
Journal of Socio-Informatics

Vol.12, No.1 Sep. 2019

[Refereed Original Paper]

Historical Media Discourses of Search Engine Rankings in Japan

Atsushi UDAGAWA

[Translation]

Posthumanism and Constructionism of the Body in the Film *Ghost in the Shell 2: Innocence*

Naomi NEMURA

Media Gratifications and Successful Aging Among the “Young Old”

Atsushi KOTERA

The Society of Socio-Informatics

Journal of Socio-Informatics

Vol.12, No.1 Sep. 2019

◆CONTENTS◆

[Refereed Original Paper]

Historical Media Discourses of Search Engine Rankings in Japan

Atsushi UDAGAWA ... 1

[Translation]

Posthumanism and Constructionism of the Body in the Film *Ghost in the Shell 2: Innocence*

Naomi NEMURA ... 14

Media Gratifications and Successful Aging Among the “Young Old”

Atsushi KOTERA ... 28

Refereed Original Paper

Historical Media Discourses of Search Engine Rankings in Japan

Keywords:

Google, platform, ranking, search engine, World Wide Web

Atsushi UDAGAWA, The University of Tokyo

Abstract

The ranking of search engine results is commonly encountered media in daily life. However, most users are unaware of how search engines rank websites or even that the results are ranked, and trust that search engines arrange results appropriately. The purpose of this study is to clarify the history of the discourse on media (i.e., search engines) used to find webpages in Japan by analyzing articles in major Japanese personal computer magazines published during the Web 1.0 era. Consequently, this study clarifies that (1) the World Wide Web was originally considered as a “plaything” before becoming a tool for content searching, (2) tools for searching websites altered from semantic directories to computational rankings, and (3) discourse explaining computational technology gradually decreased resulting from a change in the search engine environment from over-competition to monopolization. Through this historical process, search engine rankings have become the major media for finding websites. This suggests that search engine rankings as media have become black-boxed, and implicit trust in the rankings was constructed. This study contributes to understanding how digital platforms affect daily communications by applying a media studies perspective.

1. Introduction

Ranking is one of the most popular formats in today's media. Among the different ranking types, search engine rankings are one of the most frequently used (Battelle, 2005). In search engines, webpages judged to relate to the query are presented in the format of a ranking. Many users consequently check for their desired content by accessing the top result before moving to those underneath, and lower-ranked webpages are unlikely to be selected and viewed. In that sense, the rankings are not just a format but also function as media that construct communication (Udagawa, 2019). This concept of media is based on socio-media studies undertaken by Mizukoshi (1999; 2014).

It is common for search engine users to consider only top-ranked content, and it seems the order of the search results is undiscerningly trusted as a "black box." Occasionally, issues arise, and one example is the "curation media" incident known as "DeNA's WELQ," which was widely discussed in Japan in 2016. WELQ, a popular healthcare-focused website owned by the Japanese company DeNA, was found to have posted incorrect medical information and inaccurate quotes, but was attracting many visitors as it was highly ranked on search engines using a technique called "search engine optimization." This incident was considered a kind of "fake news" in Japan (Fujishiro, 2017). According to a DeNA Third Party Committee (2017) report, DeNA's main business goal was to acquire a high number of daily visitors, known as "daily active users." Acquiring the top position in the search engine rankings was DeNA's only priority, and its content's veracity and quality were disregarded.

This event indicates the necessity of researching search engine rankings as media as they mediate how users select information. To tackle this issue, this study focuses on the historical texts of computer magazines as they reflect the general interests of Internet users over time. This study aims to clarify the history of discourse related to how search engine rankings became a major format of media in Japan by analyzing texts about search engines in major Japanese personal computer (PC) magazines published during the Web 1.0 era.

2. Previous Studies

Previous studies on rankings have mainly centered on the field of the "sociology of valuation and evaluation" (Lamont, 2012). In these studies, scholars have primarily focused on how rankings can change the political-based perceptions of social organizations, such as universities, companies, and governments. For example, Espeland and Sauder (2007) analyzed the rankings of American law schools from the viewpoint of how "public measures" of ranking can reconstruct social reality. They found that rankings represent a common effort to control institutions that are in the public eye and make them more accessible to outsiders. They also demonstrated that the interaction between institutions and society causes two effects: 1) The "reactivity" of rankings, which is shaped by "self-fulfilling prophecies" (Merton, 1948); and 2) the "commensuration" of rankings, which transforms social recognition into measuring various objects on a single scale (Espeland & Sauder, 2007).

These studies provide a useful perspective of public organizations' political theories regarding rankings and constitute functional analyses of

rankings in an “audit culture” (Espeland & Sauder, 2007). However, they largely treated rankings as subordinate to social statistics and focused on the rankings of organizations. In other words, they regarded rankings as tools for evaluating organizations. Therefore, these studies omitted other forms of rankings, such as search engine rankings and the fact that the ranking form itself constructs various forms of communication.

Another area related to the social construction of search engine rankings is the study of the information society. There are many discourses regarding search engines and related platforms. For instance, Gillespie (2010) highlighted that the word “platform” has a political meaning, indicating that platform providers hold a neutral stance. In these studies, the role of ranking is not discussed; the researchers instead focus on the power held by platforms such as Google. These standpoints overlap with the concept of code as architecture (Lessig, 2006). Lessig (2006) pointed out that “code” functioned as the power that regulates people. These are also referred to as “societies of control” and can be considered as the power to bypass recognition of people and regulate living environments directly (Azuma, 2007; Deleuze, 1990).

Manovich (2001) notes that “new media” supported by digital technology are fundamentally different from previous media due to a mediating layer called “software.” Manovich’s (2001) new media concept focuses on the disconnection of media technology before and after digitization. However, formats of media like rankings appear commonly before and after digitization. It is important to consider a history of media before and after digitization as continual change. The present study aims to clarify the history of

ranking as media rather than mere technology.

Regarding the Japanese context, some studies have investigated Japanese Internet culture. Hamano (2008) analyzed the Japanese Internet’s ecosystem in terms of its structure using Lessig’s (2006) architecture concept. He analyzed “2channel,” a popular textboard in Japan, and pointed out that compared to blogs, it has a lower control of architecture. Barbora (2014) also highlighted the importance of 2channel and blogs in Japanese Internet culture. These studies focus on the Japanese Internet culture’s uniqueness, but there are few discussions about search engine rankings themselves and Google’s penetration in Japan.

Conversely, the present study uses an analytical perspective on the morphological history of media, distancing them from politics and power, and avoiding technological determinism. This position is consistent with Hamano (2008), in that he does not attempt to “resist powers” but focuses on the analysis of “design structure” to discover its diverse possibilities. This viewpoint overlaps with Innis’ (1951) and McLuhan’s (1964) media studies and Mizukoshi’s (1993; 1999) socio-media studies.

Mizukoshi (1999) points out that media are present in society with multiple layers. In this study, “media” is defined as a multilayered concept that includes “format” as a model, which refers to how communication is organized as well as being “an object which mediates communication” (Mizukoshi, 2014). The extension of this concept of media is close to that of “communication media” by Luhmann (1968).

Therefore, in this study, the term “Rankings as media” emphasizes the aspect that the format level of rankings generates communications such as “top-ranked items are important.” The present

study aims to overcome the simple understanding that “search engine is power” and considers why search engine rankings are historically and socially adaptive by regarding search engine rankings as media.

From this perspective, Udagawa (2019) demonstrated the importance of researching “rankings as media” by analyzing text on major PC magazines in the U.S. and clarified how search engine rankings became “black-boxed.” However, this is only a discussion of discourse in the U.S. The present study focuses on illustrating how search engine rankings are constructed in Japan by analyzing the history of discourse on major PC magazines in Japan, where no previous studies have been conducted. By comparing this to previous analyses on U.S.-based magazines (Udagawa, 2019), the role of search engine rankings in society, regarding both their global ubiquity and local differences, can be illustrated. This analysis is also expected to clarify how rankings became major and “trusted” media for finding websites in Japan, both historically and socially.

As a theoretical framework for this historical study, Mizukoshi’s (1999, 2014) generalized “historical supplementary lines of socio-media studies” is referenced. This focuses on the historical construction processes of forms of media, considering the interaction between technology and society. According to Mizukoshi (1999), when media establish institutional and industrial positions in society, possible alternatives are forgotten. Here, “Possible alternatives” refer to the variety of social applications that were previously imagined or existed but later abandoned or forgotten. Further, Mizukoshi (1999) argued that media are regarded as “playthings” when they are recognized as new

things, but as users gradually abandon possible alternatives, the chosen media become tools.

3. Methodology and Data

In this study, articles on search engines and the WWW published in popular general Japanese PC magazines were analyzed. General PC magazines were examined because the changing discourse in these magazines represents the general interests of Internet users over time.

This study is a qualitative analysis as it describes the history of search engine rankings by tracing the discourse on the WWW and search engines in articles discussing changes in search engine technology. Unlike strict discourse analysis, the methodological viewpoint of this study focuses not only on the texts but also on the historical and social setting of technology. In this case, it is impossible to cover all of the related historical materials completely, and it is difficult to guarantee perfect objectivity of the description of history. Based on Hojo’s (2015) methodology, the argument in this study is a hypothesis proposal by abduction as an inference method for determining possible causes from specific results (Hojo, 2015). As Hojo (2015) highlighted, limiting historical analysis sources to specific texts during a specific time can increase the objectivity of the selection of historical materials to a level that is reasonably acceptable by guaranteeing the coverage in a certain range.

A 13-year period was examined in this study: from 1993, when Mosaic (the browser that popularized the WWW) appeared, to 2005, when the discourse on Web 2.0 (O’Reilly, 2005) emerged. For this study, this era is labeled “Web 1.0.”

Two Japanese magazines, *Nikkei Paso-com*

("paso-com" means "PC") and *Asahi Paso-com*, were examined, which have a large circulation in Japan and represent common Internet-related discourse of the era. In order to trace the history of ways to search and find webpages, all of the titles of the articles were reviewed and the articles that included the phrase "*kensaku* (search)" or "*kensaku engine* (search engine)" were chosen for analysis, excluding advertisements and flash news. Additionally, articles including the terms "Google," "Yahoo," or other search engine names were used as supplementary materials.

Nikkei Paso-com was launched in 1983 by Nikkei Business Publications, Inc. Despite being sold through direct sales and not by general bookstores, it maintains the largest circulation among general PC magazines in Japan consistently. The magazine provides a wide range of product comparisons and usage guides concerning the Internet, mainly relating to the business sector.

Asahi Paso-com was launched in 1988 by the Asahi Shimbun Company. From its inception, it has focused on personal computer use. This includes product introductions and usage guides for personal or hobby use of PCs and the Internet. It also contains articles or essays related to the information society.

Major readers of these two magazines are different: *Nikkei Paso-com* is mainly for business users, while *Asahi Paso-com* is for personal users. Considering the above, this study attempts to cover the general representation of the Internet in Japan by analyzing both type of the two most circulated magazines of the era.

4. Results

4.1. The WWW as a "Plaything" (1993-1995)

According to socio-media studies, new media appear as "playthings" when first introduced (Mizukoshi, 1999). Accordingly, when the WWW was first presented to the public, it was not regarded as a tool for finding information but as a consummatory "plaything."

In 1993, the Internet became a primary topic in Japan's PC magazines. Initially, these articles centered on the trends of advanced countries, introducing newly developed technologies from the U.S. For example, the September 15, 1993, issue of *Asahi Paso-com* (pp. 104-109) discussed U.S. Vice President Al Gore's "information superhighway" concept. The author of the article, Yasuki Hamano, introduced the U.S. Internet at that time as follows:

This series of movements shows that personal computers are no longer independent from politics. The first politician to understand this was Gore. Personal computers are about to be connected through both network cables and politics, and we cannot return to the "hobbyist" era. (p. 105)

In 1993, Japan's Internet penetration rate was only 0.4%, and that of PCs was 9.2% (Computer Industry Almanac & eTForecasts, 2012). The article written by the "advanced" author regarded "personal" computers as devices for hobbyists, individuals similar to hackers or geeks in the U.S. (Levy, 1984; Nishigaki, 1997)

In early 1994, articles instructing ordinary readers on how to connect to the Internet appeared in Japan's PC magazines. In *Asahi Paso-com*'s March 15, 1994, issue (pp. 118-119), Kenji Muro described his experience of connecting to the Internet in the U.S. and how to access

Japanese-language content.

In October 1994, the monthly *INTERNET Magazine* was newly launched and featured the article “Gopher, WWW (World Wide Web)”;¹ this article stated that “on the Internet, many sites provide information. Gopher and WWW are systems that efficiently search for such information” (*INTERNET Magazine*, October 1994, p. 48). Further, the WWW was described as “an information search system compatible with multimedia.” Here, “information search” did not necessarily mean a keyword search, and in the same article, it was paraphrased with the term “surfing,” implying that simply tracing hyperlinks and finding content constituted “searching.” At that time, “surfing” and “searching” were considered identical in Japan, as in the U.S. (Udagawa, 2019).

