언택트 커뮤니케이션 지원환경으로써 가상세계

- 메타버스를 이용한 게임 유저 커뮤니티 형성의 가능성과 과제 -

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The virtual world as a supportive environment for intact communication.

-The possibility and task of forming a game user community using a metabus.-

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Abstract

Metabus, a three-dimensional virtual environment for digital communication, has gained a lot of attention recently. Even so, there are still many unanswered questions about the user's consciousness and behavior. A difference in nature from conventional digital communication is also unclear. This paper aims to study Metabus on a hypothetical premise by organizing the possibility of Metabus for communication activation based on a research project aimed at using Metabus to support the formation of a community of school dormitories and studio rental residents. After reviewing the establishment process and application cases of Metabus, we focus on the character (avatar) used as the user's alter ego within the metabus, which will allow customization of both form and content different from text-based communication. The "physicality" and the "spatiality" of the metaverse and the "immersion" they bring are among the most important, functional innovations. Based on this summary, a case of using metabuses will be reviewed to describe the research plan aimed at supporting community formation.

Keyword: Metabus, digital communication, physicality, spatiality

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1. Introduction.

Metabus is a virtual space built on the Internet. Participants are drawing keen attention to a new communication environment on the Internet that replaces electronic bulletin boards in that they can interact with others through their alter ego, avatar. Metabus has recently attracted attention from many companies and various media, but in contrast to its growth, it is still unclear how individuals logging in participate and act, and it cannot be said that they gain sufficient knowledge about its operation or effectiveness.

In Metabus, an industry-academic linkage project between Ritzmeikan University and House Sejong Co., Ltd., model room spaces are established and operated on the metabuses, and (2) community functions and tasks as residents are verified, as well as research topics. In 2008, it was a sub-project of an open, research, and center maintenance project for private universities with the Ministry of Education, Culture, Sports, Science, and Tourism at the Art and Research Center of this school.

. The objective of this study is to examine and study the reality of user behavior in specific situations in Metabus, both in-world (inside the virtual world) and in the real world, and as a first step in revealing the possibilities and challenges of Metabus and its internal community environment, which will be applicable to various communities in the future.

This paper is based on the history and current status of the 3D virtual space = Metabus itself, which has established itself as an experimental environment for this research topic. In particular, concerning the research topic (2), the basic hypothetical premise for using Metabus as a supportive environment for community formation for college freshmen (new residents of student rental mansions) is reviewed.

2. Status and characteristics of Metabus.

2.1 What is Metabus?

Metaverse is a compound word derived from Meta, which means processing and abstraction, and Universe, which means the real world, that refers to a virtual Internet space that allows users to communicate using avatars, and was the title of Neal Stevenson's novel "Snow Crash" in 1992. Besides Metabus, various names or definitions are used from the characteristics of each field or space examined, such as Cyberspace, which is derived from SF novels, Virtual Space, and VR (Virtual Reality), which are exchanged in social science fields. In response to this situation, Edward Castronova proposed a unified definition of "Virtual Worlds" (Castronova [2001].

Castronova's definition points to whether it is a networked virtual space that meets three factors: physicality as a source of physical sensations including avatars, interactivity as a characteristic of communication using avatars, and persistence as an absolute nature of the duration of the space users access. In this sense, it exists for numerous purposes and areas, from the virtual world military non-profit metabus-oriented academic

network to the commercial online games (Second Life, Linden Research, Inc), most of which have three-dimensional (3D) spatial designs.

In this paper, unless otherwise specified, the term "metabus" is used as a concept referring to the general three-dimensional virtual space corresponding to Castro Nova's definition.

2.2 Metabus history and service type.

MetMetabus currently in operation is powered by high-speed communication lines and high-performance computer processing, but its prototype, Lucas Films' Habitat, dates back to 1986. With Habitat, one can communicate in two dimensions using avatars while constructing a mirror world using these avatars (Morningstar and Farmer, 1990). Habitat terminated its service in 1988, but the characteristics of various virtual spaces, including avatars, have greatly affected subsequent services.

Metabus, an approach that differs from text-based communication, has since grown into various research projects or services. Language education continues to be a topic of interest for many researchers, especially academic studies that apply a spatial communication environment to language learning. This is the case with the University of Minnesota's Croquet Project. The trend of Massively Multi-Player Online Game (MMOG), however, gained the most social penetration from the perspective of Metabus. The term MMOG refers to a type of video game that inherits the characteristics of Metabus. It is

a commercial entertainment service that runs on a console dedicated to PCs and games. The size of the market is on the rise, and considering that there are stationary games such as Wii and PlayStation 5 on the market, portable game devices such as PSP and Nintendo Switch, and communication functions such as smartphones, channels connected by metabus are expanding to all generations. A large number of them have more than 10 million users per title, such as the Massively Multiplayer Online Game (MMOG) World of Warcraft, where numerous people interact at once.

