum show, "We are the Future" at the National Taiwan Museum of Fine Arts the following year.

Nowadays, teamLab has grown to almost 500 members, including software engineers, visual artists, designers, animators, etc. There is one person centrally responsible for shaping teamLab's culture and vision. Inoko Toshiyuki.

Born in Tokushima Prefecture on the island of Shikoku, he grew up playing in Japanese castles, mountains and forests, graduating from Information Physics from the University of Tokyo. Knowing that conventional professional careers wouldn't tolerate behaviours like "not wake up early in the morning, reply to emails promptly, or answer phones, nor remember what I am told to do",[126] he started teamLab in 2001, in order to be able to work in a more laid-back manner with friends. Being a free spirit as he is, as well as having little income, there was a period when Toshiyuki lived in the company offices with minimum personal belongings.

[126] "A Conversation with Toshiyuki Inoko: TeamLab / チームラボ," *TeamLab*, accessed August 08, 2018, https://www.teamlab.art/press/ocula140113.

47. Inoko Toshiyuki

Japanese corporate culture is known to value seniority. However, teamLab values co-working culture and believes in a flat hierarchy. In a 2017 case study, researchers from the Harvard Business School's Japan Research Centre noted: "As a private company that had been managed by the same founding members for 14 years without borrowing external capital, teamLab had evolved into a unique company with few corporate practices and organization structures typical of firms in Japan or elsewhere."[127] Even though it has close to 500 members, it works like a small company with an informal atmosphere. My personal visits to the teamLab Tokyo offices (the old office and the new office which they moved into in 2018) and interactions with the group have confirmed this.

While the members have different expertise, teamLab has three major roles: engineers, creatives and catalysts, supported by a small office team. The engineering team comprises the majority of the employees working on the technological aspects of each project. There are various specialisations among

[127] Ian D Gow and Mayuka Yamazaki, "teamLab: "Ultra-technologist" Group", *Harvard Business School Case 117-072*, June 2017.

the engineers as well, such as interface engineers, network engineers and software architects.

Wataru Sakashita, a software engineer who joined teamLab in 2004, stated that the important quality teamLab looks for most in an engineer, in addition to their technical expertise, is "a mindset to get out of our comfort zone to create something new."[128]

A case study by Harvard Business School noted that teamLab pays their engineers a lower wage compared to the industry average. However, the turnover rate remains low, as employees found the projects challenging and interesting. The engineering team is organised according to technological domains, but Sakashita, a leader of the smartphone application team said, "we rather make it as ambiguous as possible who the team leader is."[129] The design team are responsible for the various design related tasks in each project ranging from space design, web design, to art exhibitions. One experienced designer was involved in 15-20 projects at any time, and there are several lead designers who assure the quality and consistency of all projects, like Adam Booth, the Chief Art Director of the group.

The Harvard study also noted that designers chose to work for teamLab due to its unique and hierarchy-free environment. Among the three major roles, the catalyst team is the core. When a project is sourced, a catalyst will first be assigned, who will then later recruit engineers and designers to join the team. A catalyst works as a project manager and is expected to accelerate "chemical reactions" among the team members. As of October 2018, there were about 30 catalysts in the art component, while the whole company, including the commercial component, had 100 catalysts. teamLab has a small back office with a few staff in charge of administration, human resources, general affairs,

[128] Ibid, 5.
[129] Ibid, 5.

recruiting, and IT systems. However, except for very basic administrative tasks assigned to part-timers, the border between back and front office is ambiguous.

Daisuke Sakai, a founding member and director of teamLab, pointed out that if an engineer found a problem in the internal IT system, he or she could fix the problem or create a new system. Also, corporate staff sometimes work as catalysts if a team want their expertise.[130] During an interview the researcher conducted with teamLab catalyst Kazu (野中千正) in 2018, the member mentioned that depending on the speciality and personality of a particular catalyst, a personal touch is also added to a project. But, because the visuals and technologies are made possible by the other teams, continuity and consistency are guaranteed across all teamLab productions. Besides the catalysts, Toshiyuki also checks in on all the projects at various stages of the project cycle. At the end, all artworks are always collectively authored by teamLab, and no member is responsible solely for work.

48. Inoko's "office" in the old teamLab office

[130] Ibid, 6.

The informal working culture and non-hierarchical organisation of teamLab also appears in the layout of their office environment. In 2017, teamLab's office was located in the top four floors of a seven-story office building not far from Akihabara, a buzzing shopping hub famous for its electronics retailers, as well as being the centre of Japanese anime culture. Most of the four floors are crowded with rolls of desks and computers like any other software company, with the catalysts, designers, engineers and back office staff sitting in their respective sections. Not even the company founders have their own offices, each employee simply has a small desk for a computer and sketching. The founder, Inoko himself, has one small desk with two big bookshelves, stuffed with art catalogues of previous teamLab shows, his visits to other exhibitions around the world and small gadgets.

A small area with a few tables is set aside for the teamLab members to conduct project meetings and discussions, as well as meetings with visitors and clients. As shown in the images, unlike any corporate environment, all the meetings are conducted in an open environment where no walls are visible. One of the few closed spaces is shown in Figure 2, where a glass door with white blinds can be seen next to the display shelf, which is a room full of cables and equipment used for the project teams to build and test prototypes.

49. The open meeting room in teamLab's old office

In the summer of 2018, teamLab Tokyo HQ moved to a bigger and more spacious venue, where each member was given a much bigger individual desk area, maintaining the open space concept, which encourages discussion, stimulating creativity. The entire sixth storey of the new office is reserved for meetings and the space is divided into various sections with unique designs. teamLab contends that working behind a desk and memorizing information is for the last century; with the development of computer technology, bodily experience and interaction with people are more valuable in the working space today. The Japanese artist collective explained the concept with the following example: "When a person falls from a height, he will unconsciously extend his hands to balance. This action is very easy for humans, but difficult for a robot." Thus the floor is designed to be not flat, but sloped and curved.

50. teamLab's new office in Kanda, Tokyo

Additionally, none of the two tables for meetings are the same and members are free to choose any to use. On top of the table, one has a light bulb floating on it, the other is topped with a soft pink cushion. One table is made of carton boxes and the other has a pile of magnetic sand in the middle. By encouraging the bodily interaction with the environment, the design is intended to inspire teamLab members to think out of the box. Such a philosophy could be seen as an application of the Embodiment Thesis, which is defined by the Stanford Encyclopaedia of Philosophy as: "many features of cognition are embodied in that they are deeply dependent upon characteristics of the physical body of an

agent, such that the agent's beyond-the-brain body plays a significant causal role, or a physically constitutive role, in that agent's cognitive processing."[131]

Chapter 5.2 Work as Play, Play as Work.

In a 2013 article by the online news platform, JapanToday.com, 10 words were provided to summarise the impressions foreigners had to Japanese people. They are as follows: "polite, punctual, kind, hard-working, respectful, shy, intelligent, grouping, formal, clean."[132] These words spring to mind a picture of a slightly uptight and serious figure. Meanwhile, this country is also known for its booming comic culture, as well as being one of the best video game producers worldwide. These seemingly contradictory characteristics act together in influencing art collectives like teamLab in their way of conducting and creating.

It has been mentioned that the founder of teamLab Toshiyuki Inoko established the group because he was not interested in and did not know how to work for a big company. Instead, he wanted to just work with his friends and do things that made him happy, resulting in a non-hierarchical organisation structure and informal working culture. Additionally, Inoko mentioned in an interview that he was popular among the young audience for the works he had done because

[131] Robert A. Wilson and Lucia Foglia, "Embodied Cognition," *Stanford Encyclopedia of Philosophy*, December 08, 2015, accessed May 08, 2019, https://plato.stanford.edu/entries/embodied-cognition/.
[132] Japan Today, "The Top 10 Words to Describe Japanese People (according to Foreigners)," *Japan Today,* accessed June 01, 2019, https://japantoday.com/category/features/lifestyle/the-top-10-words-to-describe-japanese-people-according-to-foreigners.

they were fun.[133] The absence of the rather repressive side of the Japanese culture has given space for playfulness in teamLab to thrive.

It is demonstrated by the logo of the group, which is a colourful picture of the word “teamLab” written in a cartoon font with a yellow star sign next to it. The bright and vivid colours are reminiscent of the spectrum of the rainbow. Inoko explained the design as an imitation of companies like Apple and Google, who previously had rainbow coloured logos, because that which is "not rainbow colour is not real, [it] is fake!"[134] As a successful commercial company as well as an art collective, where professionalism and formalities are expected generally, the buoyant logo in a comic-styled design is highly unconventional and appears almost cynical.

51. teamLab’s logo.