In *Nikkei Paso-com*’s September 26, 1994, issue (pp. 174-176), the article “Using Mosaic to Ride the Wave of the Internet” also described the WWW as “searching.” In this article, there was also a complaint regarding using the browser Mosaic as a search tool:

The Internet is a maze of chaotic information, depending on how you use an interface like Mosaic, you can either find something useful or trashy. (p. 175)

At this point, there was already an implicit assumption that a search that only involved following a link in a browser was insufficient for discovering useful information. The development of this social expectation can be considered a starting point for considering the function of rankings as media. It implies the pure pleasure of surfing the WWW itself would be gradually lost when users attempted to avoid encountering unexpected content.

Another aspect of the WWW’s popularity at

this stage was that users could publish their own websites. In *Asahi Paso-com*’s March 1, 1995, issue (pp. 130-131), Muro described this situation in the U.S. in the column “Create a WWW Server.”

The important thing is that anyone can start publishing, broadcasting, or start a business using it. Japan still seems passionate about browsing the WWW server using Mosaic, but in America, the conditions for creating new WWW servers are in place. You can become a sender. (p. 130)

Muro described how individuals could create a WWW server. As Muro highlighted, one of the main factors behind WWW enthusiasm was that everyone could become a sender; in other words, the enjoyment of “playing on” the Internet was considered as similar to becoming a sender while surfing.

As in the U.S., an individual home page boom soon arrived in Japan. A *Nikkei Paso-com* special issue, published on October 9, 1995 (pp. 186-197), declared “the user-centered era has arrived.”

Using search software such as Mosaic and Netscape Navigator, a user can get bored “surfing the web,” which involved searching the WWW. The most interesting thing about the Internet is that you can easily send information to the world using home pages. (pp. 194-195)

The article then explained how to write HTML code; furthermore, it presented several websites published by individuals. It also described that empowering everyone to become a “sender” represents the Internet’s attractiveness.

Having a home page makes it possible for you to become the lord of your own nation in the Internet world. A home page for introducing

other individual users' home pages has also appeared. It resembles a phone book that can easily search unique, individual home pages so you can easily find personal home pages you did not know existed. (p. 191)

The WWW during this era was characterized by many websites that introduced other websites through mutual links, called "link collections." Although these can be considered prototypes of web directories, they also connected individual websites to create a network. Unlike web directories, however, at this point, the purpose of link collections was not to sort or rank content but to expand connections and communications.

As the above discourse shows, at this time, the WWW was considered a "plaything" where users surfed and published websites to enjoy mutual communication, and its role as a tool for effectively finding information was secondary.

4.2. From Semantic to Computational Searching (1996-1997)

When media are in the process of expanding their role in society, there are many possible alternatives. This occurred when media changes from being a plaything to a tool (Mizukoshi, 1999).

The WWW's ability to allow everyone to become a sender in addition to enjoying surfing resulted in an information explosion through website creation. Globally, since the mid-1990s, the number of Internet-connected servers has doubled annually (Internet Systems Consortium, 2018). Consequently, with the resultant flood of information, it became important to distinguish necessary and unnecessary information.

In response, WWW searching transformed into a screening of unwanted websites; further, beyond the link collection of individual websites,

web directories such as Yahoo! became popular. This contributed to transforming the chaotic Internet environment (Dreyfus, 2001) into a hierarchical, orderly network.

However, this semantic approach gradually became more difficult as the WWW space expanded, and the information amount increased. This meant that surfing by relying solely on a network of hyperlinks occasionally resulted in a failure to obtain useful information. Paradoxically, this inefficiency led to the diminishing pleasure of surfing the Internet: if Internet users could only find unwanted information, they became unsatisfied.

This situation was described in PC magazines in 1996. For example, in *Nikkei Paso-com's* September 22, 1996, issue (pp. 145-153), the phrase "from surfing to searching" was coined. The article introduction reads as follows:

It is said that 10 million computers are now connected. Making the best use of this worldwide database is dependent on your skill level. Let's introduce how to go one step further: to "net search," which involves finding information, differing from "net surfing," which involves viewing a home page as is. (p. 145)

Here, searching used as a tool is expressed as an advanced-level skill. The article's focus was comparing various search engines, and it coincided with the emergence of query-based search engines, which were called "robots." As Udagawa (2019) highlighted, articles comparing several search engines were popular in U.S. magazines at that time, and similar interests existed in Japan. However, many local search engines could be used as possible alternatives in Japan, and major interest in search technologies focused on how well Japanese-language

webpages were indexed. Indeed, U.S. search engines, such as AltaVista, Lycos, and Excite, had weak technology for the processing of natural languages other than English, and in Japan, these were evaluated lower than local search engines.

PC magazines evaluated these local search engines based on their indexing of webpages in Japanese; specifically, the number of indexes of Japanese pages was represented as the major differentiator. In Japan, there were search engines operated by companies such as NTT and also various search engines developed by individuals and universities, such as Senri-gan, ODIN, and TITAN. However, these local search engines did not index webpages outside of Japan. Therefore, users were forced to use both global (U.S.-origin) and local search engines, depending on the language of the content for which they were searching. In Japan, search engines were diversified by the spaces or languages they indexed, a much more complex situation than in the U.S. The abovementioned article compared both Japanese and U.S. search engines in terms of differences in the variety of webpages and sizes of the indexes returned.

Furthermore, users were required to understand the differences between the webpage groups indexed by each search engine and the user interfaces for searching. This meant users were forced to independently determine which search engines, or even which webpages, most closely matched their objectives by comparing multiple search results. Thus, users did not depend on a single ranking of webpages provided by each search engine; in other words, users ranked webpages semantically by referring to multiple rankings of computational search engine results. There were still many possible

alternatives to rank webpages, and users were aware of the technological differences among them.

4.3. The Portal Era (1998-1999)

In 1998, the “portal” concept was created; “portal” means “gate” or “door,” and implies a single entrance to a large enclosed space. In the portal era of the Internet, users seemed to stop “playing” on the WWW and considered it more as a tool for finding information efficiently; it was the beginning of uniting an interface and eliminating the possible alternatives.

The August 15, 1999, issue of *Asahi Paso-com* featured the article “How to Utilize Portal Sites” that began with the following:

Portal means “main gate” or “front gate.” When launching the Internet, the portal site is often considered to be “the page displayed at the beginning.” Many sites, including search engines, aim to become “portals,” providing services such as free e-mail. (p. 102)

The article mentioned improvements in the “search functionalities” of portal sites, stating, “they make it much easier to find desired or valuable information” (p. 103).

Portals could be set as entrances, removing the necessity of directly accessing websites separately. This implies that by this time, comparing multiple sources of information had become frustrating in terms of tool efficiency. Users had become receivers by ceasing to publish information independently (as senders), and the WWW had begun to be regarded as a digital version of mass media. Mizukoshi (1999) highlighted that these portal sites had become digital versions of newspapers, indicating that the WWW had changed from media as networking “playthings” to media as broadcasting tools.

In the U.S. at that time, Tim Berners-Lee, the inventor of the WWW, expressed concerns that portals would limit the possibility to access any content easily (Berners-Lee, 1999). In Japan, PC-magazine readers voiced similar concerns. One article quoted responses to a questionnaire on this topic, reporting that some users had created their own portals through link collections to avoid depending on commercial portal sites.

These discourses implied that the ideal portal should be an interface that can be accessed at any time and provide all available content. In reality, however, many existing portal sites at that time were suspected of editing the results arbitrarily and guiding users to specific content because of commercial intentions, such as for advertisement purposes. Consequently, the neutrality of portal sites was distrusted. This resulted in users preferring websites where there was no room for commercial-influenced semantic editing that instead operated a computational process where replicability was guaranteed. This fostered the social expectation that portals could be replaced by computational programs or algorithms.

4.4. Google's Penetration in Japan (1999-)

Suspicion of the arbitrariness of portals fostered the demand for a unified and computational website-selection tool that afforded more trust. Consequently, through the mutual interaction between this social demand and the arrival of a technical innovation called "Google PageRank" (Page, Brin, Motwani, & Winograd, 1999), ranking became a primary means of selecting websites and a substitute for portals. Starting in 1999, media came to be fixed to a single ranking, and the previous possible alternatives disappeared, meaning users came to

depend on one medium and were unaware of other technological options.

After the creation of its beta version service in 1998, Google gained the attention of U.S. PC magazines, and from 1999, Japanese PC magazines began to introduce Google as a new search engine. In particular, after Google commenced a Japanese-language service in 2000, it began to be compared with search engines for Japanese websites. For example, *Nikkei Pasocom's* special issue for New Year 2001 (pp. 91-115) featured the article "How to Utilize Search Engines" and specifically explained Google's PageRank technology in "Google Gathering Attention and Stimulating Competitors."

This article stated, "traditional search engines judge relevancy based on the contents of web pages [...] Google judges relevancy based on the information contained in the links." A detailed illustration of PageRank technology was also presented, explaining that Google's high-level search power was based on this PageRank technology.

In the U.S., the relevancy of rankings became the most important factor for choosing search engines (Udagawa, 2019). Conversely, in Japan, it was more important that search engines be able to process the Japanese language precisely and to index all Japanese websites. This meant that ranking relevancy was evaluated based on search results for Japanese queries. At this time, Google was not very advanced in this regard, compared to traditional Japanese search engines.

In the same article of *Nikkei Pasocom*, the test results involving Japanese queries were reported, and the number of search results was compared. Google processed Japanese queries, but the number of results was lower than those provided by "goo," a popular Japanese search engine

operated by NTT Resonant.

At this point, although PageRank's technological merits had been widely described in detail, goo was still evaluated higher in terms of Japanese-language processing and coverage of Japanese websites. This implies that the websites Japanese users searched for were limited to those in the Japanese language and that coverage of Japanese websites was a primary factor regarding ranking relevancy. In a survey of search engine usage in Japan, included in the 2001 edition of the Internet White Paper, goo (31.9%) was placed second, after Yahoo! (61.6%); Google was ranked 11th (4.9%) (Internet Association Japan, 2001). However, by 2003, Google surpassed goo and was in second place (46.2%); it then continued to increase its number of users rapidly (Internet Association Japan, 2003). Given that Google's index guarantees a complete search of Japanese sites, its high relevancy of ranking centralized its ability to operate as a portal.

In the August 12, 2003 edition of *Nikkei Pasocom* (pp. 84-87), the article "How to Utilize a Search Site" introduced a basic method of using Google and methods of obtaining more specific results. The article only referred to Google as a "search site" and mentioned no other search engines; further, there was only a brief mention of Google's technology, in contrast to the detailed explanations of PageRank that were provided when Google had not been dominant.

Once Google demonstrated that it covered virtually all of the websites in Japan, it rapidly became the center of the WWW for Japanese users, as in the U.S. Consequently, other search engines, or possible alternatives including web directories and portals became marginal. Google became the single interface for ordering all

webpages. Further, because it distinguished natural rankings from advertisements, Google's algorithm argued that its computational reproductive process excluded any semantic arbitrariness, such as commercial intervention. As a result, trust in Google increased, and users began to depend only on Google's rankings and stopped comparing the results from multiple search engines.

When Google became the sole search engine (or, at least, the primary option), the interests of users moved away from the technology toward how to utilize Google fully. Consequently, technology-based discourse decreased. This also meant possible alternatives were forgotten, and ranking as media became a tool. Google did not set out to be a black box, but users came to treat Google as a black box on their own. This was because many users who were searching for content relevant to their interests had little desire to understand the technology or even to compare multiple search results. Simply ranking websites at an acceptable level of relevancy was satisfactory.

Users now generally check ranked webpages in order, from top to bottom. This behavior is supported by a belief that the algorithm processes develop searches computationally and consistently, despite there being no guarantee that the algorithm is invariant, and this typifies black-boxed ranking.

5. Conclusion

The media history of search engines and rankings described in this study can be considered from two viewpoints: 1) The WWW transformed from a consummatory "plaything" to a tool for finding content, and 2) the major

media for finding websites changed from semantic links to computational ranking.

The research question of this article focused on clarifying the history of discourse related to how rankings became major media used to find webpages in Japan. Originally, search engine rankings were not necessarily considered major media; surfing was how webpages were normally found during the Internet's early years, which could be considered more akin to playing rather than systematic information hunting. As the number of webpages increased, users began to demand an efficient tool for finding the information they wanted. At this time (around 1996), as the use of various search engines was still the norm, comparisons of search engine technologies were common in PC magazines. In other words, when the plurality of this new media meant searching was somewhat chaotic, or when users had more control over media selection, media forms and technologies were heavily discussed. As Mizukoshi (1993, p. 280) highlighted, "tremors in media can awaken media theory¹"; the fluctuation of search engines as new media might have raised interest in the forms or the technologies of the media.

However, shortly after its creation, Google demonstrated its ability to provide sufficiently high relevance and coverage of Japanese webpages to allow it to dominate all of the other search engines. Technically, a major factor is that Google built a system that enhanced its self-compliance accuracy by converting ranking from an internal to an external factor. However, more importantly, it suitably matched the social expectations of search engines at that time. The users desired a single interface that covered the almost infinite space of the Internet and that ordered results through a computational,

reproducible ranking process.

When Google established its position as a unified gateway to the Internet and replaced portals, possible alternatives in the form of other portals, including search engines, were forgotten. Coupled with this, discourse on media forms was also abandoned, and today, most people use Google as their sole search engine and only consider its first few listings. As the media forms were fixed and it became unnecessary to distinguish Google from other search engines, it was unnecessary for users to be conscious of other media forms.