. Another characteristic of mass multiplayer online game (MMOG) users is their connection time or purpose. Statistical data show that the average online game user continues to play four hours a day and four days a week for about 1.5 years. Furthermore, the reason why users participate in the game is that they are more inclined to communicate with other players than to participate in the game itself, and for users, the Massively Multiplayer Online Game (MMOG) provides an attractive environment for interacting with others.

Meanwhile, post-gaming metabuses such as Second Life are also prevalent. If you pay attention to the trend of the size of Second Life as a whole, the number of accounts is expected to increase by about 2 million from the previous year to about 13 million in the first half of 2008. LindenLab "SecondlifeEconomicStatistics" (http://secondlife.com/whatis/economy_stats.php)

. In addition, when access is concentrated,

which is a number representing the popularity of metabuses, the number of simultaneous users is about 70,000. This shows a growth of about 14% since 2007. LindenLab 「Economy. While the scale of metabuses from overseas is becoming huge, it can be said that expectations for metabuses as a new media on the Internet are expanding to the world scale as they are starting to develop their services. As representative examples of metabuses in Japan, Dallet World by Dallet and Meet-me by Cocoa, and recently, Aisp@ce by Dewang Gosa, which runs Niconico videos, have been released one after another.

. As such, Metabus is largely seen as a "target-setting space" like MMOGs (Massively Multiplayer Online Games) but with users who do not participate in subjugation by managing weapons, or only communicate with other users. Brad King and John Borland, Dungeon & Dreamers: Theise of Computer Game Culture from GEEK to CHIC, 2003 (Hiramatsu Toru Station 『Birth of Dungeon & Dreamers Internet Game Community의 Softbank Publishing, 2004)

The non-target setting spaces represented by Second Life can be divided. Additionally, the two were used by many users as a "virtual world group" with differing purposes and architecture directions, and unified system requirements.

2.3 Differences between Metabus and existing Web services.

Text-based services such as metabus, electronic bulletin boards, blogs, and text chat have different attributes in various ways. Comparing the difference by referring to the definition of Castro Nova and the specifications of the general metabus in operation, it is shown in Table 1, where face-to-face communication using web cameras is excluded.

	Subject	Individualze	Platform
Text base Commusication	Videos	Icon	SNS
Avatar base Communcation	Avatar	Avatar	Open

	Area	Structure	Object
Text base Commusication	Normal Website	Anonymity used	Text and video infos
Avatar base Communcation	Closed	Time elapse, accumulation of evaluation	Graphics

Table1

The main difference between the two is the media controlled by the user. In conventional text-based communication, only text was used, but in Metabus, avatars with virtual bodies became the subject. Avatars also provide more customization of a subject, or individuality, to the user than text-based communication. Previously, it was common for subjects to "customize" themselves and disclose them through nicknames or icons. Using the avatar, however, the user can customize everything physically associated with the subject. Therefore, users can inform others by expressing more information about themselves, such as gender, skin color, physique, and hair shape, with avatars.

In addition, the area used for the avatar base communication line is closed due to its spatial limitation. Until now, in the text base, some restrictions have been set on the use of the text base, such as general websites, or membership-based websites such as social networking services (SNS). However, communication using avatars is not available unless it is inside the metabus in its expression method.

What makes a big difference in this regard is the anonymity of the user. Until now, text-based communication has consisted of completely anonymous remarks or nicknames. An important characteristic of this platform is that it is open, making it possible for users to take advantage of anonymity. However, in general metabuses, it is common that the name determined by the initial setting cannot be changed, and users must continue to use all activities and human relationships within the metabuses as unchanged names. In other words, although anonymous in the metabus is certainly anonymous, it has a structure in which evaluation is accumulated over time. Of course, according to the current general system specification, a user may acquire a plurality of IDs to operate a plurality of avatars. Despite this, multiple avatars are not expected to have the same social influence within the metabus, which has a set of names, avatars, and social relations. In addition, communication with other participants in the form of physicality by avatars is also basic, so it is necessary to synchronize with other users there. In other words, if participants want to communicate with other users in the metabus, it is necessary to face avatars at the same time

as in reality and at the same place in the metabus. In addition to ordinary chat information, all physical two-way relationships are established by the avatar face-to-face, and communication is accomplished by the avatar's facial expressions and gestures.