While at work, teamLab members are encouraged to branch out and explore things that excite them rather than focusing merely on the tasks at hand. The interior design of the office is to help members to think outside the box, hence the cartoon carpets and various tables, resembling a small amusement park.

[133] 象外一群想把艺术拉出圈外的人丨微信公号象外（xiangwai_artha）知乎分身, "御宅族、超技术、团队实验室，这群日本人想做的恐怕不只是几场酷炫展览," *知乎*, accessed June 08, 2019, https://zhuanlan.zhihu.com/p/27248396.

[134] Ibid.

And in one interview with teamLab's catalyst Kazu, an example was shared where the group's engineers designed a mischievous yet practical mini computer programme to remotely detect whether there was a queue in the bathroom.

Another demonstration of teamLab's supporting attitude towards play at work is their introduction of children as important working partners. It has been mentioned numerous times in published interviews as well as my own conversations with the group that children are invited to test out teamLab's works before they are showed to the general public. It is only when the children found fun and amusement that works were considered complete. This is because the group believes that being an adult suppresses human nature, harming creativity in the long run. By returning to the fun and relaxing times that are often labelled as children's activities, it would liberate them from the rules and constraints from daily lives, helping to regain access to creativity and happiness. Besides, teamLab feels upset about children having to keep their distance from serious art galleries or museums, thus; by providing a way of navigating and appreciating art with less distance in between, they are giving back the right of appreciating beauty to everyone, irrespective of age.

Chapter 6 Play, the Special Ingredient

The way teamLab advocates work as play, and play as work not only informs the identity of the group, but also dictates the nature of their artistic creations, to the extent that it can be seen as the aesthetic principle that guides the overall creation of the group, including their artificial natures.

Chapter 6.1 Notion of Play

'Play' in the Oxford Dictionary is defined as "to engage in activity for enjoyment and recreation rather than for a serious or practical purpose".[135] In young children, play contributes greatly to their cognitive development and socialization.[136] Kids, through play, make sense of the world, form and explore relationships with family and friends, as well as learn about intellectual, emotional and ethical ideas. Findings in the neuroscience field also suggest that play helps to stimulate flexibility of mind, to achieve a desired result, or locate creative ways to improve or reorganise a given situation. As children grow older and become adults, they engage in more organised play activities, such as board games, video games and competitive sports to learn about the rules of the world.

The concept of "play" in Western phylosophy, especially concerning the convergences and complementarities between aesthetics and play, has also been discussed in, though not by many, but a few significant historical art historians. German Philosopher Friedrich Schiller's work on the "play drive" is considered to have firmly established "play as a legitimate topic of serious philosophical discourse, thereby bringing about a revolution in the modern history of the play concept(s)."[137] Based on Kant's use of the term "free play" in the *Critique of Judgement*, Schiller listed "play" as one of the three drives, along with the "sensual drive" and "formal drive" that constitute the human condition. Schiller argues that "…man only plays when in the full meaning of the word he is a man, and he is only completely a man when he plays..", thus establishing play as an important, albeit ambiguous, driving force of cultural

[135] "Definition of Play in English," *Lexico Dictionaries | English,* accessed August 07, 2018, https://www.lexico.com/en/definition/play.
[136] Rachel E. White, "THE POWER OF PLAY - Childrensmuseums.org," March 2013, accessed February 7, 2019, https://www.childrensmuseums.org/images/MCMResearchSummary.pdf.
[137] Mihai Spariosu, *Dionysus Reborn: Play and the Aesthetic Dimension in Modern Philosophical and Scientific Discourse*(Ithaca, NY: Cornell University Press, 1989).

and artistic production.[138] After Schiller, Dutch cultural theorist Johan Huizinga wrote the significant volume, *Homo Ludens,* discussing the importance of the play element to culture and society, and suggested that play is primary to and a necessary (though not sufficient) condition for the generation of culture. In the book, he defined play as follows: "Play is a free activity standing quite consciously outside 'ordinary' life as being 'not serious,' but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner."[139] German philosopher Hans-Georg Gadamer later developed the concept of "play" further as a natural process that can be used as a model to understand art.[140] As Gadamer pointed out, the to-and-fro movement of play which is not directed towards an end state "absorbs the player into himself, and thus frees him from the burden of taking the initiative". Thus, Polish artist and art historian, Dr. Katarzyna Zimna, stated that rendering an artwork as play would allow "artists and viewers to immerse themselves within while playing along and receiving the artistic message through experience rather than contemplation.[141]

The traditional aesthetics based on the contemplation of objects is slowly being replaced by the concept of aesthetic engagement. Zimna also suggested play could be adopted as a desirable alternative in this process to overturn the conventional hierarchy of values established by the traditional artistic 'work'.[142] This attitude is met with instinctive support, particularly in Japan. Conventionally, play is not a term used to describe art; however, in Japan,

[138] Friedrich Schiller, Elizabeth M. Wilkinson, and L. A. Willoughby, *On the Aesthetic Education of Man: In a Series of Letters* (Oxford: Clarendon Press, 2005).
[139] Johan HUIZINGA, *Homo Ludens: A Study of the Play-element in Culture* (London: Routledge & Kegan Paul, 1949), 13.
[140] Hans-Georg Gadamer, *Truth and Method* (London: Bloomsbury Academic, 2014), 104.
[141] Katarzyna Zimna, *Time to Play: Action and Interaction in Contempororary Art* (London: I. B. Tauris, 2014), 52.
[142] Ibid, 41

according to Nobuo Tsuji, the premier authority on Japanese aesthetics, playfulness has always been one of the unique qualities of Japanese art.[143] Japanese New Media Art scholar Machiko Kusahara also confirmed that, in Japan, between art and play there is no clear-cut difference.[144] According to Tsuji, the spirit of play is linked with two traditional aesthetics: "Reja" (leisure) and "Asobi" (play). The scholars of the International Play Association (IPA) explained the difference between "Reja" and "Asobi". "Reja", often translated as "Leisure', refers to playful activities which in reality do not foster play, they are merely 'fun' (e.g. TV, famicon, playstation). On the other hand, "Asobi", translated as "Play" refers to a wide semantic array of 'traditional' concepts of children engaging in creative, free play that is usually conducted outdoors, in natural settings, and is considered to be promoting imagination and creativity.[145]

Chapter 6.2 Notion of Play for teamLab

52.teamLab, *Crystal Universe*, 2015

[143] Nobuo Tsuji, *Playfulness in Japanese Art* (Lawrence, Kan.: Spencer Museum of Art, the Univ. of Kansas, 1986).
[144] Machiko Kusahara, "They Are Born to Play: Japanese Visual Entertainment from Nintento to Mobile Phones", *Art Inquiry 2003*.
[145] Joy Hendry and Massimo Raveri, *Japan at Play: The Ludic and the Logic of Power* (London: Routledge, 2005), 18.

In teamLab's case, both *reja* and *asobi* are tellingly illustrated by the fact that the majority of their works are surrounded by an air of relaxation and jauntiness. For example, *Future World,* teamLab's permanent exhibition at the ArtScience Museum in Singapore, envisages opening "a world of playful possibilities through the adventure of exploration" with environments that bring to mind playgrounds. Both adult and young visitors have displayed a great amount of excitement in their interaction with these works. Characteristics of *reja* predominate the experience for works like *Crystal Universe,* which was designed to be experienced by being submerged in the installation of pulsating lights, and *Sliding through the Fruit Field*, where visitors' body collide with the fruit images sliding down the slope. Whereas in works like *Graffiti Nature* and *Connecting! Block Town*, *asobi*-like features prevail as visitors are encouraged to actively participate and be co-creators in the fabricated worlds.

53. teamLab, *Connecting! Block Town Future Park,* 2016

Artist Takashi Murakami epitomised the Japanese's attitude towards play. Known for coining the term "Superflat", referring to the various flattened forms in Japanese graphic art, animation, pop culture and fine arts, Murakami incorporates various playful elements into his work. These include flowers with

smiley faces, comical characters, and other such features. This playful iconoclastic attitude speaks of the artist's not believing in the separation of high and low culture, which teamLab believes in too. It is thus not by coincidence that Murakami is also the founder of an art management corporation, Kaikai Kiki, which offered teamLab their first art world debut in 2011.

To briefly sum up the impact of play on the making of art by teamLab, it seems the group exploited the fact that play could provide an approach to further absorbs visitors into the artwork, thus altering the mode of art appreciation to one of experiencing rather than contemplating. They have also taken advantage of play being able to contribute to children's cognitive development and socialization, as well as informing them of the rules of the society. Additionally, as a cultural phenomenon, play is of profound significance, and coming from a culture where it has a non-pejorative connotation, teamLab was encouraged to create works that were fun and playful which is hardly encountered in the traditional Western mentalities.