Further, trust in the ranking diminished the necessity to confirm the validity of Google's algorithms. This trust represents a social act of taking risks by over-utilizing available information, as Luhmann (1968) discussed. By abandoning the confirmation of the efficiency of rankings, trust became black-boxed, and users began to accept the rankings undiscerningly.

This process in Japan was almost the same as in the U.S. (Udagawa, 2019). Throughout the period studied in this research, much of the discourse regarding search engines and rankings that appeared in U.S. PC magazines was also found in Japanese PC magazines. Indeed, many Japanese articles referred to U.S. PC magazine articles, and the development of search engines in Japan was directly influenced by U.S. events historically. This represents one unique aspect of the Internet as digital media that can be expanded, regardless of geopolitical borders. It contrasts with the fact that pre-Internet media, such as newspapers, radio, and television, were not expanded in this way.

It cannot be concluded that the history of search engine rankings as media has been identical in the U.S. and Japan, and cultural

differences can be observed in Internet content. In Japan, portals or search engines were evaluated based on the coverage of local-language webpages and many unique search engines that differed from U.S. search engines were developed. In contrast, after Google was able to cover Japanese-language content, its position on the Internet became centralized.

This study clarifies that PC magazine discourse shifted from a technological comparison of various search engines to how to utilize Google. This implies that Google's search engine algorithm became a black box and that most users trust its rankings with no awareness of the algorithm. In this regard, again, the process in Japan is almost identical to that in the U.S. Google has fixed its position as a media that regulates the behavior of both users and senders, and the mechanism itself has been forgotten despite its importance in modern media environments.

This study's findings focus on search engines and rankings as media in Japan, which has not been discussed in previous research and presents an important viewpoint of the complication of digital media. It represents a first step in understanding the construction of digital platforms by reconsidering the black-boxing of search engines and rankings from the perspective of media studies.

Note

1. This translation refers to a work by Zahlten (Steinberg & Zahlten, 2017)

Acknowledgement

This study was supported by JSPS KAKENHI Grant Number JP18H03343.

References

- Azuma, H. (2007). *Joho Kankyo Ronshu*. Tokyo: Kodansha.
- Barbora (2014). Nihon no Net Culture Shi. In Kawakami, N. (Ed.), *Net ga Unda Bunka: Dare mo ga Hyogensha no Jidai*. Tokyo: Kadokawa.
- Battelle, J. (2005). *The search: How Google and its rivals rewrote the rules of business and transformed our culture*. New York: Portfolio.
- Berners-Lee, T. (1999). *Weaving the web: The original design and ultimate destiny of the World Wide Web by its inventor*. San Francisco: HarperOne.
- Computer Industry Almanac & eTForecasts. (2012). *Computers-in-use forecast by country: Feb., 2012 version*. Incline Village: Computer Industry Almanac & eTForecasts.
- Deleuze, G. (1990) *Pourparlers 1972-1990*. Paris: Éditions de Minuit.
- DeNA Third Party Committee. (2017). *Chosa Houkokusho [Curation Jigyo ni Kansuru Ken]*. Retrieved Jan 25, 2019, from <http://v3.eir-parts.net/EIRNavi/DocumentNavigator/ENavigatorBody.aspx?cat=tdnet&sid=1450400&code=2432&ln=ja&disp=simple>
- Dreyfus, H.L. (2001). *On the Internet*. Oxford: Routledge.
- Espeland, W.N., & Sauder, M. (2007). Rankings and reactivity: How public measures recreate social worlds. *American Journal of Sociology*, 113, 1-40.
- Fujishiro, H. (2017). *Net Media Haken Senso: Nise News wa Naze Umaretaka*. Tokyo: Kobunsha.
- Gillespie, T. (2010). The politics of 'platform.' *New Media & Society*, 12, 347-364.
- Hamano, S. (2008). *Architecture no Seitaikei: Joho Kankyo wa Ikani Sekkei Sarete Kitaka*. Tokyo: NTT Publishing.
- Hojo, H (2015). *Rekishi kara Riron wo Souzou Suru Houhou: Shakai Kagaku to Rekishigaku wo Tougou*

- Suru*. Tokyo: Keiso Shobo.
- Innis, H.A. (1951). *The bias of communication*. Toronto: University of Toronto Press.
- Internet Association Japan (Eds.). (2001). *Internet Hakusho 2001*. Tokyo: Impress.
- Internet Association Japan (Eds.). (2003). *Internet Hakusho 2003*. Tokyo: Impress.
- Internet Systems Consortium. (2018). Internet domain survey, July 2018. Retrieved Jan 25, 2019, from <https://ftp.isc.org/www/survey/reports/current/>
- Japan Audit Bureau of Circulations. (1993-2005). *Zasshi Kosa Report*. Tokyo: Author.
- Lamont, M. (2012). Toward a comparative sociology of valuation and evaluation. *Annual Review of Sociology*, 38, 201-221.
- Lessig, L. (2006). *CODE version 2.0*. New York: Basic Books.
- Levy, S. (1984). *Hackers: Heroes of the computer revolution*. New York: Anchor Press/Doubleday.
- Luhmann, N. (1968). *Vertrauen: Ein Mechanismus der Reduktion Sozialer Komplexität*. Stuttgart: Enke.
- Manovich, L. (2001). *The language of new media*. Cambridge: The MIT Press.
- McLuhan, M. (1964). *Understanding media: The extensions of man*. New York: McGraw-Hill.
- Merton, R.K. (1948). The self-fulfilling prophecy. *The Antioch Review*, 8, 193-210.
- Mizukoshi, S. (1993). *Media no Seisei: America Radio no Dotaishi*. Tokyo: Dobunkan.
- Mizukoshi, S. (1999). *Digital Media Shakai*. Tokyo: Iwanami Shoten.
- Mizukoshi, S. (2014). *Kaiteiban 21-seiki Media Ron*. Tokyo: Foundation for the Promotion of the Open University of Japan.
- Nishigaki, T. (1997). *Shiso to Shite no Paso-com*. Tokyo: NTT Publishing.
- O'Reilly, T. (2005). What is Web 2.0? Retrieved Jan 25, 2019 from <http://www.oreilly.com/pub/a/web2/archive/what-is-web-20.html>
- Page, L., Brin, S., Motwani, R., & Winograd, T. (1999). The PageRank citation ranking: Bringing order to the web. Stanford InfoLab. Retrieved Jan 25, 2019, from <http://ilpubs.stanford.edu:8090/422/1/1999-66.pdf>
- Steinberg, M & Zahlten, A (2017). *Media Theory in Japan*. Durham: Duke University Press.
- Udagawa, A. (2019). *Kensaku Engine Ranking no Media Shi: Paso-com Zasshi ni okeru Kensaku Engine Hyoushou no Bunseki*. *Journal of Mass Communication Studies*, 94, 131-149.

Translation

Posthumanism and Constructionism of the Body in the Film *Ghost in the Shell 2: Innocence*

Keywords:

Ghost in the Shell 2: Innocence, posthumanism, body schema/image, social constructionism, networks and interactions with others

Naomi NEMURA, Nihon University, College of Economics

Abstract

Before attempting to conceptualize the body schema/image in the film *Ghost in the Shell 2: Innocence*, which is directed by Mamoru Oshii, this study compares the film with European and American cyborg films. Based on this comparative review, it is concluded that the film intends to avoid the return to humanism in the postmodern condition where the theoretical and ideological skepticism has arisen, and such thought of the film is called posthumanism.

Next, this study analyzes what kind of body schema/image is created by posthumanism. In the film *Ghost in the Shell 2: Innocence*, the bodies of dolls are interpreted as artificial constructions. The body schema/image constitutes the underlying theme of the entire film, and the bodies of dolls are exactly the representations of human bodies. In other words, the film reveals that the understanding of the body is socially constructed, and such social constructionist perspective of the body frees us from the mystique attached to 'human bodies' as *organic unity*.

Furthermore, according to the body schema/image in the film *Ghost in the Shell 2: Innocence*, 'the construction of the body' is not merely an abstract concept but has boundaries defined in concrete conditions and also this construction can only have the *contingent foundation*: 'the body' can be constructed by networks and interactions with others different from but constituent of oneself. In addition, this understanding of the body may be connected with the concept of respect for others that cannot be understood or valued by humanism.

1. Introduction

To use the argument presented by Gilles Deleuze and Félix Guattari as a reference (Deleuze and Guattari, 1991)¹, we can consider that *art* actualizes possibilities of the world that are concealed when things are organized using certain methods and that *philosophy* conceptualizes them. Then, we can grasp such *art* as a type of “social information” that actualizes the world’s possibilities. Furthermore, as an attempt to decode it and to conceptualize to a clear form of *knowledge*, such *philosophy* can be positioned as one field of “social informatics.” This kind of grasping of “social information” means expanding the range that is treated by “social informatics.” That is, it becomes possible to put various cultural activities into range.

In contemporary cyberculture, there are more and more trends to actualize ‘body’² interpretations created by the electronic environment in which we find ourselves (Zylinska, 2002; Dovey and Kennedy, 2006; Brians, 2011). Based on the argument of Deleuze and Guattari, such attempts seen in contemporary cyberculture may be regarded as *the art* in the sense of presenting the hidden possibilities of the world. Then, the *philosophy* as an attempt to conceptualize such *art* can be understood as indispensable to cyberculture studies. Furthermore, it is possible to understand the kinds of cyberculture trends as “social information” and to consider the cyberculture studies, which decode the above “social information,” as a field of “social informatics.”

In this regard, this paper analyzes the film *Ghost in the Shell 2: Innocence* (2004), directed by Mamoru Oshii. In the final scene of the prequel *Ghost in the Shell*, the protagonist, Motoko

Kusanagi³ suggests that the investigation of the “ghost” is going toward a new stage (Nemura, 2014). On the other hand, Oshii regards *Ghost in the Shell 2: Innocence* as a ‘body theory’ (Oshii, 2004: 35-39). When considering all these points, explaining the body schema/image in *Ghost in the Shell 2: Innocence* can be conceived as not only the key to understanding the “ghost” but also the entire work itself. However, few discussions on exploring body image/schema at the center have been conducted, and the body interpretation in *Ghost in the Shell 2: Innocence* has not been fully clarified. Thus, this paper attempts to analyze the body image/schema shown in *Ghost in the Shell 2: Innocence* and puts forth new knowledge and develops understanding about the work.

This paper first explores the underlying thought of *Ghost in the Shell 2: Innocence* through a comparison with other cyborg films. Then, this study conceptualizes the body schema/image in the film. Based on that, this analysis adds an insight about the connections between the body interpretation and the “ghost” concept.

2. Summary of *Ghost in the Shell 2: Innocence*

The setting is the year 2032, and the coexistence of people, cyborgs, and robots has progressed. Meanwhile, there is frequent terrorism occurring in various places. Batou, a complete cyborg⁴, is a member of Public Security Section 9, known as the “Mobile Armored Riot Police,” which cracks down on such terrorist crimes.

One day, Hadari gynoids, female-shaped androids constructed by the company Locus Solus, begin to slaughter their owners and self-destruct. While such incidents continue to occur, a consignment inspector of Locus Solus is

murdered, which appears to have been done as revenge for the death of a yakuza boss killed by a Hadari. To investigate the yakuza family's relationship with Locus Solus, Batou and his partner, Togusa, attack the family. These conspicuous moves spur Locus Solus into action. They hack Batou and cause him to act recklessly to obstruct the investigation.

Batou, who has believed that not many people can hack him in that manner, becomes suspicious of his old war buddy Kim. Batou and Togusa head toward Kim's mansion after learning his whereabouts from an informant. Batou and Togusa encounter a hacking attack by Kim. However, they capture Kim, breaking out of the trap with the help of both the word inscribed upon the Golem's brow and the watchword for the reunion with Kusanagi "2501"⁵.

Batou and Togusa use Kim's e-brain to infiltrate Locus Solus's factory ship. When they do so, Hadari gynoids on the production line start a wild attack all at once. Batou is surrounded and trapped by the group of Hadaris. However, he is saved by Kusanagi, who has seized control of one of the Hadaris. Kusanagi and Batou get the Hadaris' attack under control and arrive at the truth.

Locus Solus has been using the yakuza to traffic young girls and "dubbing" their "ghosts" into the gynoids. In past animal experiments of "Ghost dubbing," scientists could mass-duplicate inferior copies. However, since it was proven that the original brain would be destroyed, the technology was banned. In this case, the consignment inspector revised the ethic code of Hadaris and was responsible for the Hadaris' attacks. The trafficked girls and the consignment inspector thought that if they could cause violent incidents with Hadaris, someone would come

and save the trafficked girls. However, this plan was exposed, and thus, the yakuza serves the consignment inspector to avenge the yakuza boss.

3. Posthumanism as the Underlying Thought of *Ghost in the Shell 2: Innocence*

As mentioned in the introduction, this paper explains the body schema/image seen in *Ghost in the Shell 2: Innocence*. This is a science fiction film in which the protagonists, who are in a condition where human faculties have been transformed through technology (in other words, they are *cyborgs*), live in a setting in the near future. We can unobjectionably categorize this film as a "cyborg cinema," defined by Sue Short⁶ as "a focus on the intersection between humanity and technology" (Short, 2011 ix) (when this term is used in Short's definition below, quotation marks will be used). In that sense, viewing Short's study of "cyborg cinema" sheds light on the underlying thought of *Ghost in the Shell 2: Innocence* by comparing it with other films. Thus, by using Short's discussion for clues, this section attempts to explore the assumptions upon which the world of *Ghost in the Shell 2: Innocence* is based.

