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Can AR Technologies Have an Impact on the Definition of Art?[1]

Abstract: AR seems to be one of the most advanced and near-future technologies that produce new experiences and values that have never been before. However, both AR and art have a common means of engaging the senses. Thus, the problem of where the borderline between AR and art exists should come into question. In order to consider how AR will have an influence on the definition and the significance of art, this study analyses real and fictional elements in AR and art. AR requires the physical field where sensory information mediated by computer is projected. Consequently, viewers perceive the mixed image of real things and those not existing before eyes, that is fiction. Art also needs a real environment where the fictional world is opened. Though art and AR have something in common, there are crucial differences between them. AR technologies include the firm aim of erasing fictional elements that remain as ever in spite of their accurate representation. On the other hand, art attempts to preserve a fictional area within the real world. From the comparison of AR and art, it will come to light that whether there is the frame or not plays an important role in deciding what is art or what is reality. While AR reduces fictionality from a multi-layered scene to enrich a real experience, art cuts fiction from a present scene to idealize the real world. In this way, they constitute a dialectical circle and mediate new reality through fictional images from the reverse direction.

Keywords: AR technologies; definition of art; fiction; multi-layered image; reality; sensory perception.

Introduction

It is often said that 2016 is the first year of VR/AR because these technologies that had been used only in specialized sectors such as medicine and military affairs became familiar with the release of Pokémon GO and some head-mounted displays in that year. In addition, Mobile OS development companies like Apple and Google are

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devoting themselves to AR,[2] and the development of AR technologies has remarkable progress. At first glance, AR may seem to have nothing to do with art. On the other hand, however, there is an idea to regard art as an ancestor of AR.[3] This is because both art and AR are technologies that appeal to the senses and make viewers perceive reality and fiction at the same time. Will the development and penetration of AR technologies have any influences on conditions of the aesthetic experience based on art, then? If so, how can we theorize on the aesthetic experience including both art and AR? To consider these questions, this study examines the relationship between reality and fiction in experiences of art and AR.

Structure of the aesthetic experience

Firstly, it is necessary to clarify the structure of fictionality in art and the cause of unusual sense when aesthetic judgment is done. In this section, these things will be analyzed from a point of view how experiences of artworks differ from daily perception and recognition.

Construction of fiction in art

Definitions of art can be categorized into three: the nature inherent in artworks, the attitudes of their recipients, and the circumstances surrounding art.[4] However, these kinds of definitions are not necessarily effective in our daily lives where art and reality are intermingled. For example, a wallpaper by Marimekko and Van Gogh's Sunflowers are common in that they depict flowers.[5] In spite of that fact, the former forms a stylish living space together with daily necessities, the latter becomes artwork.

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[2] "Argument Reality for iOS," Apple Inc., https://www.apple.com/ios/augmented-reality/, acc. February 24, 2019; Dave Burke, "ARCore: Augmented reality at Android scale," Google LLC., published August 29, 2017, https://www.blog.google/products/arcore/arcore-augmented-reality-android-scale/, acc. February 24, 2019.

[3] Susumu Tachi, Makoto Sato, and Michitaka Hirose, ed., *Virtual Reality*. (Tokyo: The Virtual Reality Society of Japan, 2011), 16f. In this book, it is claimed that parietal wall paintings in Lascaux Cave are the origin of VR.

[4] For example, the first tendency consists of the theory of mimesis (Plato, *The Republic*. X. 597–99 in *Plato in Twelve Volumes.* VI., trans. Paul Shorey /London: W. Heinemann, 1935/, 426–37; Aristotle, *The Poetics of Aristotle*. trans. Stephen Halliwell /Chapel Hill: University of North Carolina Press, 1987/), the externalization theory of spirit (Georg Wilhelm Friedrich Hegel, *Vorlesungen* über *die* Ästhetik. 3 Bände /Frankfurt am Main: Suhrkamp Taschenbuch Wissenschaft, 1986/), the mathematical theory of music, and so forth; the second one reception aesthetics and "the death of the auther" by Roland Barthes (Roland Barthes, *Image – Music – Text*. trans. Stephen Heath /New York: Hill and Wang, 1977/, 142–48.); and the third one the theory of "the artworld" (Arthur Danto, "The Artworld," *The Journal of Philosophy* 61, 19 /October 1964/: 471–584) and the institutional theory of art (George Dickie, "The New Institutional Theory of Art," in *Aesthetics: Critical Concepts in Philosophy*, ed. James O. Young /London: Routledge, 2005/, 74–85).

[5] "Marimekko fabrics collection," Marimekko Oyj, https://www.marimekko.com/com_en/fabrics, acc. ebruary 27, 2019; "#SunflowersLIVE No.1 National Gallary," van Gogh Museum Channel, https://www.youtube.com/watch?v=4n8mxC0-wGw&index=1&list=PLp9bGKxyieV3bXYy1hMOrhObLUhMPUdSv, acc. February 27, 2019.