Chapter 6.3 Play in the Artificial Nature of teamLab

Having established that play guides how teamLab operates as a collective as well as acts as an aesthetic principle in the making of their art, these subchapters further examine how play is incorporated into teamLab's artificial nature. They answer what it means to play in the context of teamLab's artificial nature, and look at the possible effect it has on understanding nature in our time.

Chapter 6.3.1 Play in Graffiti Nature:

In this artificial nature, visitors are designed to be part of the environment. Their voluntary behaviours to engage influence their surroundings, and the surroundings also influence their mood. Within the time and inside the place of the exhibition, the response-time between one's actions and consequences are

significantly shortened to keep visitors' interested, providing a joyful and fun experience. In line with teamLab's philosophy of making works available to anyone regardless of age, visitors are not required to have any prior knowledge or particular skills to appreciate works like *Graffiti Nature*. Regardless of their background, race or age, any visitors are welcomed to sit down to colour a piece and to become a creator and participant of this artificial nature. In fact, children often appear more familiar with the environment, as handcrafting and running around in an unobstructive field are experiences that are part of their daily routines. Adults are the ones who are encouraged to refamiliarise themselves with the feeling of drawing using a crayon, exploring this world like a child. Engaging people with play activities is teamLab's strategy to remove any barriers between participants and their artworks.

Another one of the ways teamLab encourages visitors to play and explore the artwork with a sense of relaxation is by animating the environment with lots of colours. The original set, before any visitors are included, already displays an array of highly saturated colours, from the glowing blue on a giant whale that cruises across the space, to the bright pink and yellow that decorate the bushes. Later on, more colours are introduced as the ones used on visitors' creations are projected into the sphere. It is observed that when there are only a few animals available for colouring, people tend to be bolder and use many colours in their works.[146] It is known that colour influences mood, thus they can be used systematically to enhance learning and influence mood in a specific way. Especially bright colours can stimulate creativity, thus they are often used in art learning centres, dramatic play centres, etc. But it is important to note that bright colours may overstimulate children if they are already excited, and the young visitors running around in the *Graffiti Nature* non-stop may prove just that.

[146] Bride M. Whelan, *Color Harmony 2: A Guide to Creative Color Combinations* (Gloucester Mass.: Rockport Pub., 2005).

Although some young visitors (mostly whose parents are by their sides), quieten down after a while and start taking in the rules of this artificial nature, others continue with their own explorations, often chasing and disturbing the digitised animals till exhaustion. Thus, it heralds that teamLab might not have adopted the most suitable colour scheme to convey the proposed message of *Graffiti Nature*.

The animated postures and movements of the animals also encourage interaction and play activities between visitors and the artificial nature, confirmed by Dr. Adam, who designed the animals while thinking of Hokusai and Jakuchu, "whose drawings of animals have wonderful humour and energy". He shared that the very distinctive poses of these animals by the two great Nijonga painters helped with the design of the paper for visitors to colour and draw on. For instance, Hokusai often drew birds with their heads tilted to one side looking up. The animals in *Graffiti Nature* are mostly seen from above, but Dr. Adam wanted to show their underside, and so a lizard is made to twist its head to look up as in the Hokusai pose.

This nature-inspired playground, especially when exhibited in a city where real nature is far to reach, does bring a friendly and animated version of nature closer to people. The behaviour of many of the animals, though less life-like, attracts visitors to interact with them, learning new things about the real animals.

Chapter 6.3.2 Play in A Forest Where Gods Live

Huizinga defined 'play' was defined as "a voluntary activity executed within and sometimes beyond certain fixed limits of time and place, according to rules freely accepted but loosely binding, having its aim in itself and accompanied by a feeling of joy, curiosity, relaxation, and the consciousness that it is similar but

different from ordinary life".[185] In this exhibition, a few works have demonstrated unconcealed playful ambience. For instance, the version of *Graffiti Nature*, as discussed in the previous case study, was achieved by the various means teamLab employed, from the usage of colour, to the design of the animal characters and their movements. Additionally, *Drawing on the Water Surface Created by the Dance of Koi and Boats* uses similar techniques to attract interest from the visitors, even though this case only observes the interactions, instead of being active participants. Others display play in a much more moderate form, such as those which respond with light to the detected presence of visitors, like *Sea of Rocks of Oblivion, Split Rock and Enso, Resonating Mt. Mifuneyama* and *Life is Continuous Light - Azalea Valley.* These works have all the formal and essential characteristics of play that we enumerated, particularly in so far as they engaged visitors in a relaxing manner.

Many of the artworks in this exhibition are rich in ritual references, such as the digital images being projected to sacred venues, from the borderline between garden and wild forest - a sacred rock, a Buddhism shrine, or the steep mountain of Mifuneyama. Additionally, the park Mifuneyama Rakuen itself is a venue where seasonal festivals are hosted, where the religious rituals of Shintoism and Buddhism are staged to celebrate the happenings of the life of nature. Works like *Sea of Rocks of Oblivion* and *Resonating Mt. Mifuneyama* particularly address the primitive belief that in places that exhibited a particular beauty and power, such as waterfalls, mountains, trees, and rocks, there are kami that reside within them, deserving recognition and respect. In these works play is also demonstrated. It might seem preposterous to compare ritual to play, given that ritual is more often considered highly serious and holy at its finest. However, the two forms are highly similar, allowing rituals, thus, to become play.

[185] Huizinga, Homo Ludens, 18.

As Huizinga has proved in *Homo Ludens*, though we are used to thinking of seriousness and play as complete opposites, many play-characters have showed us otherwise, from children who play in "complete earnest", to a sportsman who knowingly plays, but still gives his/her all with fervour, to an actor who is devoted to playing a part on stage.[186] He also pointed out how ritual acts have the ability to transport the participants to another world, just like how when engaged in play-activities, people are fully aware that these situations are not real, yet they completely submit themselves to following the rules of these newly found realities.

Additionally, Plato recognised the similarity of ritual and play by stating:

> "…man is made as God's plaything, and that is the best part of him. Therefore every man and woman should live life accordingly, and play the noblest games and be of another mind from what they are at present … Life must be lived as play, playing certain games, making sacrifices, singing and dancing, and then a man will be able to propitiate the gods, and defend himself against his enemies, and win in the contest."[187]

Formally, Huizinga also demonstrated the equivalence of a space being reserved for sacred purposes, and as a playground. Since play separates itself from ordinary life, there is a special place enclosed for it to happen, "either materially or ideally." Within the space, rules that guide the activities apply and always hold. Furthermore, the resemblance goes beyond being purely formal as in, at least, an archaic ritual, such as Shintoism. Similarly to how there is no conceptual difference between a savage in a ritual ceremony "playing" a deity while believing himself as "being" the deity, in play, the distinction between

[186] Huizinga, Homo Ludens, 18.
[187] Plato and Trevor J. Saunders, *Plato: The Laws* (Harmondsworth: Penguin, 1975), 796.

the real and unreal dissolves. However, It is important to acknowledge that while some ritual acts are considered within the 'play' category, holiness is not impaired in any way.

With play underlining this artificial nature, the presentation of this exihibition appears more holistic and complete, comparing to teamLab's artificial nature in museums and galleries, resulting in the construction of more believable realities. With respect to interviews and the author's observations, three explanations have emerged.

Firstly, in this environment the less controlled version of nature itself plays a dominant role in the final composition, which ensures the wholeness of the presentation of the nature image. For instance, the same waterfall when displayed in a museum setting, though imposing an impression of great solemnity and serenity, does not possess the same transforming quality. Secondly, as an experience that is closer to a total immersion, *A Forest Where Gods Live* engages with more senses, and as a result, the play-elements gradually recede into the background, being absorbed by the sensory sphere. In this artificial nature, real nature combined with digital handlings, visuals, sounds, touches and smells, are united to strengthen the embodied experience, making the delivery of a message much more effective. Thirdly, with the remote exhibition venue, various audiences the research had spoken to have shared that they drove many hours to get there, being forced to spend a night nearby. So the play-infused works of teamLab become attractions to otherwise ignored locations. Something else that is interesting is how the long travel to the exhibition location has created heightened expectations, and thus leads visitors to apprehending the works without being overly seized by the fun-factor. They chose to open themselves up for a holistic experience, giving more thought to the underlying messages, instead of being instinctually taken away by the flashy visual effects.