3-1. Humanism of "Cyborg Cinema"

As far as Short's discussion goes, the characters in science fiction films as fictional cyborgs symbolize an unavoidable "postmodern condition," that is, a situation in which modern "humanity" is faced with certain crises (Short, 2011:163). According to Short, the characters are given the role of revealing the fact that various theories and ideologies are only partially effective and the foundations on which they stand are

unstable (Short, 2011:192).

Let us look at the examples of *Blade Runner* (Ridley Scott, 1982; Director's Cut, 1992; Final Cut, 2007) and *Total Recall* (Paul Verhoeven, 1990; Remake: Len Wiseman, 2012), both of which are based on original works by Philip K. Dick. In these films, the postmodernist skepticism about the various theories and ideologies that generated trust in modern humanity is expressed through the uncertainty of the characters' identities or of the world in which those characters live.

For instance, in *Blade Runner*, Rachael is a "replicant" (i.e., an android with an organic body) in whom the memory of Dr. Tyrell's niece has been transplanted. She visits the protagonist, Deckard, in an attempt to find out whether she is a replicant. Although Deckard lies and tells her that she is not a replicant, Rachael perceives herself to be a replicant and then disappears. In the director's cut and the final cut, Deckard is depicted to be a replicant himself. In *Total Recall*, the protagonist Quaid is a character who is troubled by some dreams. He visits the Recall Company and tries a machine that implants manufactured memories. After that, he is mysteriously attacked⁷. When he manages to return home, his wife also attacks him. He is then informed that his memories about his marriage have been implanted in him. He then begins to take action to find out who he really is.

However, in these films, re-evaluation of "humanity" under a doubtful gaze is another important element. This is because "in a period where virtually every concept is now subject to theoretical cross-examination and dismissal," such cinema "conceives and corroborates humanity's potential for intellectual growth and ethical responsibility" (Short, 2011:199). The

cyborgs are evaluated in accordance with the degree of resemblance to humans, which, at the same time, leads to a re-evaluation of the value of "humanity" (Short, 2011: 197).

For example, in *Total Recall*, through the battle, Quaid comes to realize who he is. The director of the 1990 version says that in the last scene, he tries to express that those events took place in Quaid's dream⁸. However, since the scene does not explicitly describe this, it is possible to think that Quaid has verified his identity and relation to the world by asking who he is (Short, 2011: 196). Furthermore, Quaid's objective changes, that is, to rescue the people of the colony⁹. In *Blade Runner*, Roy Batty, the leader of a renegade replicant group, saves Deckard, who was hired to kill him.

These characters are perceived not as "passive victims," but as "active agents" (Short, 2011: 197). Moreover, going beyond self-assertion, they are depicted as subjects with collective responsibility (Short, 2011: 198). Thus, while the image of cyborgs in the film that Short calls "cyborg cinema" is burdened with deep skepticism toward "humanity," that is to say, humans' *ability to understand themselves and the world* and their *ability to shoulder social responsibility*, we can see this image functioning to restore our trust in such "humanity."

3-2. *Ghost in the Shell 2: Innocence* Avoids the Return to *Humanism*

As noted in the science fiction films brought up by Short, the cyborg representation symbolizing the crisis of modern "humanity" returns to the framework of humanism that re-evaluates humans' *ability to understand themselves and the world* and their *ability to shoulder social responsibility*. However, what about *Ghost in the*

Shell 2: Innocence? First, let us look at the following conversation between Kim and Batou about breathing a soul into a doll through “ghost dubbing”:

Kim: That would mean replicating humans by breathing souls into dolls. Who’d want to do that? The definition of a truly beautiful doll is a living, breathing, body devoid of a soul. “An unyielding corpse, tiptoeing on the brink of collapse.”

Batou: Or reduced to a raved body with an e-brain...like you.

Kim: The humans is no match for a doll, in its form, its elegance in motion, its very being. The inadequacies of human awareness become the inadequacies of life’s reality... Perfection is possible only for those without consciousness, or perhaps endowed with infinite consciousness. In other words, for dolls and for gods.

In the dialog between Kim and Batou that follows these lines, it is implied that animals are also equal to dolls or to gods.

Then, Kim says, “Shelley’s skylarks are suffused with profound instinctive joy. Joy we humans, drive by self-consciousness, can never know. For those of us who lust after knowledge, it is a condition more elusive than becoming godhood.” In these dialogs, they display a strong disgust toward the act of breathing human souls into dolls. This is because Kim thinks that the state of human beings, in particular, the “human awareness,” is inadequate and that “the inadequacies of human awareness become inadequacies of life’s reality.” This kind of doubt toward human awareness and the uncertainty of

the reality, created by human awareness, is recognized in the “cyborg cinema” mentioned in the previous section. In that sense, *Ghost in the Shell 2: Innocence* belongs to the “cyborg cinema.”

However, in *Ghost in the Shell 2: Innocence*, we cannot see the position of trying to reconfirm the value of modern “humanity” by bringing it to cyborgs. In this film, the resolution of the incident does not lead to an acknowledgment of *human characteristics* apparent in the “cyborg cinema”; in other words, it does not lead to *humanism*. Let us look at the scene in which Batou and Kusanagi rescue the young girl who instigated this incident:

Batou: Didn’t he consider the victims? Not the humans... What about the dolls endowed with souls?

Girl: But...But... I didn’t want to become a doll!!

Kusanagi: “We weep for the birds cry, but not for the blood of a fish. Blessed are those with a voice.” If the dolls could speak, no doubt they’d scream, “I didn’t want to become human...”

Here, these thoughts cannot be incorporated into *humanism* that praises humans’ *ability to understand themselves and the world*, and their *ability to shoulder social responsibility*. In this scene, returning to *humanism* is rejected and the line of thought that tries to evaluate others on the basis of those *humanities* is avoided. Such care toward non-human existence does not originate in sympathy arising from similarities as regards “humanity.” What we can see in the words of Batou and Kusanagi is *respect*, which refers to the acceptance of others different from forms of existence articulated by *humanism*. Care for non-human existences in *Ghost in the Shell 2: Innocence* can be conceived as being based on

respect for different things and not on sympathy toward similar things. Thus, we can say that the incident comes to a close in *Ghost in the Shell 2: Innocence* through demonstrating respect for different existences which cannot be appraised by humanistic values.

Furthermore, in the last section of *Ghost in the Shell 2: Innocence*, there is a scene with Batou and his dog in which Batou is looking at a girl doll being held by Togusa's daughter. In the previous scene, Togusa's daughter appears and receives the doll as a gift from Togusa. The contrast between the girl and the doll brings to mind the conclusion of the preceding incident. In this scene, Batou is looking at the doll. We will look at this in the next section but, in *Ghost in the Shell 2: Innocence*, Kusanagi is hinted at through a girl doll or through a bird, or otherwise appears as a gynoid. She never manifests in a human form. These things may also suggest that *respect* for different existences that cannot be fully articulated by *humanism* is the underlying thought of *Ghost in the Shell 2: Innocence*.

In this paper, we refer to the stance that rejects the return to *humanism* (in the sense of praising humans' *ability to understand themselves and the world* and their *ability to shoulder social responsibility*) and demonstrates respect for others with their own *heterogeneity* as *posthumanism*. *Posthumanism* in this sense is a point worthy of special attention in *Ghost in the Shell 2: Innocence*, and on that point, we can think of this film as clearly differentiated from the "cyborg cinema" brought up by Short.

This sense of *posthumanism* is in reference to Pramod K. Nayar's "posthumanism," or to be precise, Nayar's "critical posthumanism." When explaining this, Nayar argued that "critical posthumanism is an *ethical project* that asks us to

ponder, and act, upon the acknowledgment that life forms have messy, intertwined histories" (Nayar, 2014: 31). That is, according to Nayar, "critical posthumanism" is an ethical position that opposes the human hierarchization of life forms, for the reason that "such ranking has inevitably resulted in exclusionary practices directed at particular life forms, races, and groups." Furthermore, this project argues for the awakening of responses and responsibilities to others and differences. The stance to avoid placing "humanity" at the center of value and to respect toward others in *Ghost in the Shell 2: Innocence* corresponds to the "ethical project" of Nayar's "critical posthumanism."

4. Body Schema/Image in *Ghost in the Shell 2: Innocence*

Next, this section explains the body schema/image shown in *Ghost in the Shell 2: Innocence*, continuing to accept that the thought referred to as *posthumanism* is the underlying thought of this film. However, when we wrestle with this theme, we encounter a methodological difficulty. In analyzing *Ghost in the Shell*, a phenomenological method developed by Ingrid Richardson and Carly Harper on the basis of arguments by Maurice Merleau-Ponty was adopted (Nemura, 2014). In this method, the concept of the "body schema" or "body image" asks us to "set aside our prejudices of both science and common sense" and to "reflect on the consciousness of lived experience" (Richardson and Harper, 2002: online). Furthermore, the body understanding that is not caught by the image of both "science" and "common sense" means that the phenomenological notion of the "body schema" or "body image" includes "the concept of a

'fictional' or symbolic mapping of the body" (Richardson and Harper, 2002: online). Accordingly, this paper regards such concept as valid for studying cyberculture, which means various cultural activities related to electronic technology, and attempts to analyze the nature of Kusanagi's bodily experience based on the phenomenological method.

However, in *Ghost in the Shell 2: Innocence*, aside from the scenes in which she rescues Batou (i.e., at Kim's mansion and on the Locus Solus factory ship), Kusanagi is depicted as an *absent* being. Certainly, it is conceivable that Kusanagi's *absence*, which is different from her in *Ghost in the Shell*, indicates the body schema/image of *Ghost in the Shell 2: Innocence*. Nevertheless, it is largely impossible to explore Kusanagi's bodily experience based on her lines. Furthermore, although the climax of *Ghost in the Shell 2: Innocence*, in which Kusanagi appears on the Locus Solus factory ship in the form of a doll (i.e., gynoid), presents the dolls as a very important motif, the dolls are not depicted in the form that allows for the *phenomenological analysis*. The dolls never describe their own bodily experience. Accordingly, this paper employs a somewhat irregular *phenomenological method* of describing and interpreting the body schema/image implied by the dolls, though they do not speak of their own bodily experience, based on varied information.

As mentioned in the introduction, few previous studies have focused on the body schema/image of *Ghost in the Shell 2: Innocence*. To the best of my knowledge, Tamaki Saito tries a psychoanalytical approach and states, "the body begins to become an *imperfect armor*, and multiplies as a frame" (Saito, 2004). Furthermore, Tetsuya Sato adopts an analytical method using

the concept of the "suppression apparatus" and argues that the body has already ceased to function as a suppression engine by beginning to function as a "variable" (Sato, 2004). However, in these discussions, the *phenomenological method* with the acceptance of *posthumanism* is not adopted. Considering this situation, this paper will present knowledge about *Ghost in the Shell 2: Innocence* that has not been obtained in other arguments up to now.

4-1. The Constructionism of the *Body* Shown by the Dolls

First, let us focus on the scene before the opening credits. Here Batou faces a gynoid that has just killed its owner and a police officer in a dark passageway. After grappling with Batou, the gynoid tears open its own chest while saying, "Help." Batou shoots the gynoid with a shotgun and destroys it.

The gynoid attempts to self-destruct before being shot, and in this process, it reveals that its body is comprised of mechanical parts. In this scene, it could have been possible to depict things in the following order: a gynoid with an intact Japanese doll exterior, the *shooting*, followed by the gynoid in small pieces. In fact, however, this scene preceding the opening credits describes the gynoid that tears its own skin and emphasizes the fact that the gynoid's body is artificially constructed.

The body image as *artificially constructed* segues into the background scene of the opening credits. In this scene, we see the manufacturing process of a gynoid, from "artificial cells to the construction and assemblage of robot body parts" (Brown, 2010: 15). It implies that the bodies of the dolls are artificially made; that is, they are thoroughly constructed. This type of

body schema/image must be a rehashing of the background scene of the opening credits in *Ghost in the Shell*, which suggests that Kusanagi's body is artificially constructed. While connecting to *Ghost in the Shell*, this scene of the birth of the gynoids can be thought to present the body schema/image, which runs through the entire film.

Oshii's inspiration for the doll motif came from Hans Bellmer's ball-jointed dolls (Bellmer, 2011). The dolls in the aforementioned scenes clearly show *visual* influence from Bellmer's works. However, the influence seen in *Ghost in the Shell 2: Innocence* does not stop at the *visual* level. Bellmer attempts his doll experiments as "corporeal anagrams" (Brown, 2010: 39), in which a body resembles a sentence, that dismantles it into its component letters, and that reconstruction is repeated. In that experiment, Bellmer's dolls are "monstrous machinic hybridities set against the most banal of everyday setting and tableaux, conveying 'gruesome scenes of everyday life'" (Brown, 2010: 40-41). Furthermore, the emphasis on the grotesque and uncanny aspects is none other than an "artistic resistance to the Nazi social regime and its cult of the perfect body" therein (Brown, 2010: 43).