The reason for making this difference is that while the painting of Van Gogh, as well as the wallpaper of Marimekko, is perceived simultaneously with the environment, it is separated from the whole of sensory stimuli with a frame. What fulfills the same function of a picture frame is a gesture of performers in music and a proscenium arch called 'the fourth wall' in drama. This imaginary and transparent wall in theatre is built between audiences and a stage and allows no one to pass through. This picture frame structure of theatre works to create a theatrical world, extracting only dramatic occurrences on the stage from all things that audiences perceive as follows: living actors or actresses speaking on the stage, other audiences sitting beside him, a stage setting, and so forth. As a result, conventional definitions of art will be invalidated. This is because what can enter inside such mechanisms has nothing to do with the intrinsic quality, the attitude of the recipient, what kind of environment and institution it is placed in.

Unusualness of beauty

Natural landscapes and urban scenes don't have the mechanism nor equipment with which art separates the aesthetic experience from the whole perception, and cannot be cut off the connection to the real world. Then, so as to apply a theory of the aesthetic experience to the beauty of the natural landscape and urban one, raises the following question: How can their beauty be considered in a generalized theory of the aesthetic experience? If we keep such sights in mind as a waterfall suddenly appearing in open space in the middle of a dense forest, the sky changing its color at twilight, or the night view of the city from a skyscraper that one rarely climbs, two points can be pointed out. First, they are deviated from the law and have a peculiarity far from other various continuous phenomena. And, therefore, as a second property, they suddenly appear and have no persistence. As a result, they are recognized in an unexpected way. As described above, the aesthetic experience is an experience of a heterogeneous sensation suddenly rising from physical phenomena without conforming to the spatiotemporal continuity or causality. It is art that tries to generate it artificially with a frame, and if such experiences occur in a place not intentionally made by the hand of man, they are called natural beauty or urban landscape beauty according to that object. Since these aesthetic experiences appear in a form not following the daily real linkage, it seems that although they are phenomena that occur in real space and time, they are recognized as the absence, that is, the impression of enjoying the fiction. This unusual nature and fictional character of the aesthetic experience will become meaningful to the real world by making the awareness of the existence of an enriched possible world that has not yet been realized in the real world.

Similarities and differences between art and AR

In the previous section, I examined the characteristics of the aesthetic experience from the relationship with fiction. AR also targets the senses and overlap artificial images with reality. So next, I will compare the art with AR in order to make similarities and differences between them clear.

Similarities

AR is the technology to project artificial images or sounds made by computer in order to make someone misunderstand that something that does not exist in front of us is as if it existed. Therefore, AR is made to be directed to the five senses similarly to art. VR, which is its precedent technology, differs in terms of whether it blocks real sensory stimuli with the artificial environment or projects images into the real space. However, because it is difficult to create a stereoscopic image in a completely open space, and a device for superimposing reality and computer graphics is still required. For example, a screen of a smartphone, smart glasses, or a transparent film[6] correspond to it and play the same role as the physical support of painting. In other words, in order for AR to be perceived as an 'augmented reality' rather than a true reality, AR requests a place where artificial images overlap, as art requires trimming of the reality and a mechanism for revealing heterogeneous areas. Even more interesting is the direction of evolution from VR to AR. In drama and video work an actor often talks to an audience and demands it participate in this drama. This act produces a special effect because of breaking the fourth wall that is indispensable for the realization of drama.[7] Progress from VR which completely shuts down the real world to AR can be also understood as an attempt to break through the fourth wall while assuming it.[8]

Differences

Images of AR are similar to space and things that exist in the real world, and their purpose is to deceive the person who experiences them into believing that what one is seeing and listening to is realistic, although they are artificial images. In order to pretend that there are things and spaces that do not exist before the eyes, AR images must resemble the real things and spaces as much as possible. In contrast, the

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[6] "The projection system 'SORIS VLS' which projects 3D images of VOCALOIDS is very clear and amazing," GIZMODE Japan, published April 27, 2013, https://www.gizmodo.jp/2013/04/_chokaigi_3dsoris_vsl.html, acc. February 27, 2019.

[7] Brecht connected his idea of alienaton effect (*Verfremdungseffekt*) with breaking the fourth wall. John Willett, ed. and trans., *Brecht on Theatre: The Development of an Aesthetic* (New York: Hill and Wang, 1964), 91, 172.