Chapter 6.3.3 Play in MoonFlower Sagaya Ginza

At first sight, there seems to be little connection between play and fine dining, which for diners are often social occasions, considered as formal high-end; or the opposite of laid-back fun. For chefs, the atmospheres are generally "brutalizing and competitive", as mythologised in the media.[188] However as we have analysed in the case of rituals, seriousness does not impede an action being associated with play. And an affinity exists between the two as soon as we realise how much a fine dining experience fits the definition of play.

Firstly, unlike when eating is treated casually in a more relaxing manner in everyday life, fine dining often elevates the act of food preparation and eating by carefully curating every single part of the experience, elevating it to an aesthetic experience. Thus, it is similar yet different to ordinary life. Secondly, both fine dining and play happen in a confined location. Almost every fine dining restaurant is located in an area that is clearly hedged in from everyday environments - or that provides an experience that is out of ordinary, such as the blindfolded dining in the dark experience that has caught on globally in the past few years. Thirdly, chefs about to make culinary creations step outside of their everyday life as soon as they put on the chef cap, toque, and apron - a tradition that dates back to the 16th century.[189] But the uniforms are made for purposes beyond simply protecting the culinary staff. Partly in order to make sure food is prepared in hygienic environments, and partly a mere a relic of antiquated professional dress. Functionally, it has close connections with the mask a shamanistic priest might wear before performing ritualistic ceremony,

[188] Kara Baskin, "Why Working in the Restaurant Industry Can Be Hard on Your Mental Health - The Boston Globe," *The Boston Globe*, March 01, 2016, accessed July 08, 2019, https://www.bostonglobe.com/lifestyle/food-dining/2016/02/29/why-working-restaurant-industry-can-hard-your-mental-health/NaqWdSHvKJtZQCoberbLjP/story.html.
[189] Daniel Engber, "Who Made That Chef's Toque?" *The New York Times,* March 28, 2014, accessed July 08, 2019, https://www.nytimes.com/2014/03/30/magazine/who-made-that-chefs-toque.html.

which "transforms the wearer into another 'being'".[190] Last but not least, fine dining, like play, is a rule-bound activity. The diners are requested to be aware of a set of rigorous etiquettes, from the dress code, to the sequence of different cutlery being used, from the placement of the napkin on your lap, to keep your voice low; and there are many rules and regulations restaurant staff have to follow to ensure the safety and the creation of out of ordinary food and dining experiences.

Artists have not been strangers to working closely on dining related themes, where play is an active association. Historically, since the 16th and 17th century, the still-life themed paintings have been depicting all kinds of things on the table. In the 19th and 20th centuries, artists like Picasso and Braque were known to gather and work in cafeterias. More recently, we have witnessed artists getting more involved in the actual act of eating and cooking in their works, such as Rirkrit Tiravanija providing Thai food in his gallery exhibition in the 90s. There are other examples of artists involving themselves in the branding of a restaurant, such as the internationally renowned artist Yoshimoto Nara's design for A to Z Café in Toyko, and Damien Hirst's restaurant collaboration with chef Mark Hix, decorated with a pharmacy theme in London. The artworld confirms the value of these collaborations, awarding Tobias Rehberger the Golden Lion Award for his cafeteria-installation at the 2009 Venice Biennale. The jury noted that the work went "beyond the white cube, where past modes of exhibition are reinvented, and the work of art turns into a cafeteria. In this shift social communication becomes aesthetic practice."[191]

In this collaborative dining experience by teamLab and the restaurant, there are several participants whose specific roles help us understand the influence of

[190] Huizinga, *Homo Ludens,* 77.
[191] "ARTEK Congratulates Tobias Rehberger on the Golden Lion Award," *Art-agenda Announcements,* accessed August 08, 2019, https://www.art-agenda.com/announcements/188798/n-a.

play on artificial nature in this setting. Clearly, the diners happily give in to the controlled rules that formulate this dining experience, so as to enjoy a unique culinary exploration. Additionally, chefs are the masterminds behind the creation of exquisite foods. A fine-dining restaurant like MoonFlower Sagaya Ginza is expected to use top quality ingredients, and the chefs are master-creators, crafting unique flavours, playing with ingredients with creativity, transfiguring them into quasi-mystical plates. Lastly, unlike any other white tablecloth fine-dining setting, the decoration and overall environment of this restaurant significantly influences the presentation and reception of the food. Even though their influence is a passive one, they should be considered an important participant in this case. Overall, the food on the table effectively interacts with the environment as if there is "a world being unleashed from the plates", presenting a multi-sensory culinary experience. If the chefs are responsible for the taste, smell and look of the dishes, teamLab activated the sound and other elements, manipulating the overall mood through the digital works.

In this peculiar culinary experience, the many play elements lead to nature being manipulated and consumed. Almost every parent has told his or her kids not to play with food, which in our ordinary life often has a pejorative connotation, as it often entails food waste. But in this case, food is the medium for chefs and teamLab, which they turn into an aesthetic experience for diners. However, the notion of manipulation in the "play with food" remains. The diners experienced a version of nature that is curated by the creative. The natural phenomena that are re-enacted are selected to inspire - both historically and culturally - leaving out the potentially destructive and less-groomed side of nature. After the delicate preparation process, the foods are presented in a highly controlled environment, where artificial nature sets the mood to evoke specific emotions, such as melancholy for the passing of time, and the serenity of flowing water. With the various senses being engaged, diners take a bite that essentially epitomises nature. Consumption is conspicuous.

In all three artificial natures of teamLab we found traces of play omnipresent. Play as the key aesthetics of teamLab has been highlighted from how teamLab identify themselves, to the conceptualisation, execution and presentation of each mixed-reality environment.

Chapter 6.4 Play in Artificial Nature

Beyond teamLab, play-elements have also manifested themselves in various ways in the artificial nature reviewed in Chapter 4.1. The immersive artificial fogs by Fujiko Nakaya allowed visitors to wander freely through the dreamy mists, which brought an otherwise ethereal and remote natural phenomenon to the close proximity of humans. Many natural qualities of the fog had to be removed and altered in exchange for a more regulated presentation in the reconstruction process, leading to a simplified and stylised understanding of fog for visitors.

Artist duo Christa Sommerer Laurent Mignonneau, in their artificial nature, visualised the responses of plants to human touch. What used to be invisible to human perceptions were made conspicuous, and as a result the visitors were made aware of the vitality of real plants through playful interactions with the artificial versions of them. *A-Volve* (by the same pair) also prompted visitors to interact with and to control imaginary and virtual, aquatic-like life forms. Both interactions are highly engaging as the visitors were given immediate visual clues on the impact of their actions on the virtual organisms. In the real life setting, on the contrary, understanding how human actions might impact a plant or an animal can take a significantly longer period of time, often requesting specific knowledge, which would turn many people away from exploring further. Hence, visualising the otherwise invisible functioned as a bridge, facilitating human nature communications. However, the manipulative qualities

in such artificial natures were made abundantly clear, particularly in *A-Volve,* where artists endowed visitors with a great degree of control, so that they could more or less decide the fate of any organism. As evolutionary trajectory continues to extend into the future, such artificial natures with innate play-elements shine light on the potential narrowing in the notion of nature, caused by human intervention, such as what is happening in the field of genetic engineering and biotechnology.

Osmose was a VR artificial nature that was inspired by the artist's own scuba diving experience, which in real life remains an activity reserved to those who are physically fit and mentally prepared. It is a sport which requests a great amount of equipment, along with learned skills, which are critical to the safety of the participants. The application of VR removes the rigorous requirements of actual scuba diving, crafting an artificial version, allowing laypeople to experience the sensations of an otherwise impossible activity. The immersive expression of VR technology boosted playfulness with its innate qualities such as virtuality, offering visitors autonomy.

Similarly, play-elements are bound up with the full body immersion in the artificial natures, such as Olafur Eliasson's *The Weather Project,* Random International's *Room* and Studio Roosegaarde's *Waterlicht*, where visitors were given the space to explore most freely.

Lastly, among the reviewed artificial natures, Olafur Eliasson's social project *Little Sun* presented play-elements in perhaps the most immediate everyday sense. Although serving a practical purpose of providing lighting to off-grid parts of the world, the yellow devices had a highly stylised and cartoonish appearance, being often mistaken as toys. Such misunderstandings are confirmed by the artist who, in response, released the second generation

product *Little Sun Diamond* – a more minimal design without any bright colours – in 2017.[192]

Each one of these artificial nature was inspired by and resembled a microcosm of the real nature. They were designed to challenge the scope of nature and to depend on the set themes and modes of interaction made available in each environment, they have all demonstrated a certain degree of human manipulation of nature.