Ghost in the Shell 2: Innocence seems to emphasize the depiction of the *process* of assembling the dolls in the shape of a girl, rather than the *image* of the reconstructed body itself. However, it is possible to say that the interest in that process has inherited the anagram perspective of disassembling the components composing the body. Moreover, the sight of a gynoid tearing itself to pieces can be seen as a resistance against the ideal of beauty of "adolescent girls" (Brown, 2010: 47), and it can

be considered that this strong protest against the ideal of the *perfect body* was inherited from Bellmer.

4-2. Doll Bodies=Human Bodies

The next point to be examined is the relationship between *doll bodies* as *artificially constructed* and *human bodies*. *Ghost in the Shell 2: Innocence* is sprinkled with lines representing *doll bodies* as the motif with relation to human bodies.

First, when Batou and Togusa visit the lab of Haraway, a police forensic specialist, Haraway says the following: "Unlike industrial robots, the androids and gynoids designed as 'pets' weren't designed along utilitarian or practical models. Instead, we model them on a human imagine, an idealized one at that. Why are humans so obsessed with recreating themselves?" Batou says, "Descartes didn't differentiate man from machine, animate from inanimate. He lost his beloved five-year-old daughter and then named a doll after her, Francine. He doted on her. At least, that's what they say..." Furthermore, in the scene at Kim's mansion, Kim says, "That's why dolls haunt us. They are modeled on humans. They are, in fact, nothing but human. They make us face the terror of being reduced to simple mechanisms and matter. In other words, the fear that, fundamentally, all humans belong to the void."

Each of these lines guides us toward seeing *doll bodies* as *human bodies*. That is, in *Ghost in the Shell 2: Innocence*, *doll bodies* are nothing but the expression of *human bodies*. If that is the case, it is concluded that constructionism of *doll bodies*, clarified in the previous section, represents constructionism of *human bodies*.

Kim's above-mentioned line shows an

understanding of *doll bodies* as *human bodies* and this understanding attempts to reduce bodies to the world of mechanisms and matter. Nevertheless, this line does not seem to assume the existence of a physical substance that should be called the *human body* in that material world.

Certainly, Kim's line: "Further, Science, seeking to unlock the secret of life, brought about this terror. The notion that nature is calculable inevitably leads to the conclusion that humans, too, are reducible to basic, mechanical parts," followed by Batou's line: "The human body is a machine which winds its own springs. It is the living image of perpetual motion," gives us an impression of assuming the *human body* as a physical substance. However, In *Ghost in the Shell 2: Innocence*, the protagonist, Kusanagi, is an *absent* being in most scenes. Her *absence* can be thought to imply that she is embodied through our interpretation. This is indicated by the scenes at Kim's mansion in which Batou and Togusa manage to escape from Kim's trap. In those scenes, Kusanagi's existence is shown through hints in the sights depicted, and her *body* starts to come to the fore through the interpretations of those watching the scene.

For example, a girl doll playing with cards and a dog doll jump into the vision of Batou and Togusa when they first enter Kim's mansion. The girl doll does not explicitly state that she is Kusanagi. However, the girl doll is a "guardian angel," and Batou's "guardian angel" could be none other than Kusanagi. In the third scene in Kim's mansion, the fact that the number "2501," which the girl doll leaves behind, is the password for the reunion of Batou and Kusanagi provides us with another hint that the girl doll is a *manifestation* of Kusanagi.

Just before the scene in which the number

"2501" shows up, the figure of a bird appears for a moment. This scene can be read as implicitly showing that Kusanagi has changed her form to that of a bird. When heading toward the factory ship after escaping from Kim's trap, the figure of a bird that seemed to guide Batou can also be thought to be suggestive of Kusanagi.

If these scenes express that Kusanagi's body appears through our interpretations, the perspective that grasps *the body* as *constructed* assumes that the material world is the incessantly continuing *phenomenon*, and that the body would be rather *absent* there. Thus, as mentioned previously, Kusanagi's *absence* itself becomes an important key for understanding the body schema/image in *Ghost in the Shell 2: Innocence*.

Oshii states the following in a talk with Takashi Tachibana: "Such a thing as a created by the human brain, the body as an illusion. Aside from this, perhaps there is no such thing as a final, original existence of an inherent human body" (Takashi Tachibana and Oshii, 2006). We can also read this statement as being based on the aforementioned body schema/image. Such an understanding of the body can be considered to be based on *social constructionism*. When taking the standpoint of social constructionism, all recognition and description is made within our social relations and is grasped as being mediated by our interactions (Gergen, 2009, 2015)¹⁰. Therefore, all of our bodily recognitions and descriptions is understood as not existing completely away from the grasp of our cultural dimension.

When *Ghost in the Shell* is analyzed, we can see the thought that the awareness of *I* as a *human* is based on the body's *organic components* and that the greater the body's *organic integrity* is, the more certain the *humanity* is (Nemura, 2014),

with reference to Angus McBlane's argument (2010). In contrast to this, in *Ghost in the Shell 2: Innocence*, it is not possible to acknowledge the privilege of *human bodies* as *organisms*¹¹. This is because, when starting from social constructionism, the notion of the body as an *organism* is constructed by our grasping and understanding to sort machines from humans and animate things from inanimate things. When adopting a perspective that grasps the body *as constructed*, the *human body* as an *organism* cannot be regarded as being in a special position that assures the awareness of *I* as the proof of being *human*.

Ghost in the Shell 2: Innocence releases us from the mystique of the human body as an organism. That is, if we assume the social constructionist perspective, the main theme of the film is to cast doubts on the essential and exceptional supremacy of the *human body* as an *organism*.

4-3. How is the Body Constructed?

As clarified in this study, the eradication of the *mystique* bestowed on the human body as an organism is the main theme of *Ghost in the Shell 2: Innocence*. This theme is brought to the fore in the scene in which Batou boards the Locus Solus factory ship. In this scene, Kusanagi appears as a gynoid, in a recognizable form. In that scene, the film seems to demand us to understand how the *human body*, which was previously *absent*, is constructed.

For Kusanagi, the *given body* is not assumed, and that its construction comes about in each scene. For instance, the construction of the body as a gynoid is not based on some preceding entity. The body is constructed in the *practice* of chasing the truth of the incident. Its construction or the delimitation of the body is founded on the

"contingency" (Laclau, 1990). As argued by Judith Butler and Donna Haraway, there can be nothing but "contingent foundations" in such a construction (Butler, 1992; Haraway, 2003).

Furthermore, we can consider that the networks and interactions with others create the "contingency" that constructs the body. In the factory ship scene, it is clear that Kusanagi's body is constructed in her relationship with Batou. If we consider that Kusanagi's existence is suggested in the girl doll and the bird at Kim's mansion, we can also see in these scenes that the relationship with Batou constructs Kusanagi's body. Kusanagi is always constructing the body in connection with Batou.

Then, in the scene in which Batou and Togusa escape from Kim's trap, as suggested by Togusa's line of "That I'll never cut it as your partner," Kusanagi and Batou are depicted as indispensable to one another. In other words, we can consider that Kusanagi's body is only constructed through her networks and interactions with *others* that are not herself but rather essential to her (hereafter, "others that are not oneself but rather essential to one" will be expressed as *others*)

In the previously cited talk with Tachibana (Tachibana and Oshii, 2006), Oshii calls "not the body that you have and you were born into, but the second body that you acquired while thinking for yourself and being socialized" the "body." He goes on to explain that "calling it a ghost is cumbersome." He also argues, "the body cannot be born without interactions." Furthermore, Oshii discusses, "whether your partner, your parent, or your child, whether your cat or dog that you've loved for some dozen years, when one of them dies, you feel that the body decreases, a big hole opens up. I think that the recognized body at these times may never recover from such

a large hollow or loss.” These remarks of Oshii show that he presumes that the body schema/image is created through networks and interactions with *others*.

To borrow Richardson and Harper’s expression, this body schema/image presented in *Ghost in the Shell 2: Innocence* asks us to “set aside our prejudices of both science and common sense” and to “reflect on the consciousness of lived experience” (Richardson and Harper, 2002: online). On this point, we could say that this perspective is identical to Merleau-Ponty’s phenomenology (Merleau-Ponty, 1945)¹². Furthermore, on the point of thinking that the bodily experience is not necessarily limited by the boundary of the skin (Merleau-Ponty, 1945: 173-179), the perspective corresponds to the basic standpoint presented by Merleau-Ponty. On the other hand, the body schema/image captures a point that Merleau-Ponty’s phenomenology does not focus on; that is, the existence of *others* in our body schema/image.

Furthermore, *others* are not necessarily existences that can be understood and appreciated in the framework of *humanism* that praises humans’ *ability to understand themselves and the world* and their *ability to shoulder social responsibility*. To adapt this to Batou, the *other* is a doll. Certainly, in *Ghost in the Shell 2: Innocence*, the *doll body* is nothing but the representation of the *human body*. Nevertheless, as we have seen in Section 3, Kusanagi’s line, “If the dolls could speak, no doubt they’d scream, ‘I didn’t want to become human...,’” suggests that the dolls cannot be understood and appreciated completely by the framework of *humanism*.

If we consider the bird that leads Batou from Kim’s mansion to the factory ship to be Kusanagi, the *other* at that point is a bird. Moreover, the

basset hound living with Batou in *Ghost in the Shell 2: Innocence* is an essential being for Batou, similar to Kusanagi. We can see that when Batou is with the basset hound, through their interactions, he lives the way of a different body from the one when working at Public Security Section 9. Then, as confirmed through the dialogs between Kim and Batou in Section 3, this film suggests that animals also cannot be understood and appreciated completely by the framework of *humanism*.

As noted above, in *Ghost in the Shell 2: Innocence*, *others* that cannot be understood and appreciated by the framework of *humanism* are also positioned as beings related to the construction of the human body. We could see this positioning as a form of respect for such *others*. Thus, the body schema/image of *Ghost in the Shell 2: Innocence* corresponds to the underlying thought of *posthumanism*; at the same time, the body schema/image makes us recognize the underlying thought again.

In this paper, for the sake of convenience, we have analyzed that the body schema/image of *Ghost in the Shell 2: Innocence* is based on *posthumanism*. However, we can say that these two are actually in a cyclical relationship. This is because the body schema/image itself creates the *posthumanistic* thought and *posthumanism* supports the body schema/image; both do not have a tree structure relationship and neither one of them is leading the way.

5. The “Ghost” in *Ghost in the Shell 2: Innocence*

Finally, this section briefly touches on the subject of how the concept of the “ghost” is related to the body schema/image in *Ghost in the*

Shell 2: Innocence that we have elucidated thus far. In *Ghost in the Shell*, Kusanagi, who is a complete cyborg, harbors suspicions about her own “ghost.” As mentioned previously, in the film, the awareness of *I* based on the body as an *organism* is called “ghost.” Therefore, it is conceivable that Kusanagi inevitably has doubts regarding her own “ghost,” as she hardly has any *organic components* (Nemura, 2014).

However, in *Ghost in the Shell 2: Innocence*, the doubts experienced by Kusanagi in *Ghost in the Shell* are barely mentioned. On the contrary, in the dialog between Kim and Batou, Batou says, “We are both but worthless humans, though we walk very different paths. Of course, if you don’t believe in ghosts, you’ll never know madness or schizophrenia, either,” flatly rejecting Kim’s words that cast doubt on ghosts. Kusanagi also no longer talks about her doubts regarding her “ghost.”

Moreover, *Ghost in the Shell 2: Innocence*, through the concept of “ghost dubbing,” hints that the “ghost” is related to awareness of *I*. At the same time, as examined in Section 4, in *Ghost in the Shell 2: Innocence*, the “ghost” also refers to the body that is created through networks and interactions with *others*. That is, the film suggests that the agency manifests itself through the body made by networks and interactions with *others* and that the body is constructed along with the manifestation of the agency.

Thus, we can see a major turn in the “ghost” concept from *Ghost in the Shell* to *Ghost in the Shell 2: Innocence*. The supporting axis of that turn is the body schema/image examined in this paper. It can be considered that in *Ghost in the Shell 2: Innocence*, Kusanagi no longer has doubt about her own “ghost” because of the body schema/image.

6. Conclusion

This paper analyzed the interpretation of the body demonstrated in *Ghost in the Shell 2: Innocence* based on posthumanism from the phenomenological method. Such analysis has not been conducted until now.

In *Ghost in the Shell 2: Innocence*, the image of *doll bodies* as *artificially constructed* forms the keynote throughout the film, and those *doll bodies* represent *human bodies*. Then, the body schema/image on *social constructionism* releases us from the *mystique* bestowed on *human bodies* as *organisms*.

Furthermore, in *Ghost in the Shell 2: Innocence*, the body is constructed in concrete situations through its relations with *others*. That is, the body is based on the “contingency” brought about by networks and interactions with *others* that are not oneself but rather essential to one. Moreover, the body schema/image is connected to *respect* for those *others* that cannot be understood and appreciated completely by the framework of *humanism*.

This study has advanced the insight of the body schema/image expressed in *Ghost in the Shell 2* as well as in Japanese cyberculture. For future studies, I intend to examine what types of worlds and life forms can be created based on the body schema/image and *posthumanism* in *Ghost in the Shell 2: Innocence*. In particular, I would like to reveal the world and life enabled by the concept of *respect for others*.