In addition, in the metabus, there is a difference in the information that the user can access in the network. In the textbase type, text or image information becomes an object when a user obtains any information, but in the metabus type, the graphic becomes the object. In other words, media on the Internet that handles two-dimensional data has different properties in that there is a formal difference between the two sides of the information that can be obtained, allowing users to acquire information in a way closer to reality from the metabus. As a result, the structure of this information is easy to comprehend even for young and elderly people who are difficult to get used to the concept of text-based communication and hyperlinks.

3. The function and value of avatar-based communication.

3.1 Characteristics of Avatar Base Communication.

In addition, although it is non-face-to-face, users can obtain information that has not been available in the textbase type so far through face-to-face communication using avatars. In Metabus, communications are based on a textbase based on "chat" but accompanied by an entire set of media called physical avatars drawn on the screen. Depending on the type of metabus, voice

communication may be used for communication.

. According to Figure 1, there are three attributes: (1) the other person's physical attributes; (2) the other person's style; and (3) the atmosphere of the communication space shared.

When you communicate with someone you first met for the first time

User's video, tactile information, increased reality, increased immersion.

The spatiality of Metabus. + Trade-off occurs between customization results.

It is caused by the user's aggressiveness, anonymity of text base communication, and inheritance of freedom characteristics.
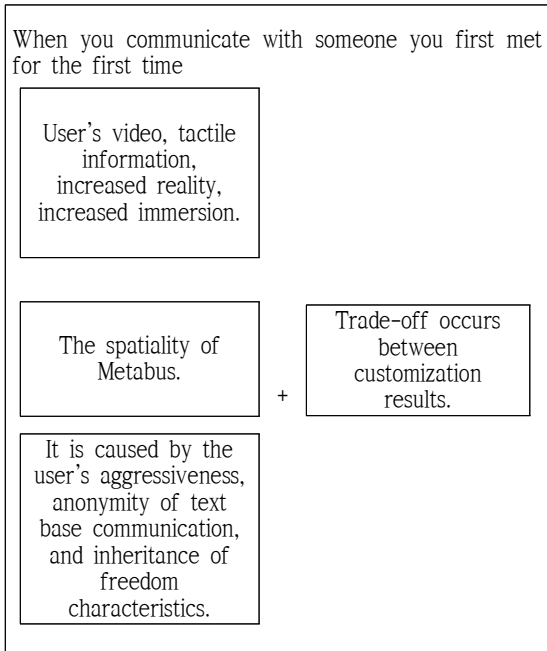
Figure1

Thus, even when communicating with one of your first acquaintances, it is possible to gain a deeper and more comprehensive understanding of the other person. This is more than just the text information associated with the textbase type. In addition, the information generated by body expression or spatial attributes (street or event, gesture, an atmosphere of a place, etc.) is also delivered to the user.

Takeuchi Tsuchiya (2006), for instance, points out that gaze information obtained through avatars is similar to the positioning or behavior of the conversation partner in real-time communication. Kusamira (2004) also reported cases in which avatars are recognized as their alter egos and change their communication in such a way that it becomes smooth and faithful with continued use; in some cases, even virtual users seem to immerse themselves in everybody.

In addition, this sense of immersion is thought to be reinforced by the "customization" of the avatar described above. According to Nojima (tactical), the identity of online game users is affected by the appearance of avatars or items they wear. RMT refers to the act of buying and selling items or currency in virtual space as a real currency in the situation where clothing and accessories are traded as major products in Second Life and the size of the real money trade (RMT) is increasing. As an example, a user who wants to purchase an item in a virtual space purchases it in real currency. Although it is often banned, it is known that the market size is growing, especially in Southeast Asia.

. This customization of one's avatar is believed to have the effect of enhancing the identity of the avatar and further strengthening the sense of immersion in the metabus. Regarding the customization nature of Internet media, Ikeda (2005) points out the "possibility of customization" in communication rules or methods. Avatar's Internet media may believe that such customization possibilities extend to the avatar's body or surroundings, and that the spatiality of the meta-bus further strengthens the avatar's contextual

customization. On the other hand, in the field of virtual reality, attempts to increase immersion by increasing reality by using user images or tactile information in interpersonal communication on the Internet are underway. However, such a method can be thought of as causing a trade-off between customization performance by intervening in real information. The customization of avatars is caused by the aggressiveness of users who are not relying on real information, and text-based communication can inherit the characteristics of anonymity or freedom that it has so far (Figure 2).