Chapter 7. Conclusion

Today, the very idea of pristine nature has become obsolete, and the term nature can hardly be pinned down to a specific entity, without taking in social, political and cultural contexts, as seen in the various projects by different artists. Therefore, the discussion of this study is carried out based on an expanded notion of nature, which includes not only the wild and less controlled natures, but the highly curated natures, even the technologically mediated and manmade versions of natures. Since the 60s, among the artworks that were inspired by nature or created with nature as subject matters, this specific genre of works stood out because of its usage of technology. These works, evoking nature-like aesthetic experiences within mixed-reality installations, are referred to as ***artificial natures***. As an aesthetic and technological extension of nature, a number of artificial natures became blockbuster exhibitions, attracting thousands of visitors, partially due to their engaging qualities. Analysing their impact further help us understand how the concept of nature has expanded further, as well as get a glimpse of the future of possible human/nature relationships. Specifically, this thesis looked at teamLab's practices as a novel representation of artificial nature, which stood out as a convivial environments

[192] Rima Sabina Aouf, "Olafur Eliasson Reveals Latest Pocket-sized Solar Lamp, Little Sun Diamond," *Dezeen*, June 06, 2019, accessed July 08, 2019, https://www.dezeen.com/2017/03/07/olafur-eliasson-design-new-pocket-sized-solar-lamp-little-sun-diamond/.

constructed with innovative technologies. With much scrutiny, play has been identified as the key aesthetics that not only informs how teamLab operates but also guides the creation of their artificial nature.

Each individual artificial nature of teamLab reviewed has been greatly affected by play. *Graffiti Nature* most closely resembles children's play where visitors were encouraged to interact with the colourful and highly interactive work as a child would. Being represented in this reactive and animated display, the exhibition was turned into a digital playground. *A Forest Where Gods Live*, the site-specific exhibition, also demonstrated unconcealed playful ambience in a few works, but others much more moderately. With the help of digital technologies, artists successfully reactivated a site which otherwise would have been a lot less visited. Comparing to *Graffti Nature,* an understated style of play is adopted to bring visitors closer to a less controlled version of nature. Although the stylistic decisions of the artists unavoidably narrowed the notion of nature, the multi-sensory immersive experiences, coupled with a toned-down colour scheme made up for what was missing, allowing visitors to effectively apprehend an holistic image of post-natural nature. Lastly, in *MoonFlower Sagaya Ginza,* we found nature as a culinary experience - a classic example of adult play. Usually, a dining experience does not constitute play, as it fulfils the functional needs of the human. However fine dining is not a necessity for survival, nor does it serve a practical purpose. It is voluntary, pleasurable, rewarding, conforming to the play definition adopted by this study. Nature, in such presentation, acted as more than just the subject matter and an inspirational source; it also constituted the ingredients for cooking, which is manipulated and consumed in this very particular adult play.

In such experience-based artworks, nature is more than merely a subject matter. This has been expounded by the art critic John Dewey further as someone who

perceives a work aesthetically will create an experience in which the subject is new.[193] That is to say that teamLab brought meaning and value from earlier experiences into an artificial nature, endowing the environment new life, resulting in a completely new object of a completely new experience, a new venue of a new meaning.

Dewey also extended aesthetics into the realm of everyday life, identifying the segregation of art from everyday life as the reason why fine art fails to appeal to the general public. Play is an elegant aesthetic strategy teamLab come up with to downgrade such separation. The omnipresent traces of play, range from children's play, to play in the sense of ritual practise, to a classic example of adult playing in a culinary experience. Play as the key characteristic, is identified as the special ingredient that help teamLab achieve these highly immersive and interactive environments. As a quality that is easily accepted and embraced by masses, play has brought an otherwise aloof and distant notion, nature, closer to people, transforming less visited natural sites into convivial public spaces. However, as the notion of nature in any artificial nature will inevitably be selective, the play-elements innate to artificial nature might further contribute to the shaping of an overly friendly and fragmentary image of nature. It could potentially arrest the comprehensiveness of what nature entails, thus inducing a simplified and stylised understanding of it by participants of artificial natures.

The intention for this research was not to arrive at a conclusive answer of how play as an aesthetics affected the way in which nature is constructed and perceived across all artificial natures. However, by situating the analysis and discussion of teamLab's works among other artists, it provides a glimpse of the significance of play in general, thus suggesting alternative angles by which new media art can be viewed and analysed, beyond the context of one collective.

[193] John Dewey, "Chapter 5: The Expressive Object," in *Art as Experience* (New York: Capricorn Books, G.P. Putnam's Sons, 1958), 89-90.

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Appendices

Appendix I. teamLab founder, members, dealers

Toshiyuki Inoko 	Born in 1977 in Tokushima, Japan. Launched teamLab at the same time he graduated from the Graduate School of Engineering, at the University of Tokyo. Studied statistics at college and natural language processing, as well as Art at graduate school. Mainly responsible for creation at teamLab.
Takuya Takei 	teamLab Asia Regional Director, born in Nagano, Japan in 1983. He graduated from the Hitotsubashi University in 2006, from the Department of Commerce.
Adam Booth 	teamLab Artistic Director, Doctorate in Japanese Painting, Tokyo University of the Arts, MA in Japanese Painting, Tokyo University of the Arts.
Kazumasa Nonaka (Kazu) 	teamLab Catalyst (Project Manager).
Ikkan Sanada	dealer of teamLab.
Pace Gallery	dealer of teamLab.

Appendix II. Interview Transcription

Interviewee: Takuya Takei
Date: 26 May 2018
Format: face-to-face

V: What is your education background before joining the group?
T: I grew up in Tokyo and studied business. Before graduation I interned with teamLab for a year and joined the group later.

V: What is your role in the group?
T: I am a catalyst

V: What are there of the major projects you've contributed to?
T: Circulum Formosa (2014) Taipei; Continuous life and death (2017) Ikkan Gallery; Digital Light canvas (2018) MBS

V: Further to our previous discussion, during today's session, I am interested in finding out your definition for "nature" and get some clarifications on the special cultural significance of flowers, which often appear as a prominent subject matters in teamLab's works.

T: Sure.

V: Here is a definition of "nature" that I found in Oxford dictionary, "the phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations." To what extent do you agree with this definition?

T: Partially. As I explained before, teamLab we believe human is part of nature (and we need to respect nature). It is not a very unique idea, from Japanese and Asian perspectives. For example many years ago, when Nara was the capital of Japan, people didn't know about preservation of nature. However, they planted trees back after cutting them down for wood, because they believe there is god in the nature and we need to show respect.

Even nature itself knows it's better to live together. An example would be the evolution of plants on earth. In the very beginning, the dinosaur age, the initial

plants available are pteridophytes; slowly, the more advance types of plant, gymnosperm appeared; at the end, the flower plants. The logic is, initially plants just grew taller to compete for sunlight for survival; at the end flower plants appeared, and they attracted bees and insects to collaborate to increase they survival chances. Somehow the plants intuitively evolved from living independently and individually, towards a collaborative mode, towards symbiosis. In a way, flower is the symbol of collaboration. Plants in the wild, which are unarguably part of nature, collaborate with animals to survive.

V: Since industrial revolution, human beings have gained a lot more control over nature, and are able to shield ourselves better from natural disasters, comparing to ancient times. Do you think **the fear for nature** forced us to think human is part of nature?

T: Maybe, I'm not sure. I think long time ago even before religion exists, people instinctively live in harmony with nature. Like I mentioned earlier, people in Nara cleared some forests to make space for a temple, and then planted the trees back to restore the balance. It's peaceful.

V: If human is part of nature, how about human creation? For instance, rice fields, do you consider them nature?

T: When we visited Kunisaki Penisula to work on the project "Flowers and People, Cannot be Controlled but Live Together", there were many flowers in the mountains, some planted and some wild. In that context, I think we can say human do have influence over nature, and **human creation is a continuation to the wild nature.** I cannot say that human creates nature. Because we cannot control nature, and what human can create will merely be a continuation to nature. That's why we created the flower and people work.

V: So rice fields are continuation to nature?

T: It's hard to say. Rice fields are very artificial and they serve practical function, provide food, unlike flowers. Flowers don't provide food.

V: We've been talking about nature in English, what is the Japanese term you use?

T: Shizen.

V: What does the concept of Shizen include?

T: Shizen is the symbol of the process of life and death. As in the flower work, the new flowers are generated and the old ones fade away. When we create exhibitions, the experience and feelings we want the visitors to have are that we are only one dot (one moment) in a process that is a long line.

V: Transience and impermanence of life by situating oneself in these situations that are accelerated.

T: Yes. Sometimes they are beautiful. But there are also negative connotations in these works. Such as the work *Continuous life and death (2017)* shown in Ikkan gallery. Shizen is the accumulation of death and life.