Note

1. The reasoning adopted by Deleuze and Guattari referenced in this paper is mentioned in this work repeatedly and can be assessed as a thought that penetrates the entire work,

- although it does not have a uniform expression. Therefore, specific page numbers are not described.
2. From the standpoint of this paper, to make different implications from the existing concept, it seems appropriate to always use quotation marks on the word 'body.' However, after the first appearance, in principle, I do not use quotation marks to avoid redundancy.
 3. The *protagonist* of the "Ghost in the Shell" series, who is the commander of Public Security Section 9, is also called "Major" by her team members. With an e-brain and a complete cyborg body, she exhibits superhuman abilities. In the earlier work, *Ghost in the Shell*, she is depicted as having doubts about her own "ghost" due to an incident involving the Puppet Master. In the final scene, Kusanagi disappears.
 4. The word "complete cyborg" means "extension of artificial arms and artificial legs," that is, to replace the entire body with machinery (Tachibana and Oshii, 2006).
 5. Originally, the name of the project that gave birth to the "Puppet Master" in *Ghost in the Shell*. The "Puppet Master" is a hacking program made by the Ministry of Foreign Affairs to execute international strategies but has acquired a "ghost."
 6. Short is a media and film studies expert who has presented many papers and works on themes related to film and television.
 7. In the 1990 version, he is attacked by an unidentifiable group including his colleague Harry. In the 2012 version, he is attacked by the police.
 8. In the audio commentary included in the Total Recall DVD released in 2014, Director Verhoeven states that the last bright white scene suggests that all of it is Quaid's dream and that

he is unable to return to reality and has been placed in a vegetative state.

9. In the 1990 version, this is a colonized Mars. In the 2012 version, the area where the underclasses live on Earth is set in Australia.
10. Social constructionism in this paper is based on the arguments presented throughout these works by Kenneth J. Gergen. Therefore, specific page numbers are not described.
11. This way of thinking has entered our lives. For example, according to the final report by the Provisional Commission for the Study on Brain Death and Organ Transplantation in Japan (Umehara, 1992), in light of the reasoning adopted in recent medicine and biology, a "human being" is perceived as one organism system or organic integrated body furnished with consciousness and feeling and it is now commonplace to define the death of such individual as "human death."
12. The thought of Merleau-Ponty, as mentioned here, is recognized throughout this entire work. Therefore, specific page numbers are not described.

References

- Belmer, Hans (2011) *The Doll: Doll Photograph Collection of Hans Belmer*. The refurbishment version. Kawade Shobo Shinsha.
- Butler, Judith (1992) "Contingent Foundations: Feminism and the Question of 'Postmodernism'." In Judith Butler and Joan W. Scott, *Feminists Theorize the Political*. New York: Routledge. pp. 3-21.
- Brians, Ella (2011) "The 'Virtual' Body and the Strange Persistence of the Flesh: Deleuze, Cyberspace and the Posthuman." In Laura Guillaume and Joe Hughes (eds.), *Deleuze and the Body*. Edinburgh: Edinburgh University Press.

- Brown, Steven T. (2010) *Tokyo Cyberpunk: Posthumanism in Japanese Visual Culture*. New York: Palgrave Macmillan.
- Deleuze, Gilles, and Félix Guattari (1991) *Qu'est-ce que la philosophie?* Paris: Editions de Minuit.
- Dovey, Jon, and Helen W. Kennedy (2006) *Game Cultures: Computer Games as New Media*. Maidenhead: Open University Press.
- Gergen, Kenneth J. (2009) *An Invitation to Social Construction*. Second edition. Los Angeles: Sage.
- Gergen, Kenneth J. (2015) *An Invitation to Social Construction*. Third edition. Los Angeles: Sage.
- Haraway, Donna (2003) *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. Chicago: Prickly Paradigm Press.
- Laclau, Ernesto (1990) *New Reflections on the Revolutions of Our Time*. London: Verso.
- McBlane, Angus (2010) "Just a Ghost in a Shell?" In Josef Steiff and Tristan D. Tamplin (eds.), *Anime and Philosophy: Wide Eyed Wonder*. Chicago: Open Court, pp. 27-38.
- Merleau-Ponty, Maurice (1945) *Phénoménologie de la perception*. Paris: Gallimard.
- Nayar, Pramod K. (2014) *Posthumanism*. Cambridge: Polity.
- Nemura, Naomi (2014) "A Phenomenological Analysis of the Corporeal Schema or Body-Image in Ghost in the Shell of Mamoru Oshii." *Proceedings of 2014 Conference of Social Informatics Society (SSI)*. pp. 271-276.
- Oshii, Mamoru (2004) *Notes for Innocence: Dolls, Architectures, Trips of the Body +Talk*. Tokuma Shoten Publishing.
- Richardson, Ingrid, and Carly Harper (2002) "Corporeal Virtuality: The Impossibility of a Fleshless Ontology." *Body, Space, and Technology* 2: 2. <http://people.brunel.ac.uk/bst/vol0202/ingridrichardson.html>, accessed at December 12, 2012.
- Saito, Tamaki (2004) "Body, Frame, and Reality." *Eureka: Oshii Mamoru, Innocence of Image* pp. 75-84.
- Sato, Tetsuya (2004) "Body as a Suppression Apparatus." *Eureka: Oshii Mamoru, Innocence of Image*. vol. 36, No. 4. Seido Sha. pp. 123-127.
- Short, Sue (2011) *Cyborg Cinema*. First published in hardback, 2005. Basingstoke: Palgrave Macmillan.
- Tachibana, Takashi x Mamoru Oshii (2006) "A talk" in Premium 10. NHK. <http://sci.digitalmuseum.jp/project/gis/premium10/>, accessed at May 12, 2014.
- Umehara, Takeshi (ed.) (1992) *Brain Death Is Not Death*. Tokyo: Shibunkaku Shuppan
- Zylinska, Joanna (ed.) (2002) *The Cyborg Experiments: The Extensions of the Body in the Media Age*. London: Continuum.

Acknowledgment

This work was supported by JSPS KAKENHI Grant Number 25511014.

Translation

Media Gratifications and Successful Aging Among the “Young Old”*

Keywords:

uses and gratifications, media, retired, successful aging, morale

Atsushi KOTERA, Toyo Eiwa University

Abstract

Research literature about media use in aging has argued that the motivations to fulfill the need to connect with others or societies facilitate the elderly’s use of media and has suggested that media contribute to their fulfilling life or successful aging. From the uses and gratifications perspective, this study examines how the elderly’s use of media relate to their successful aging.

The results of a convenience sample survey in the Tokyo area (n=1644) indicated that most media gratifications may not contribute to successful aging among the Japanese “young old” (58 ~70 years). Scores from the Morale Scale are negatively correlated with media gratifications, especially consummatory gratification in television viewing. This suggests that the previous view about the role of television in aging is invalid and may be too optimistic.

In addition, the contribution of media gratifications to scores on the Morale showed little difference between retired and non-retired. This result raises questions about prevailing notions that the retired elderly lose motivation in their life and media complement their commitment to society and their social activities.

Although previous research has tended to accept the activity theory which supposes that communication would be maintained at an active level throughout the aging process, this study does not support this hypothesis.

* This essay is a translation of an article from *Socio-Informatics* 7(3) (2019)

1. Introduction

With the aging of the population well underway, much effort has been devoted to utilizing new technology, either to improve health/welfare services or to open up senior markets. These proactive approaches to technology in an aging society may mitigate concerns about the socially vulnerable, contribute to their safety, and promote their adoption of a healthy and active life. However, these initiatives often ignore the perceptions of end-users and do not consider whether media contribute to the elderly's happiness or "successful aging."

Is it obvious that media contribute to successful aging? As the paradigm of a media-driven aging society is touted by the non-elderly, the popular perception of media may not necessarily match the elderly's actual views. If media use does not contribute to their successful aging, there may be a need to question anew the paradigm of media in the information society.

Based on these concerns, this study examines whether the elderly's use of media contributes to their successful aging. In particular, by applying the uses and gratifications approach, this research investigates which types of media produce what types of gratification and how these relate to the elderly's positive attitudes about their later years.¹

2. Media Gratifications and "Successful Aging"

2.1 Media Use and "Successful Aging"

Several studies of media use among the elderly have been conducted, with a particular focus on television use. From the uses and gratifications perspective, there have been many attempts to

ascertain the motivations for the elderly's use of media as well as to clarify the meaning and value of media for the elderly.

Investigative research has shown that the elderly's media use is not driven by entertainment-related motivations but by information-related motivations (Bower, 1973; Davis, 1971; Steiner, 1963; Wenner, 1976). Some scholars have stated that this tendency is due to the function of television in linking people to society and providing them with a sense of societal belonging (Davis et al., 1976; Harwood, 2018; Hilt & Lipschultz, 2005; Katori, 2000; Schramm, 1969). Others have mentioned that the elderly possess a strong motivation to view television because they desire to remain socially active and learn about themselves and social matters (Ostman & Jeffers, 1983). The motivation to stay connected with others and with society also seems to drive their use of other forms of media, such as the telephone (O'Keefe & Sulanowski, 1995) or the Internet (Dixson, 1997; Kong & Lee, 2017; Quinn, 2013).

These studies share the view that the elderly are "active consumers" (Young, 1979), and ascribe a positive meaning to their media use. That is to say, media use enables social participation in no small measure and fosters a happy and purposeful life.

As for successful aging, there is an ongoing debate based on the two opposing theories of disengagement and activity in the field of gerontology. The former argues that as one ages, social disengagement affects individual happiness (Cumming & Henry, 1961), and the latter argues that remaining active in one's later life leads to higher levels of happiness (Lemon et al., 1972).

However, there is no research that directly tackles the relationship between media use and successful aging. Using a panel survey, Graney

and Graney (1974) discovered evidence suggesting that, with age, media use increases as physical activity decreases; they also noted that the elderly continue to interact with society in “somewhat different ways than in their younger years.” Other findings also posit that the elderly’s media use cannot be explained through disengagement theory and that positive attitudes toward media are positively correlated with successful aging (Davis et al., 1976; Nussbaum et al., 2000; Schramm, 1969).

These, however, are just only analogical hypotheses extrapolated from the amount or frequency of media consumption among the aged, not from empirical research about the impact of media use on successful aging. It is undeniable that they are just optimistic interpretations of media use.

Do media promote active and happy lives? The aim of this study is to directly reveal the kind of relationship that media gratification has with successful aging. In other words, it will verify whether media gratifications possess a positive relationship with successful aging (Hypothesis 1).

2.2 Retirement and Substitutional Function of Media

According to the uses and gratifications theory, media functions as an alternative for social activities and interpersonal relationships. In other words, media is a means to achieve human goals and acts as a substitute when those goals cannot be achieved directly (Katz et al., 1974).

There is some mentions of media offering functional alternatives in light of the elderly’s diminishing capacities for daily activity. Scholars contend that “mass media provide to older persons a socially acceptable means of

accomplishing activity substitution” (Powell & Williamson, 1985) or that an “older person will tend to substitute mass media communication for interpersonal communication” (Bliese, 1982). People use media to satiate their desires when they cannot be as socially active as they once were.

If this is true, retirement (leaving work) could have a significant impact on media use as it is a pivotal event in later life social activities. Comstock et al. (1978) concluded that television viewing increased with age because media “serve as a source of information and stimulation in regard to the outside world that was once provided by interpersonal ties.” Kubey (1980) also posited that “television is sought to supply a need for serious local information which, prior to retirement, was found to some extent at work.” If these substitution functions of media existed, media use should affect retirees far more than non-retirees and should contribute more to successful aging among retirees than non-retirees. In other words, retiree happiness is positively affected more by media use than non-retiree happiness (Hypothesis 2).

3. Methods

This study used a social survey to investigate the above issue. The survey was conducted by sending out a questionnaire to 2,600 residents aged 58 to 69 years living in the Tokyo Metropolitan Region (Tokyo Metropolis, Saitama Prefecture, Chiba Prefecture, and Kanagawa Prefecture).²

The questionnaire focused on media gratifications and successful aging and featured questions on the participant’s gender, age, current employment status, and employment

status ten years prior (to which participants could answer “full-time,” “part-time,” or “unemployed,” which includes housewife duties).

3.1 Media Gratifications

For media gratifications, participants were asked about twelve purposes of media use for ten forms of media (newspapers, books and magazines, television, radio, VCR and DVD, landline telephones, mobile phones, PCs, friends, and music). Respondents used a four-point scale to signify the applicability of the purposes to their lives (1=not applicable, 2=somewhat applicable, 3=applicable, 4=very applicable). As this questionnaire did not ask about the frequency of use for these forms of media, they were instructed to select “not applicable” if they did not consume a specific form of media.

For the gratification items, a meta-analysis of preceding research, including Lometti et al. (1977), Elliott and Quattlebaum (1979), Kippax and Murray (1980), Rubin (1983), and Perse and Coutright (1993), was conducted to create a series of items with high versatility. These items were as follows: (a) to obtain information on daily life, (b) to know what goes on in the world, (c) to learn how to do things, (d) to develop ideas, (e) to learn what other people think, (f) to release tension, (g) to kill time, (h) to get away from daily problems, (i) to be entertained, (j) to share experiences with others, (k) to feel less lonely, and (l) to get energy.

3.2 Successful Aging

What is happiness and what makes someone happy? The answers could differ depending on the field in which the term is used. Discourse on the definition of “happiness” is often substituted with an operational definition of how happiness is

measured. An economic approach, for example, measures elements that are thought to contribute to happiness, such as political climate, infrastructure, public services, and living environment. These are used to quantify a region’s or a nation’s happiness (Frey & Stutzer, 2002; Graham, 2011).