[8] Susumu Yamamoto, Hidenori Tanaka, Shingo Ando, Atsushi Katayama, Ken Tsutsuguchi, "Visual SyncAR: Eizou ni Douki shite Jyouhou wo Tyoujyuuhyouji suru Eizoudouki-gata AR gijyutsu [Visual SyncAR: Augmented Reality which Synchronizes Video and Overlaid Information]," *The Journal of the Institute of Image Electronics Engineers of Japan* 43, 3 (July 2014): 397–403.

similarity with objects and reality are not necessary and sufficient conditions in art as you can see from a history of paintings of the 20th century after Cubism. And this leads us to the second point of difference with art. Experiences of art begin with a sensory stimulus that is sensed with real things, then art transitions from reality to fiction. On the other hand, AR presents images of objects that do not actually exist. That is, starting from giving fiction or an imaginary figure, AR tries to 'erase its own fictionality' by making its fictional image extremely realistic. While art and AR are common in that reality and fiction to become multi-layered, their direction is opposite. Furthermore, art requires the reality that is the object of breaking its relations, so as to become art, AR is the aim to provide reality persistently while starting with fiction, and fiction is becoming unnecessary for AR on the other hand. Therefore, criterions of evaluation for each of them are completely opposite. For AR, fictionality will never be evaluated, whereas in art it is often the case that similarity and reality as an object of reference can be the object of evaluation.

Constructing a new theory covering art and AR

Until now, comparing the art with AR, similarities and differences between them have been studied. Finally, how the aesthetic experience is interpreted, and what is the significance of the coexistence of art and AR which appeal to the senses and layer reality with fiction will be considered.

A new reality that AR generates

Let's summarize the similarities and differences between art and AR that we have described so far. Both art and AR are targeted for the senses, and in those experiences, reality and fiction (artificial image) overlap in a multi-layered manner. However, the weights of reality and unreality differ in both. Art cuts out fictional areas from the real world with the frame and emphasizes fictionality by accepting it again in the real space. AR reconstructs images of things that do not exist before the eyes created on the computer in reality so that they are recognized as one reality as a whole. So, how is the reality in AR different from that in the past? The word 'reality' is derived from the Latin word *res*, which means a thing. The most advanced technologies, VR and AR, also present images of 'things' which do not really exist in front of us as truthfully as possible. But these images are not things themselves. When the composite image of non-existent and actually existent things makes someone conscious of the whole reality, the boundary between reality and fiction will appear to be very ambiguous. AR is intended to shift the static real space to the dynamic, and its experience shows that the reality exists not independently as it is, but as existence that imbues fictionality within it. That is, AR is literally the 'realization' of the fiction.

Art as a technology to change the world fictionally

Before the relationship between the new reality presented by AR and fiction, the answer to the question of what is art is not so simple. If art means only the fiction of the part where art was cut away, there is no objection to Martin Heidegger's assertion in "The Origin of the Work of Art" that artwork is the constant fight of the earth and the world, denying materiality (*Dinglichkeit*) of the art.[9] However, the supports in painting and the actors acting on the stage are things and people that really exist. Art does not exist without physical things at all. Contrary to Heidegger's argument, the reality as a thing remains in art. Then, what happens when artworks are on exhibition in museums? Sensory stimuli arriving from objects inside the frame are emphasized by surrounding white color and are regarded as fiction, that is, autonomous areas that are different from reality. But that's not all. Art is impossible to perceive by itself and is always perceived as sensory stimuli emanating from the surrounding environment. The supports as things and the space where works are displayed become artwork by a fictional image of art and they transform into aesthetic exhibition spaces. The fictionality of art spreads to the real space beyond the frame. In the art experience too, the boundary between reality and fiction is ambiguous. However, its behavior is opposite to AR. The art which is separated from reality is accepted again in the realistic linkage and 'fictionalizes' reality.[10]

Conclusion

The emergence of new technologies of AR reveals that the relationship between reality and fiction is fluid rather than reality and fiction existing separately. Based on this new relationship between reality and fiction, it is insufficient to explain merely that art is separated from the real world by the frame and then generates fiction. Art must be caught in contrast to AR which regards fiction as reality. After making up its own fiction, then art transforms the reality around it into aesthetic fiction. In addition, the significance of the existence of art is described from the relationship with AR. The dialectical circle of reality and fiction is completed, for the first time together with art and AR that turn to the opposite direction. In other words, art will be what integrates real images with unreal or non-fictional things with fictional and makes all of them perceptible at the same time. If the argument is justified that art would give us somethings that are imperceptible in the real world, i.e. something like truth, it is based on the relationship between new reality and fiction that is actualized by the appearance of AR.

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[9] Martin Heidegger, "Ursprung des Kunstwerkes," in *Martin Heidegger Gesamtausgabe, 1. Abteilung, Veröffentlichte Schriften 1910–1976, Band 5: Holzwege (1935–1946)*, ed. Friedrich-Wilhelm von Herrmann (Frankfurt am Main: Vittorio Klostermann, 1977), 1–74.

[10] This argument is inspired by Aristotle's correlative concepts *dunamis* and *energeia/entelecheia*. In contrast to AR based on reality as 'res', art generates fiction with dunamisation of the real space, and then change its fiction into reality as 'entelecheia' so as to make aesthetic time and space emerge.

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