V: From the perspective of Shinto, Kami reside in mountains, streams, and trees. Additionally, emperors and other special human beings, even the spirits of the dead of each family, were also considered to be sacred or kami. Are Kami part of Shizen?

T: Maybe. Of course mountains, streams, and trees are part of Shizen. And we spoke about Shizen being a long cycle of life and death, then the latter ones (emperors and other special human beings, even the spirits of the dead of each family) should also be part of Shizen.

V: Why we mostly only see friendly and beautiful manifestation of natural phenomena in teamLab's works? For instance, we don't see earthquake, storm, tsunami and destructive activities.

T: In fact death quite often appears in our work. When koi fish bump into audience they die and transform to flowers; lizards eat frogs, and frogs eat butterfly; flowers also wither and fade away.

V: But you don't feel like they are dying. The visuals are rendered beautifully and romantically.
T: There are people who believe that artworks should criticise certain things. But we think artists should propose ideal concepts, instead of negative things.

V: Is that why flowers are chosen, for instance, not the waves, to be the featured subject matter?
T: Partially. But also we are very interested in the relationship between human and nature. And flower is the thing nature itself come up with that symbolises co-existence and collaboration. Thus it is the most ideal manifestation when exploring the relationship of human and nature.

V: I noticed depending on where the works are shown, species of the flowers are mostly taken locally.
T: It is better this way. Local flowers are easier for the local audience to enter the nature, because it is their nature.

V: teamLab also attempted to bring these artworks back to natural environments. Having the exhibition taken place in an outdoor park, comparing to project these imageries to the gallery walls, what are the advantages?

T: On one hand it helps visitors to better experience nature in a natural environment. On the other hand, more importantly we would like to come up with the new values in the digital society. One of the values is eliminating the concept of a boundary. We are currently experiencing digital revolution, while the guidelines of our society today are formed by agriculture revolution and industrialization (e.g. mass production). If one wants to look for new ways of living, one has to break away from the current standards, thus we seek inspiration in nature (pre-industrialization time). For example, in the work *Flutter of Butterflies Beyond Borders, Ephemeral Life,* butterflies leave the screen and enter the gallery space. The boundaries between the worlds are shuttered.

In fact another important message we are sending is that the relationship between human beings. It is my personal opinion, when the works are held in gallery space, without the many distraction outdoor, we could better deliver this layer of meaning.

V: Talking about transcending boundaries, there are two common ways immersive experience. VR and CAVE. teamLab mostly works with the updated version of CAVE, but not big on VR, why is that?

T: Because it is very limiting and it's virtual, not physical. Headset confines the experience. Actually we don't think about a concept or media first when we create works. Depends on the project and budget, we just focus on the space and create something that we feel that is "waa! Sugoi ne!" (meaning cool and exciting)

V: Is there one particular new technology that your engineering team is working on you could share with me?

T: Real-time sensory of the 3D positions of an object. In our future personalised city projects, for example you are walking around Marina Bay Sands on a special day, and our system will recognise that Vanessa is here. So the whole landscape changes for you.

V: What does "Japaneseness" mean to you? What are some of the elements in your work that you consider as "Japanese"?

T: Japaneseness means features that are unique and only from Japan. But I don't see our works being Japanese, because the messages are universal. We are not interested in the cultural differences. The cultural differences, comparing to the human condition and the human relationship with nature, which interest us, are insignificant. Indeed, in terms of the visual representation, we look up to the ancient Japanese paintings, like waterfalls and waves. It is interesting that usually lines are used to express water. Maybe the ancient artists attempted to capture a period of time, not just one fleeting moment, thus water particles form lines with their trails. Again nature is a process not just one single moment.

V: Next time, I would like to find out your opinion on some traditional art forms that also feature flowers, such as Ikebana, garden design, team ceremony, and how are they similar comparing to teamLab's creation.

Interviewee: Dr. Adam Booth
Date: June 2018
Format: Email

Q1. You website states you have an MA in Advanced Studies of the Arts of Africa, Oceania and the Americas Sainsbury Research Unit, University of East Anglia, Norwich, UK. What was the specific area you were focusing on back then? And how did you become interested in later on specializing in Japanese Painting?

A: I was particularly interested in South American art and looking for a universal iconography that might be either the result of human nature or the very physical and biological structure of our minds. No matter what country or belief you had there may be some common method of expression, for instance spirals are found across many cultures. At the time, due to contact with Japanese friends, I saw an exhibition of Rimpa Japanese art at the British Museum and I was struck by how contemporary it looked, and also the power of asymmetrical composition - I realised that you could cut something out of a picture but still express it's presence. Japanese art appeared to use space, composition and line in a way that I had never considered before. Then, after looking more into Japanese art and culture I was drawn in by the aesthetics. Japanese paintings use washi and silk and the artists mix their own pigment. It was exciting to go back to basics, learning painting from scratch and a whole new aesthetic along with it.

Q2. Your LinkedIn profile shows that you have been with teamLab for 9 years. That is to say you joined in late 2000, before Murakami's invitation to show in his gallery in Taiwan. Mr. Ikkan Sanada shared with me it is after that exhibition teamLab starts to think about positioning the group as an artist collective. Can you tell me any differences you noticed before and after the decision, in terms of what kind of projects are favoured over others, how priorities might have changes, how the group works differently?

A: Murakami understood that teamLab was producing something unique, expressing Japanese picture space in digital art. With recognition we gained confidence in digital as an artist's medium. We have started to broaden our vision for art in a good way. I think people may find it difficult to understand, but there is no reason why art cannot be interactive, and change depending on

the viewer. In fact this is very exciting. Why should art be static, confined to a frame or gallery space? There needs to be art that meets and fulfils the expectations of the contemporary age.
Since that time teamLab has started exploring many different ideas, not just ultra-subjective space, but spatial calligraphy, creating three-dimensional light sculptures, different forms of colour mixing in three-dimensions, works that change with time, body immersion, and artworks that are free to move out of their original space - culminating in the teamLab Borderless museum that has just opened in Odaiba, Tokyo.

Q3. You position in the group is Chief Art Director, what do you do exactly?

A: I'm an artist trained in both traditional and contemporary practices. We have many talented people with many different specialities, I try to bring them together and nurture projects in their artistic terms. Specialists can get carried away in the technology. We don't make things just because it would be cool technology, there has to be an idea and vision behind what we are trying to do.

Q4. "Nature" is defined by Oxford dictionary as "the phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations."

a. Do you agree with this definition?

A. No, it is very interesting that the definition should clearly separate humans and nature. It most likely stems from religions that believe that humans are given special significance by god. In Japan Shintoism was based on animism that considers humans as a part of nature. Ancient Japanese walked in nature with the ghosts and spirits at their side. The rivers, waterfalls, plants, trees, rock, everything was a part of nature and humans were just one element. These animistic ideas can be found in shamanism in South America and indeed many early religious beliefs. What is particularly interesting is that this ideology has meant that Western art tends to paint nature as something to be revered, feared and treated with amazement. It is enclosed in a frame and seen from a single person perspective. There is a clear boundary between nature and humans. With Japanese art, they looked at gardens through the house by opening the screen doors so that the house was completely open to nature. They perfected the tea ceremony in small houses in amongst the gardens, peaceful havens to

contemplate the beauty of a single flower. And in painting we find rivers and bodies of water endowed with life, as if they were a living entity.

b. Do you consider humans an integral part of nature?

A. Yes, humans cannot be separated from nature and we cannot control it, so we need to find a way to be a part of it. teamLab believes that there may be hints for modern society to be found in the way ancient Japanese lived in harmony with nature.

c. How do you define “Nature” in the works of teamLab?

A. Nature is a common theme. As discussed above, animism means that ancient Japanese considered themselves just an integral part of nature. It is this fact and the use of ultra-subjective space that allows us to make works that can be entered into and that are suitable for creating immersive experiences.

Q5. What are 3 of the major projects that concerning nature you’ve made contribution to?

A: teamLab’s installation Story of the Forest at the National Museum of Singapore is one. The work took animals and plants from the William Farquhar Collection of drawings and bought them to life. It features a flower dome, a 170 meter passage which goes from morning to night with the animals and plants from the collection, and a night jungle drum space at its base. Animals of Flowers Symbiotic Lives is a work that consists of a number of animals that are entirely made of flowers. If you touch them the flowers scatter. Touch them too much and all the flowers scatter and the animals disappear. Many of the artworks at teamLab Borderless have a nature theme, in fact the museum has a Flower Forest, Butterfly House and Athletic Forest. It is truly the only museum of its kind in the world. With around 52 digital artworks many of which leave their original exhibition space and move throughout the museum. If you haven’t seen it I really do recommend it to you.