As successful aging, which indicates a desirable later life, is also difficult to define and evaluate, approaches to ascertain subjective well-being independent of social attributes or living situation have been adopted in the fields of psychology and sociology. To investigate the factors that influence successful aging empirically, a multitude of operational concepts, such as life satisfaction or self-esteem, have been applied in these fields. In Japan, a unique overarching concept referred to as *ikigai*, or reason for being, has been discussed in the context of successful aging. While the refinement of this concept has been attempted for empirical studies, consensus on the concept has not been achieved (Hasegawa et al., 2001; Shibasaki & Aoki, 2011).

The present study used the Revised PGC Morale Scale (Lawton, 1975; translated into Japanese by Koyano, 1981) as a measure of successful aging, because it is a standardized self-reporting scale that has been widely used. Morale originally referred to unit cohesion in the military or satisfaction within a workplace setting. Kutner et al. (1956) introduced this concept in the field of gerontology, and many studies have built on this concept.

The Lawton’s Revised Scale is made up of 17 questions that include statements such as “sometimes I feel lonely,” “aging has been better than I thought,” “I am satisfied with my life,” and “I am just as happy as when I was young.” One point is assigned for positively answering each

question. The higher the number of points, the higher the morale (the maximum number of points that can be gained is 17).

While the author is aware that the Morale Scale is divided into three factors (agitation, attitude toward one’s own aging, and lonely dissatisfaction), a detailed analysis of each individual factor will not be conducted in this article. Instead, only the sums of this scale will be used to investigate overall positive attitudes toward aging in relation to media use.

4. Results

The questionnaires were sent out on November 10, 2017, and those that were sent back by November 30 were treated as valid responses. The number of collected questionnaires was 1,644, a collection rate of 63.2%. Although there were 87 respondents who were 70 years old at the time of the survey, they have been included in the data.

The mean age of the sample was 64.6 years. There were 750 male (45.6%) and 894 (54.4%) female participants. Their occupational statuses were as follows: 515 (31.3%) were employed full-time, 443 (26.9%) were employed part-time, 682 (41.5%) were unemployed, and 4 did not respond (0.2%).

The overall gratification scores of TV, newspapers, books and magazines, and friends (interpersonal communication) are higher than other media (Table 1). The higher scores for mobile phones compared to landline telephones may indicate some changes in media environment among the elderly. Information-related gratifications from newspapers are evaluated highly as a whole. Friends for entertainment ($M=3.04$) and music for releasing tension ($M=3.03$) are also notably

high.

Next, exploratory factor analysis was conducted to condense the gratification items. From the results of the maximum likelihood factor analysis with promax rotation, a factor score for each of the ten forms of media was calculated. The ten forms of media showed a similar bifactor structure. The following high-load factors were labeled as instrumental gratifications: (a) to obtain information on daily life, (b) to know what goes on in the world, (c) to learn how to do things, (d) to develop ideas, (e) to learn what other people think, and (j) to share experiences with others. The following high-load factors were labeled as consummatory gratifications (f) to release tension, (g) to kill time, (h) to get away from daily problems, (i) to be entertained, (k) to feel less lonely, and (l) to get energy.

Previous research showed that television viewing can be classified as instrumental use (goal-directed use of media content to gratify informational needs) and ritualized use (habitual use of media to gratify diversionary needs) (Rubin, 1984), or content gratification and process gratification (Cutler & Danowski, 1980). This investigation has shown that similar classifications are useful across media types.

The mean value for the Morale Scale was 11.7 points (standard deviation: 3.78). An extremely weak but significantly positive correlation was observed with age ($r=.087$, $p<.01$). Although much research has shown that age is not a direct factor in the reduction of morale, the fact that it shows a positive correlation possibly calls for more investigation from other perspectives. A significant difference was not confirmed between morale and gender or employment status.

[Table 1] Descriptive statistics of gratifications

	Newspapers		Books & Magazines		TV		Radio		VCR&DVD	
	M	SD	M	SD	M	SD	M	SD	M	SD
(a) to obtain information on daily life	2.80	0.89	2.62	0.87	2.90	0.75	1.87	0.99	1.53	0.79
(b) to know what goes on in the world	3.07	0.90	2.46	0.88	3.21	0.66	1.97	1.03	1.46	0.72
(c) to learn how to do things	2.00	0.83	2.63	0.89	2.45	0.82	1.47	0.74	1.67	0.89
(d) to develop ideas	2.27	0.89	2.46	0.90	2.22	0.80	1.57	0.78	1.50	0.76
(e) to learn what other people think	2.25	0.88	2.14	0.87	2.40	0.78	1.65	0.84	1.37	0.65
(f) to release tension	1.82	0.83	2.42	0.90	2.77	0.79	1.97	1.00	2.33	1.08
(g) to kill time	1.61	0.73	2.03	0.90	2.49	0.92	1.72	0.91	2.03	1.03
(h) to get away from daily problems	1.10	0.36	1.34	0.66	1.47	0.74	1.18	0.47	1.42	0.78
(i) to be entertained	1.64	0.72	2.34	0.87	2.71	0.77	1.86	0.94	2.37	1.09
(j) to share experiences with others	2.34	0.84	2.20	0.81	2.53	0.77	1.67	0.84	1.72	0.84
(k) to feel less lonely	1.17	0.44	1.33	0.63	1.56	0.78	1.34	0.68	1.39	0.75
(l) to get energy	1.67	0.79	2.10	0.87	2.27	0.86	1.68	0.87	1.98	1.01

	Landline Telephones		Mobile Phones		PCs		Friends		Music	
	M	SD	M	SD	M	SD	M	SD	M	SD
(a) to obtain information on daily life	1.47	0.77	2.51	1.03	2.45	1.21	2.12	0.85	1.36	0.67
(b) to know what goes on in the world	1.26	0.57	2.33	1.03	2.23	1.15	2.09	0.86	1.36	0.64
(c) to learn how to do things	1.30	0.61	2.22	1.04	2.37	1.17	2.00	0.84	1.24	0.56
(d) to develop ideas	1.21	0.51	1.77	0.86	1.79	0.92	2.14	0.84	1.44	0.73
(e) to learn what other people think	1.41	0.71	1.91	0.90	1.76	0.91	2.38	0.86	1.25	0.56
(f) to release tension	1.23	0.55	1.85	0.90	1.68	0.90	2.67	0.89	3.03	0.97
(g) to kill time	1.15	0.45	1.88	0.95	1.72	0.93	1.83	0.89	2.22	0.99
(h) to get away from daily problems	1.07	0.30	1.26	0.59	1.20	0.55	1.34	0.66	1.59	0.90
(i) to be entertained	1.34	0.66	1.91	0.88	1.69	0.87	3.04	0.86	2.93	0.98
(j) to share experiences with others	1.67	0.87	2.26	0.90	1.80	0.92	2.76	0.86	1.67	0.82
(k) to feel less lonely	1.16	0.45	1.41	0.72	1.27	0.61	1.68	0.87	1.63	0.87
(l) to get energy	1.41	0.74	1.78	0.88	1.51	0.78	2.80	0.92	2.70	1.02

4.1 Media Gratifications and Morale

While controlling for the effects of age, gender, and employment status, the results showed no significant positive correlations in terms of the relationship between media gratifications and morale (Table 2). In particular, a weak yet significantly negative correlation was seen for consummatory gratification among many forms of media, such as newspapers ($r=-.071$, $p<.01$), books and magazines ($r=-.067$, $p<.05$), radio ($r=-.062$, $p<.05$), and mobile phones ($r=-.059$, $p<.05$). A negative correlation was observed for instrumental gratification ($r=-.058$, $p<.05$) and consummatory gratification ($r=-.181$, $p<.001$) of

television, with a comparatively high coefficient compared to other forms of media.

While the possibility that media use has an effect on morale cannot be denied, evidence here suggests that those with high morale perceive media as less useful than those with low morale. It is possible that people with high morale feel that other activities are more useful than media use. In either event, Hypothesis 1 that "media gratifications possess a positive relationship with successful aging" was not only unsupported, but a reverse trend was observed.

To reveal the strength of media gratifications on morale, a multiple regression analysis

[Table 2] Partial correlation between morale and media gratifications (n=1644)

	correlation coefficient
instrumental (Newspapers)	.024
consummatory (Newspapers)	-.071 **
instrumental (Books&Magazines)	.032
consummatory (Books&Magazines)	-.067 *
instrumental (TV)	-.058 *
consummatory (TV)	-.181 ***
instrumental (Radio)	-.029
consummatory (Radio)	-.062 *
instrumental (VCR&DVD)	-.029
consummatory (VCR&DVD)	-.062
instrumental (Landline Telephones)	-.033
consummatory (Landline Telephones)	.009
instrumental (Mobile Phones)	-.022
consummatory (Mobile Phones)	-.059 *
instrumental (PCs)	-.054 *
consummatory (PCs)	.040
instrumental (Friends)	-.036
consummatory (Friends)	-.034
instrumental (Music)	-.005
consummatory (Music)	.011

(* p<.05, ** p<01, *** p<.001)

(stepwise) was conducted with morale as the dependent variable, and age, gender (dummy variable: male=1, female=0), presence/absence of employment (dummy variable: employed=1, unemployed=0), as well as media gratifications as the independent variables (Table 3).

The result showed that explanatory power was low overall ($R^2=.06$, $p<.001$). While gender, presence/absence of employment, and many gratification items were excluded as explanatory variables, the results indicated that age, instrumental gratification of books and magazines, and consummatory gratification of PCs exerted positive influences, whereas the consummatory gratification of television and instrumental gratification of PCs exerted negative influences. The influence of media

[Table 3] Variables that affect morale (n=1333)

	β	p
consummatory (TV)	-.204	***
instrumental (Books&Magazines)	.073	*
age	.104	***
consummatory (PCs)	.144	**
instrumental (PCs)	-.093	*
R^2	.060	***

(* p<.05, ** p<01, *** p<.001)

gratifications upon morale is limited; however, there is no doubt that there is a negative relation between consummatory use of television and morale.

4.2 Retirement and Media Gratifications

A comparative analysis was conducted to ascertain the extent to which media gratifications affect retirees and non-retirees, respectively.

The sample was divided into six groups based on current occupational status and occupational status 10 years prior. Those who were both currently employed full-time and were employed full-time 10 years prior were labeled “actively employed (full-time)” (30.4%). Those who were employed part-time during both periods were labeled “actively employed (part-time)” (13.0%). Those who were currently part-time but were employed full-time 10 years prior were labeled “actively employed (full-time to part-time)” (12.2%). Those who were not currently working but were employed full-time 10 years prior were labeled “retired (from full-time)” (14.4%). Those who were not currently working but were employed part-time 10 years prior were labeled “retired (from part-time)” (16.5%). Those who were not employed at any of these points in time (including housewives) were labeled “unemployed” (16.5%). Other response patterns

(3.0%) were excluded from the analysis.

As mentioned previously, the uses and gratification theory states that people can maintain social connections in spite of reduced social activity with the help of media. Thus, in the context of this study, retirement may greatly affect attitudes toward media as it is thought to be a life event where social activity is greatly reduced. Media gratifications can be expected to affect the morale of retirees more than non-retirees (actively employed or unemployed respondents).

A multiple regression analysis (stepwise) was conducted by group, with morale as the dependent variable and age, gender (dummy variable: male=1, female=0), and media gratifications as the independent variables to verify the above

hypothesis. However, salient differences were not observed between the retired and non-retired groups (Table 4).

There were some observed characteristics for the six groups. Many gratification items were excluded as explanatory variables, but the consummatory gratification of music remained as a positive influencer of morale in the actively employed (full-time) group ($\beta=2.471, p<.05$). In the retired (from full-time) group, the instrumental gratification of books and magazines was observed to be a positive influencer of morale ($\beta=.197, p<.01$), as with the consummatory gratification of radio among the retired (from part-time) group ($\beta=.269, p<.01$). While one could argue that the instrumental use of books and magazines acts as a substitute for social

[Table 4] Variables that affect morale (by employment pattern)

	actively employed (full-time) n=499 β	actively employed (full-time to part-time) n=201 β	actively employed (part-time) n=214 β
age	2.154 *		
gender (dummy)			
instrumental (Books&Magazines)			
consummatory (TV)	-2.926 **	-.192 *	-.210 **
consummatory (Radio)			
consummatory (Music)	2.471 *		
R^2	.040 **	.037 *	.044 **
	retired (from full-time) n=236 β	retired (from part-time) n=172 β	unemployed n=272 β
age	.155 *		2.129 *
gender (dummy)	.185 **		
instrumental (Books&Magazines)	.197 **		
consummatory (TV)	-.253 **	-.383 ***	-3.714 ***
consummatory (Radio)		.269 **	
consummatory (Music)			
R^2	.152 ***	.142 ***	.088 ***

(* p<.05, ** p<.01, *** p<.001)

activity, it must be said that media, as a whole, does not contribute to morale as a substitute for social activity considering the exclusion of many other gratifications.

Furthermore, the consummatory gratification of television was negatively associated with morale regardless of employment or retirement status. This signifies that people with high morale also lacked motivation to use television for consummatory purpose, as has been observed in previous analyses.