3.2 Physicality and Metabus Participation Value

Draffers Dreyfus [2001] points out that telepresence (remote reality) on the Internet lacks finiteness and physicality accompanying susceptibility to injury, so the power to read the relevance of reality or objects is lost, and meaningful life cannot be spent. In this argument, Dreyfus argues that "telepresence is dependent on the body's sense of what it is dealing with at the moment." However, when applied to Metabus, there is a situation distinct from the conventional Internet characteristics emphasized by Draffers.

Figure 2

There is a virtual body called an avatar in the metabus, and we have the potential to immerse ourselves in the metabus through a highly bidirectional body. With the information in the metabus processed with physicality and immersion, we are able to achieve greater flexibility and greater reality than the textbase. The reality that an independent society is being built in various virtual space groups shows a situation in which it is recognized as an attractive and long-term space for users to participate. In addition, the post-Internet generation called Digital Native and the generation who access digital media such as video games every day tend to treat real-life communication equally to reality. Certainly, as Draffers points out, vast amounts of information exist in the real body and society in which it is included, and we exist first in such a space. However, Mizukoshi and others' points suggest that the premise that reality brings richer experiences is not inherently determined. Whenever these new values are established, the theoretical framework so far that deals with issues such as original Reality, Vulnerability, and Reality and Virtuality must be reexamined, and a new definition or way of understanding must be created.

Metabus can be thought of as a state-of-the-art information environment in which changes in user consciousness or values appear more clearly and comprehensively as a whole from its systematic characteristics.

4. Metabus application for social networking.

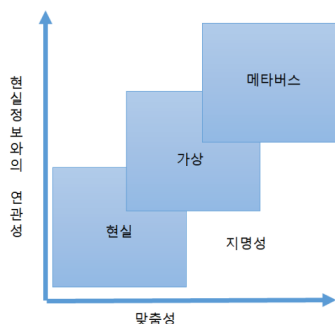As for the practical social application of these metabuses, many practice cases have

been accumulated in the business field, including the establishment of an experimental marketing environment. However, examples of practice that establish themselves as a communication support environment targeted by this paper tend to be found in non-profit social fields.

4.1 Education area.

So far, several attempts have been made to use the Internet to increase communication between students and teachers. These attempts include mailing lists, groups, and social networks, but recently, attempts were made to offer lectures and seminars on metabuses. In particular, it is actively conducted overseas. Programs such as the University of Minnesota's unique language education program described above, as well as remote lectures via metabuses, are being implemented by Harvard and Stanford universities. In Japan, countermeasures by Keio University and Dentsu have been in effect since 2007, and many seminars using metabuses are currently being conducted.

It has been reported that the number of cases involving metabuses has been increasing, including the publication of research results, which has historically been the role of websites. For example, the "Language Grid" (Multilingual Simultaneous Interpretation System), which is being promoted by Kyoto University and NICT, is open to the public within Second Life to help support communication among general users. Such an attempt is of great significance as an example of providing research results that have been difficult to be known to the public so far in an

easy-to-understand form for many people.

For this response, there are many areas in which the performance, possibility, or problem is unknown as it currently stands. However, as a relatively new form (or channel) of education, numerous reports can be verified regarding the fact that many universities and educational institutions pay attention to Metabus.

4.2 Medical field.

In the medical and medical fields, attempts are being made to apply the systematic characteristics of metabuses to medical support. In the metabus aimed at forming a self-help community of cancer patients tested by Ogura and Kusumi (2008), communication between users was maintained by a facilitator such as a doctor at the beginning of the experiment, but it is confirmed that communication between patients is taking place over time.

Toshisha University is carrying out a project to provide mental support for pregnant women in the second life in connection with a hospital specializing in obstetrics and gynecology.

In some foreign countries, Second Life is used to support patients with Asperger syndrome.

. Here, patients with mental illness who have difficulty in general social communication are first attempting to accumulate social communication skills through role-playing through avatars in the metabus, which will also be applied to brain damage or rehabilitation of other mental diseases.

A few challenges have been cited for these attempts. However, in view of these findings, it is necessary to wait to see the results of empirical studies, such as the customization of metabuses, in order to improve them. In the study of Ogura and Kusumi, there are problems such as doctors not being able to use skills such as reading subtle reactions of patients accumulated so far in real face-to-face environments.

4.3 Welfare field.

In terms of use in the welfare field, various approaches are currently being made in the field of engineering and medicine. The basic technology for controlling the avatar is successful, suggesting the possibility that people with disabilities who cannot move their bodies freely use metabuses for rehabilitation or as a venue for new activities. Tomita and Ushiba Laboratories, Department of Science and Technology, Keio University

. In addition, for IBM's attempts, it is developing support and software to help visually impaired people move within Metabuses more easily or facilitate communication with other users.