Q6. One of your projects you worked on is Graffiti Nature. The animals are all part of a constructed ecosystem where a lizard eats a butterfly, then the lizard is eaten by a crocodile. Besides providing a playground where kids could move around and see their drawings come alive, there seems to be also an ecological

message. What can you share about why certain animals are chosen over others to appear in these narratives?

A: It was quite difficult to choose the animals. Graffiti Nature was a project that gradually developed over time. Indeed much of teamLab's work is ongoing. We like to make changes and alterations and develop them, sometimes leading to a new discovery that perhaps gives birth to a new and separate work. In Graffiti Nature, together with bringing children's drawings to life, we wanted them to think about the relationships between the animals and each other. The animals were chosen because we felt they would work visually and that we could build a small ecosystem with them. Perhaps we will add more in the future to build a more complex world, but simple can be more understandable and less visually confusing.

Q7. What are some of your inspirations that inform the appearance of these animals in Graffiti Nature? (Their shape, colour, and texture etc.)

A. All of our work takes inspiration from Japanese art history and culture. When designing the animals of Graffiti Nature I was thinking of Hokusai and Jakuchu, their drawings of animals have wonderful humour and energy, they often have very distinctive poses and that helped with the design of the paper for visitors to colour and draw on. For instance, Hokusai often drew birds with their head tilted to one side looking up. The animals in *Graffiti Nature* are mostly seen from above but I wanted to show their underside and so we made a lizard that twists his head to look up like the Hokusai pose.

Q8. teamLab has revived many Japanese ideas in their work, for example the transience of life (mujō), and the idea of interconnection which is deeply rooted in Buddhism teaching. Born and educated in UK, you also are awarded a PhD in Japanese painting. Do these seemingly Japanese ideals have a place in western belief?

A: The concepts of impermanence, transience of life that you mention have strong Buddhist connections, but also I think were inherent in Japanese culture, especially because of the animistic beliefs we discussed earlier. There is a lot of interest in Buddhist Philosophy in the West and I think Western societies could gain something from an understanding of Asian philosophy. This is partly what teamLab is trying to do. By exploring themes that draw on ancient ideas of space (ultra-subjective space), living with nature, co-creation and body

immersive installations, we hope people who become immersed, become a part of the work world, will find a certain peace and harmony, that the relationships between people in the work will change.

Q9. When you are not working, how do you spend your leisure time?

A: I have two children (5+2) that take up most of my free time. My son is very good at drawing and I love to see what he comes up with. I also like to travel to the countryside when possible, and this year we are helping with a rice field. Obviously I enjoy visiting exhibitions, reading, travelling, food and drink with friends!

Q10. Who are some of your favourite artists?

A: I always find this question difficult to answer because I like many artists for different reasons. Whilst studying Japanese painting I discovered Tawraya Sotatsu who inspired the Rimpa artists. The beauty of his lines are incredible, as are those of Ogata Korin. If you are thinking more contemporary, I admire Picasso, David Hockney, Basquiat, Duchamp, Hurst and so many more artists.

Interviewee: Kazu
Date: 15 Oct, 2018
Format: Face-to-face

A: I myself am a catalyst, more like a project manager, bridging communication between engineers, artists and designers, all different positions that are involved in any particular project.

Q: It is exactly the first question I would like to ask you. So what is your background before joining teamLab?

A: I initially studies architecture, but somehow I got involved in art. I was supporting artists producing artworks and also set-ups in the gallery.

Q: Where was this?

A: It was in a gallery in Tokyo for 6 years.

Q: Where did you learn English?

A: I did my college in the US that's where I picked up the language. Then I did art in the business side, and my classmate in college was a member of teamLab and I've known him for quite some years. I joined teamLab about 3 years ago. So I'm pretty new. That's about the time when teamLab becomes more internationally recognised. About 2015.

Q: I see. It's about when Pace started the silicon valley exhibition.

A: Right. Although, you know, we were already presented quite internationally.

Q: You've been involved in quite many projects considering the number of years you joined the group. So what are the 3 major projects you've participated?

A: Definitely the biggest one is teamLab Massless in Helsinki, Amos Museum. That was specifically challenging because the museum requested a site-specific piece fitting the architecture of the space. Typically we prefer black box, a rectangular space where we could efficiently do the projection but that one was a curved ceiling. And also the building was under construction due to a delay.

So installation of the exhibition and building construction were parallel going forward together which is quite a challenge. Also it's quite big.

Q: Initially people thought there are only going to present one or two works.

A: There are four. The Graffiti Nature, Black Waves, Vortex and Crows. In terms of the number of works, there are only four. But each one of them has a very strong concept.

Q: You mentioned the group prefers black-box setting usually. I just get back from your exhibition in Kyushu, it is rather interesting to situate an exhibition in this special location. Last year was the first year, and it is now confirmed to be repeated every summer in Mifuneyama. What is the occasion that you decide to situate this exhibition in that space, a not so traditional art exhibition space but a rather natural one?

A: Nature, the transformation of it, is not necessarily fast enough for people to recognise it. It takes years and years to happen, unless you actually live there and are constantly watching. Otherwise you'll not realise. But through digital we could make it more noticeable, understandable and obvious, even when you are just there for a short period time. Like in the work Graffiti Nature, the prey-predator relationship and the whole ecological system (were sped up), while in reality they take place very slow, although it happens much fast (due to human intervention) in the recent years but still not recognizable for one person to notice it. What we try to do in that installation is to compress the scale and speed of eco system, so that children can have a hint of how nature would behave with or without human beings interference.

Q: So you are compressing what takes thousands of years to achieve in real nature to a short period of time through works like Graffiti Nature. For the chosen phenomenon in Nature, of course one needs to make a decision in order to build a concise food chain, so who makes these choices?

A: well teamLab is not a single person's idea. It depends. Of course the final decision is made by whoever was leading that project. But it doesn't mean there's a leader, but whoever is most knowledgeable in that project or the certain technology makes the decision. Of course the director's opinion matters. But mostly the decision is arrived after lots of discussions among people who are involved in the project. So it's a very organic process. Of course there are

moments we make decisions informed by aesthetic, visual or technological perspectives. But flower it's a very strong example representing the ephemerality of life, especially in Japanese culture, and also other cultures. Of course it's represented differently in different places, and the way it's perceived is also different. But it's very fundamental, that's why we always show flowers in our artworks. So you went to Mifuyenema, you probably saw the flowers and people, being projected to the giant rock. It very well represented the many layers of time because the flowers are instant but behind it it's a rock that's formed over hundreds of years. So you will see different layer of time within one image.

Q: I do like that work quite well. Because the saturated colour felt almost too much when projected in a black box. But when it's projected to the rough surface of the rock, the textual gives another depth to the whole installation.

A: When I say we usually prefer black box, I meant we felt easier to work with those settings, which make projections easier.

Q: Sure, in fact your works have definitely challenge the location in various occasions. That brings me to the next question regarding your collaboration with the restaurant, is that one of the directions teamLab will explore more in the future?

A: Well teamLab is more interested in creating installation that's more physical and affecting the audience. But the restaurant focuses on the dishes, so in that sense it's different what we are doing there. But there we can have other things we could play with, like the plate and the patterns on the plates that activate the experience. In such close environment we can bring other experience. I am not sure if we will continue explore that direction but it's definitely an approach we will keep.

Q: I think not limiting oneself to one particular setting or medium is better. Back then I had a conversation with Takasu

A: The crazy one! (Laugh.)

Q: Takasu-san mentioned before a work is finalised kids will be invited to test it out, and give feed back. And only if they find it interesting and fun, will it be considered completed.

A: Yes we always find it important to have kids and sometimes outside people to experience and proof our work.

Q: So kids are your audience.

A: Well yes they definitely are. We have different projects like Future Park for instance. Children, are free (to express their opinion), and often have direct reaction and response to our work. We could see people's reaction easily through kids. We also have more conceptual layers incorporated into our works. But really any one could be our audience. There are also good numbers of adult that hesitate to visit museums and galleries because they felt distant. These are places where people felt there are certain rules they need to understand and follow, thus keeping them away from art. What we are interested in doing is quite the opposite, that is making things available to whoever any kind of interest, and to bring them in, and let them experience the work. Not just digital artworks but all kinds of works. Let's continue on Wednesday?

Interviewee: Kazu
Date: 17 Oct, 2018
Format: Face-to-face

A: I remember a few years ago, art only takes about 20% of our income, now we have the bigger exhibitions and also we have sales, I'm sure it's much bigger than 20 now. But still I think the non-art section is making the majority profit.

Q: In terms of the future direction, is the group thinking of more art driven, then use the innovation in the commercial side?

A: Both ways. There are projects and non-art section members coming up of interesting things. Those who belong to the art team are only catalyst, and the visual effect creators. Our engineers they do all projects. Of course there are different teams and some are more art oriented. If you meant to create new works and projects, it's usually the art team and including Itoshi, who came up with things we want to do. But often these ideas are too expensive and having no technology to support. Over the time we mature these ideas, then after awhile when the powerful computer and graphic cards become cheaper, new sensory technology become available, then we finally get to realize the projects that we initially wanted to do. But by the time we finished it, there are many other new things we want to do. There is no end.

Q: I was in the Sagaya restaurant and thought it would be more interactive. It is a nice setting and interesting experiment to bring your works to a different venue. The whole environment is very atmospheric, but there are only projects and minimal interaction.

A: It is still a dining experience and we do not want to overpower the experience with the visual, as you are there to eat and drink. Otherwise it'd be difficult to have a conversation in that setting.

Q: There are 4 themes in this restaurant according to seasons and the 4 seasons in Japanese culture is a very important component of nature. Today I want to talk about nature, and the concept, notion and interpretation of it. So the concept behind digitized nature, I quote "that non-material digital art can turn nature into art without harming it." It suggests that the original nature is not art yet, like the wild nature, and destructive power of nature for instance, a tsunami

or earthquake, these are not art. But after selection (picking elements and phenomenon from nature) then it could become art, like in Ikebana and bonsai, etc. There is a human selection, curation, a hand-picked selection of elements and phenomenon from a much complex and wider real nature. Do you agree with my understanding to the nature that teamLab appreciates?

A: Probably not that we want to use nature as material, like Ikebana. But the concept of nature is always manifested in our artwork. It's not like ikebana and bonsai because we are not taking actual things from nature and intervening artificially. But we are borrowing the images from nature, keeping them as it is and adding our messages. That is what we are doing. Our work is about visitors interacting with the work, and with other visitors.

Q: So this is a criterion for a natural phenomenon to be selected and featured in the digitised nature?

A: Yes. Digitised city is a lot easier to understand this intention of ours. Maybe we are able to provide different interactions between people who live in the cities. These projects comparing to digitised nature are much difficult, because of the light pollution and we use lots of projections and light. We are using LED, which we could have more control to. We have recently been involved in urban development projects; it's probably published news now. This is the Shenzhen project Takei-san is working on. It's a big project but I don't know which part will be realised first. (showing the video of *Crystal Forest Square*)

Q: Has teamLab only worked with light? Any other media?

A: We have actually thought about sculptures, the least digital thing. But on top of it we always have LEDs. We could be dealing with public display like the billboards which could also be our medium.

Q: Going back to the nature topic. Some works sent environmental message, like directly in 100 years sea, and also indirectly in works like Graffiti nature, Sketch town. Will the group make more explicit political works to address these issues?

A: 100 years sea did address the environmental issues very explicitly. But we are going more abstract and inexplicit about our messages. What we want to capture is the conceptual relationship between human and nature. Part of it you

could understand are the (environmental) issues or the relationship that's being damaged because of these issues. Graffiti nature is different, because it's there to give children a hint how the nature and ecological system behave.

Q: About Graffiti nature, I asked Adam the same question. While you hand pick certain elements to form a system, my concern is it might send wrong message that children could interact with the real nature from what they learn here.

A: (laugh) like stepping on a crocodile! Adults have to teach the kids and the same applies to all other things. We want to provide a platform where they start thinking about it, not teaching anything. I don't think any art is teaching anything.

Q: But what is fierce in reality is friendly in the graffiti nature. Has anyone interacted with the digitised animals in a concerning way?

A: Not really. There is clear message of death in many of our works, so we hope to raise people's sensitivity towards their action's reaction.

Q: How do you access the honest response from visitors? How are the messages received?
A: After we invite visitors and kids to access our works, they either show interests or no interests. If they have no interests, we think about easier visual representation, maybe a different animal, to send the message more effectively. The feedbacks we get from kids we get from observation. Sometimes they get too excited and if it's not what we intended, we'd tune it down.

Q: These messages are difficult to be apprehended by them?

A: Understanding the rule of the work is not difficult but yes understanding the rule of eco system is. Kids and adults understand what eats what, but understanding that as the whole eco system could be difficult. That's why I said we intend to give a hint, not ambitiously teaching how the world works.

Q: I am thinking how teamLab's practise is connected to the concept of play. In Japan, playfulness has always been one of the unique qualities of art. And traditionally, play has two components: "Reja" and "Asobi". "Reja", often translated as "Leisure', refers to playful activities which in reality do not foster play, they are merely 'fun' (e.g. TV, famicon, PlayStation); while "Asobi",

translated to “Play” refers to a wide semantic array of ‘traditional’ concepts of children engaging in creative, free play that’s usually conducted outdoors, in natural settings, and is considered to be promoting imagination and creativity. What do you think the concept play entails?

A: In that sense, asobi the play through a lot of physical activity without a clear goal is what teamLab likes to achieve, as well as what we wish to promote through our artworks. We are always interested in creating art, our founders especially; recently we have commission works, project installation. But all of these at the beginning we didn’t know what we want to make. We start discussing ideas and start hands on works to realise these ideas, slow forming a direction during the process. So especially at the beginning asobi is our art.

Q: do you have an example?

A: For the borderless exhibition, Itoshi said why not we mixed things up. I think he had the idea a few years ago, but back then it’s not mature financially. And we didn’t have partners like we do right now. And technology wise it’s not easy. Right now engineers are experimenting to play and emerging two artworks into one. All the elements of the different installation, they are developed by different teams of engineers. They start talking with each other to see what we could do. And continuing that into what we have now. Before the borderless exhibition, we had a show in London Pace, transcending boundaries. It’s a smaller scale but that’s the first opportunity to experiment it. Since then everything moves fast. These ideas didn’t exist at first but was slowly developed.

Q: has the next stage concept for borderless emerged?

A: There are still a lot of things we are working on . There will definitely be spin-offs from ideas of borderless. I don’t really know what’s coming but when the time and resources are there, then. Our old office, someone installed sensors to the toilet door, to efficiently monitor which ones are occupied. Without asking anyone he created that, it’s like a stupid and funny idea. It’s practical but no one would actually go and do it. But that kind of things happens all the time in teamLab.

Q: As the team gets bigger, it might get difficult to do banter projects like this. You have close to 500 members.

A: it's still expanding but there are so many things going on.

Q: Can you tell me a bit more about the start of teamLab?

A: initially 5 members of Itoshi's classmates. Then later on developing to have around 10 plus members.

Q: Are they the ones deciding the direction of teamLab?

A: I don't think they are decision makers in terms of the direction of the future, because there's not much direction but we do what we do and see what comes up next. They are decision makers financially. In that sense, teamLab is still non-hierarchical. There's a hierarchy of course, but I meant like I mentioned the ones who make decisions are the ones who know best in what they do. Decision making happens in many different levels, but the financial decisions are made by the senior members but nothing else. Business strategy, especially the art part, always what we want to do is the first.

Q: what do you mean "we"?

A: like some interest, some ideas we get while doing projects, we try to realize in the next projects, and that continues. And teamLab grows bigger while we manage to get more partners. But it didn't happen that we make for instance 10 years plan. Everything happens more naturally. Nobody knows what happens in 10 years because technology changes fast.

Q: How many catalysts do you have at the moment?

A: the art part 30, and entire teamLab about 100.

Q: Do catalysts bring something personal to the projects?

A: That depends. Artist catalyst will do that. But if you are the communication catalyst you are leading the discussion and organising resources. It's interesting how much in each project really show the personality of the individual catalyst. But the visual and technology are made possible by the other teams, so there's the continuity and consistency. On top of that Itoshi also sits on top of everything to ensure that integrity.

Q: where do you get your inspiration as a catalyst for your project?

A: I am interested in how to realise our installations in a better spatial form. Projection is 2d. Flat. How to create more? In what layout? Since scale is flexible in digital media, those spatial installations really change as they scale. Sometimes if the space is so big, we limit the ceiling height ourselves. I'm interested in how to achieve more in the 3d space, not just the video or a surface projection. That is how to bring these digital projections into the physical space.

Q: Like the hologram work of abo dancers.

A: Too expensive! We only managed to do it in Singapore biennale and this year in borderless. We tried so many times but financially it's not possible.

Q: Now teamLab is working and selling through Pace gallery right? Also the price record was set through the Christie auction.

A: the buyers of the gallery sold it; we are not related to those decisions.

(It's pointless to discuss if this is art or not. As long as it makes people think. We do things our way, the size of teamLab allow us to do things a typical artist couldn't do. The money is holding us back.)