. There is a reason for these attempts because the meta-bus has a structure that is closer to reality, making it easier to recognize manipulation or information as compared to existing text bases. The medical field certainly needs to be involved in these attempts to yield results. However, the possibility of it becoming one of the new means of communication for people with disabilities is fully predictable. As such, the application of avatars and metabuses is being actively used in social areas that originally required meticulous interpersonal communication. There is an intuitive premise that we may be able to immerse ourselves in more realistic communication. This is because we can be included in various situations caused by the metabus space. This spatiality creates a situation that can be changed as freely as the avatar's appearance.

By generating and changing the context of the surrounding environment at the same time as the avatar customized by the user, we are able to provide a sense of entry and immersion that cannot be obtained by text-based communication.

5. Metabus as a communication and community support environment.

5.1 Functional novelty of Metabus.

As described above, communication in the metabus brings a different sense to the user than conventional text-based communication. Supporting it is the physicality of the avatar. As avatars expand and immerse our senses on the network, they are closer to reality than text because they are manipulated by users. In addition, customizable body media enhances such immersion and provides a range of information about communication to the user.

In addition, it is judged that the spatiality of metabus readers has the effect of further enhancing the physicality and immersion that avatars bring by approaching communication by avatars more in reality (or unreal). The

media called avatar can only exist as a tool for communicating to a simple doctor if it lacks spatiality and context. The reason why Metabus is actively used in fields such as education, medical care, and welfare is that it focuses on functional effects different from textbases. This is due to physicality and spatiality. And it should be noted that these technologies are not only popularized by cutting-edge users or young people who are familiar with the media but are also being used socially by people with diseases or disabilities.

5.2 Prospects and requirements of a community formation support environment using metabuses.

Examples of using these metabuses as a community formation support environment planned for this project include examples of self-help and group support for cancer patients mentioned in Chapter 4, examples of developing and disclosing independent software (Matsuda [1999], Inoue et al. 2000). In spaces such as Matsuda, cases have been reported in which users' communities are naturally established and developed into offline meetings. In addition, in spaces such as Inoue, it is pointed out that in communities with high intimacy, exchanges with avatars are more strongly selected than exchanges with texts.

This indicates the importance of activating communication between users and the ease of establishing a user community.

On the other hand, if you re-identify the space of a community with higher generality, you can think of the following problems to be solved. Is there a positive effect that can

be found in online communities? Also, what kind of communication content does it seem to be effective at? These are questions about how they are affected by the functional novelty of physicality and spatiality.

5.3 Status of Research Projects

This research project is a joint study with House Sezon Co., Ltd., which mainly works as a home broker for students. It aims to support rooms, the beginning of living alone, and daily life support, and the use of Metabus is the most appropriate experimental environment.

First, an experimental task is set in order to clarify the effectiveness and purpose of the use of metabuses in the introduction of housing. This task is set for new customers who are users.

For this task, it is a verification task to see how communication with new customers, freshmen, has changed when using the Metabus environment in the existing photo catalog base. In addition, we can look at how it has affected each customer and guest.

For this experiment, an experimental virtual model room was installed in the second life (Photo 1). This model house can allow you to check the layout of rooms and furniture by actually moving inside using an avatar. In addition, the ceiling part is made of transparent material, so users can see the model house on a two-dimensional room layout road.

photo1

In addition, an empirical reception experiment is conducted by installing a reception store (Photo 2) in the second life and establishing a large-scale business environment using metabus as a reception tool at the real store (house Sezon Minamikusatsu branch).

The next subject of this study is the possibility and task of establishing a community of residents in metabuses. Creating a community in a metabus is intended to support the natural start of living alone for residents and their interaction with one another. This task, as discussed in this paper, is considered part of the kind of communication research described in the metabus.

photo 2

In particular, it shows the effects and problems of building a community among students. It also solves problems in the real world by installing an avatar that serves as an advisor to the privacy of new students and problems in college life. For this experiment, a virtual student mansion for community experiments was installed in the second life (Photo 3).

photo3

6. Conclusion.

This paper summarizes the characteristics of metabuses in the form of comparison with textbases and communication so far. It also summarizes the sensory characteristics caused by physicality called avatars and spatiality called metabuses. Social attempts to utilize the characteristics of these metabuses, as mentioned in the text, are being applied in various fields of human communication. As well as presupposing the validity of the Internet as a basic information environment, various expectations are being conveyed within the form and internal stability of a metabus. These expectations cannot be fulfilled in the existing textbase, and the validity of such metabus characteristics is also a hypothetical premise for this study.

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