It seems valid to conclude that Hypothesis 2, which states that “retiree happiness is positively affected more by media use than non-retiree happiness,” was not supported. However, it must be pointed out that the total explanatory power was weak, and morale mostly could not be explained solely by age/gender or media gratifications. Media use did not have a large effect on successful aging. The role of media was limited, and it may be inappropriate to over-emphasize its role (at least in this research).

5. Discussion

Although no clear conclusion regarding the factors of successful aging has been reached in the field of gerontology, the positive correlation between morale and age has confirmed that age is not necessarily an explanatory variable, as shown in this investigation. At least, it appears that participants in this study do not perceive aging negatively.

The results of this investigation did not support the hypothesis that media use contributes to successful aging. The results showed that the influence of media gratification was weak, and it often has a negative relationship with morale. In particular, consummatory gratification of television

was a factor that exhibited a negative correlation with morale in almost all analyses. Previous studies have showed that television use among the elderly is high compared with other age groups, but this may not necessarily indicate that it is a positive behavior. The rationale for consummatory gratification is killing time, escaping daily problems, and feeling less lonely. People with low morale show a strong tendency toward consummatory gratifications, which may signify that television viewing is an introverted behavior for them. If this is the cause of high television viewership among the elderly, it could be said that television does not facilitate social participation, but rather supports their social disengagement.

The analysis showed no evidence that media provide a substitute for declining daily activity among the elderly. The result that instrumental gratification of PCs negatively influenced morale indicates that this activity does not promote social participation. Information gathering via the Internet might have become more of a passive behavior than it had been in the past.

While the uses and gratifications studies theorize the functional alternative of media, some studies refute this assumption. For example, Hays et al. (1998) revealed that religious media is not a substitute for reductions in church participation owing to worsening health conditions. Even Graney (1975), a proponent of media as a substitute for social activities, considered media as being unable to totally compensate for losses and suggested there would be a long-term drop in social relations. He ultimately supported both activity theory and disengagement theory. Bliese (1982) also reported that substitutes do not always increase life satisfaction. If the present study was able to

make any contributions to the above discussion, it would be that it did not find any evidence to support activity theory (at least in the context of Japan).

Meanwhile, there are some forms of media that have a positive impact on morale. In this sense, this study also does not support disengagement theory. The instrumental gratification of books and magazines as well as the consummatory gratification of radio and PCs are factors that positively influenced morale. These media share features that they need to be used actively and can be used at one's own pace even with the reduction in cognitive abilities accompanied by aging. The elderly use media in different ways as compared to the youth and may be gratified differently than people of other ages.

As is clear from the weak explanatory power of several factors throughout the entire analysis, it must be recognized that successful aging among the elderly cannot be explained solely by media gratification and our limited demographic factors. Some studies have found that income, academic background, family structure, and past media experience affect media use (Burnett, 1991; Doolittle, 1979; Morrison, 1979; Robinson et al., 2004; Rubin & Rubin, 1982; Schramm, 1969). The elderly are more complex than other aged groups owing to their health and living conditions (Robinson et al., 2004). Thus, the many complex factors that were not covered in the present investigation are thought to be at play in the relationship between media gratifications and morale. These research findings that media has a negative correlation with morale may be explained by other strong variables that determine both of these factors.

The limitations of this study need to be mentioned. The first is that while the participants

possessed relative generality, they were not selected by random sampling.² The analysis might underestimate the effect of residence area because this survey was conducted in the Tokyo Metropolitan Region. Furthermore, the elderly who participated in this type of survey may lead relatively fulfilled lives and may have disproportionately high morale. This could explain the positive correlation between morale and age.

This study utilized morale as a measure of successful aging, but the very concept of successful aging needs to be examined further. This study has refrained from discussing what is successful aging and whether the Morale Scale is an appropriate measure of successful aging. While it is used in many investigations, there are some critiques of this scale and its validity must be further verified. The possibility that utilizing another scale would demonstrate adverse results cannot be denied. In addition, as previously noted, only the sums of the Morale Scale were used in the analysis, though this scale is separated into three factors (Lawton, 1972, 1975). Subsequent analysis would be needed to explain which aspect of morale relates to media gratifications.

This research applied the uses and gratifications approach, which does not employ a relatively objective index, such as amount or frequency of use; instead, it utilizes media gratifications (attitudes toward media), which has been criticized as highly subjective. The validity of this type of research must be critically reviewed. However, it is worth noting that this research showed that the amount or frequency of media use does not indicate a positive commitment to media.

The finding that the link between media gratifications and morale among the elderly is generally negative raises questions about

prevailing notions that media complement or substitute social activities and promote successful aging. Previous research may have been too optimistic. A separate analysis of the biases and context of preceding research is needed, and it is clear that we still do not understand media use in aging.

Notes

1. Many Japanese laws and regulations regarding aged individuals define those over 65 years old as older adults. As many respondents below the age of 65 years were included in the survey, the title of this article used the term the “young old” in lieu of older adults.
2. The survey was entrusted to the Nippon Research Center. It utilizes the postal mail survey panel called the TRUST PANEL. In the TRUST PANEL, respondents to the center’s monthly randomly sampled self-administered survey become monitors (respondents who have consented to continuous cooperation become monitors). It is deemed more random than free-registration panels. The monitors used in this survey were selected according to population ratios (six age generations for each gender) based on the Basic Resident Registry as of January 1, 2017.

Acknowledgment

This study was supported by the Japan Society for the Promotion of Science Grant-in-Aid for Young Scientists (17K13862).

References

- Bliese, N. (1982) Media in the Rocking Chair: Media Uses and Functions Among the Elderly. In G. Gumpert & R. Cathcart (eds.) *Inter/Media: Interpersonal Communication in a Media World (second edition)*. Oxford University Press, pp.624-634.
- Bower, R. (1973) *Television and the Public*. Holt, Rinehart & Winston, Inc.
- Burnett, J. (1991) Examining the Media Habits of the Affluent Elderly. *Journal of Advertising Research* 31(5): 33-41.
- Comstock, G., S. Chaffee, N. Katzman, M. McCombs & D. Roberts (1978) *Television and Human Behavior*. Columbia University Press.
- Cumming, E. & W. Henry (1961) *Growing Old; The Process of Disengagement*. Basic Books.
- Cutler, N. & J. Danowski (1980) Process Gratification in Aging Cohorts. *Journalism Quarterly* 57(2): 269-276.
- Davis, R. (1971) Television and the Older Adult. *Journal of Broadcasting* 15(2): 153-159.
- Davis, R., A. Edwards, D. Bartel & D. Martin (1976) Assessing Television Viewing Behavior of Older Adults. *Journal of Broadcasting* 20(1): 69-76.
- Dixson, J. (1997) *Predicting Seniors’ Use of Cyberspace*. Garland Publishing.
- Doolittle, J. (1979) News Media Use by Older Adults. *Journalism Quarterly* 56(2): 311-317, 345.
- Elliott, W. & C. Quattlebaum (1979) Similarities in Patterns of Media Use: A Cluster Analysis of Media Gratifications. *Western Journal of Speech Communications* 43: 61-72.
- Frey, B. & A. Stutzer (2002) *Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*. Princeton University Press.
- Graham, C. (2011) *The Pursuit of Happiness: An Economy of Well-Being*. The Brookings Institution.
- Graney, M. (1975) Communication Uses and the Social Activity Constant. *Communication Research* 2(4): 347-366.
- Graney, M. & E. Graney (1974) Communications Activity Substitutions in Aging. *Journal of Communication* 24(4): 88-96.

- Harwood, J. (2018) *Understanding Communication and Aging: Developing Knowledge and Awareness*. Cognella.
- Hasegawa, A., Y. Fujiwara & T. Hoshi (2001) The Review of IKIGAI on the Relationship of IKIGAI and Well-Being in the Elderly. *Comprehensive Urban Studies* 75: 147-170. (in Japanese)
- Hays, J., L. Landerman, D. Blazer, H. Koenig, J. Carroll & M. Musick (1998) Aging, Health, and the "Electronic Church". *Journal of Aging and Health* 10 (4): 458-482.
- Hilt, M. & J. Lipschultz (2005) *Mass Media, an Aging Population, and the Baby Boomers*. Lawrence Erlbaum Associates.
- Katori, A. (2000) *Aging and Media*. Hokuju Publishing. (in Japanese)
- Katz, E., J. Blumler & M. Gurevitch (1974) Utilization of Mass Communication by the Individual. in J. Blumler & E. Katz (eds.) *The Uses of Mass Communications: Current Perspective on Gratifications Research*. Sage Publishing, pp. 19-32.
- Kippax, S. & J. Murray (1980) Using the Mass Media: Need Gratification and Perceived Utility. *Communication Research* 7(3): 335-360.
- Kong, J. & G. Lee (2017) Elderly's Uses and Gratifications of Social Media: Key to Improving Social Compensation and Social Pressure. *International Journal of Cyber Behavior, Psychology and Learning* 7(3): 23-35.
- Koyano, W. (1981) An Analysis of the Revised Philadelphia Geriatric Center Morale Scale. *Japanese Journal of Gerontology* 3: 83-95. (in Japanese)
- Kubey, R. (1980) Television and Aging: Past, Present, and Future. *The Gerontologist* 20 (1): 16-35.
- Kutner, B., D. Fanshel, A. Togo & T. Langner (1956) *Five Hundred Over Sixty: A Community Survey on Aging*. Russell Sage Foundation.
- Lawton, M (1972) The Dimensions of Morale. in D. Kent, R. Kastenbaum & S. Sherwood (Eds.) *Research Planning and Action for the Elderly*. Behavioral Publications, pp. 144-165.
- Lawton, M. (1975) The Philadelphia Geriatric Center Morale Scale: A Revision. *Journal of Gerontology* 30(1): 85-89.
- Lemon, B., V. Bengtson & J. Peterson (1972) An Exploration of the Activity Theory of Aging: Activity Types and Life Satisfaction Among In-Movers to a Retirement Community. *Journal of Gerontology* 27(4): 511- 523.
- Lometti, G., B. Reeves & C. Bybee (1977) Investigating the Assumptions of Uses and Gratifications Research. *Communication Research* 4(3): 321-338.
- Morrison, A. (1979) Mass Media Use by Adults. *American Behavioral Scientist* 23(1): 71-93.
- Nussbaum, J., L. Pecchioni, J. Robinson & T. Thompson (2000) *Communication and Aging (second edition)*. Lawrence Erlbaum Associates.
- O'Keefe, G. & B. Sulanowski (1995) More Than Just Talk: Uses, Gratifications, and the Telephone. *Journalism & Mass Communication Quarterly* 72(4): 922-933.
- Ostman, R. & D. Jeffers (1983) Life Stage and Motives for Television Use. *International Journal of Aging and Human Development* 17(4): 315-322.
- Perse, E. & J. Coutright (1993) Normative Images of Communication Media: Mass and Interpersonal Channels in the New Media Environment. *Human Communication Research* 19(4):485-503.
- Powell, L. & J. Williamson (1985) The Mass Media and the Aged. *Social Policy* 16(1): 38-49.
- Quinn K. (2013) We Haven't Talked in 30 Years! Relationship Reconnection and Internet Use at Midlife. *Information, Communication & Society* 16(3): 397-420.
- Robinson, J., T. Skill & J. Turner (2004) Media Usage Patterns and Portrayals of Seniors. in J. Nussbaum

- & J. Coupland (eds.) *Handbook of Communication and Aging Research*. Lawrence Erlbaum Associates, pp. 423-446.
- Rubin, A. (1983) Television Uses and Gratifications: The Interactions of Viewing Patterns and Motivations. *Journal of Broadcasting* 27: 37-51.
- Rubin, A. (1984) Ritualized and Instrumental Television Viewing. *Journal of Communication* 34(3): 67-77.
- Rubin, A. & R. Rubin (1982) Older Persons' TV Viewing Patterns and Motivations. *Communication Research* 9(2): 287-313.
- Schramm, W. (1969) Aging and Mass Communication. in M. Riley, J. Riley & M. Johnson (eds.) *Aging and Society vol. 2: Aging and the Professions*. Russell Sage Foundation, pp. 352-375.
- Shibasaki, Y. & K. Aoki (2011) A Review of Studies on IKIGAI of the Elderly People. *Archives of Yamaguchi Prefectural University* 4: 121-130. (in Japanese)
- Steiner, G. (1963) *The People Look at Television: A Study of Audience Attitude*. Alfred A. Knopf, Inc.
- Wenner, L. (1976) Functional Analysis of TV Viewing for Older Adults. *Journal of Broadcasting* 20(1): 77-88.
- Young, T. (1979) Use of the Media by Older Adults. *American Behavioral Scientist* 23(1): 119-136.

Editor's Notes

We are very pleased to announce the publication of Volume 12 of JSI, *Journal of Socio-Informatics*.

Through the peer review process, one of the two submitted papers has been accepted as original paper. This issue has also two translated papers from the Japanese version of *Socio-Informatics (Shakai-Joho-Gaku)*.

We want to provide a kind of fruitful public space open to every researcher who has interest in socio-informatics from all over the world. We are inviting you, our readers, to submit papers on socio-informatics or other related fields.

The Call For Papers of JSI is available on <http://www.ssi.or.jp/eng/index03.html>.

Cordial greetings,

The Editor

Editorial Board of The Society of Socio-Informatics

Editor in Chief

Yorio KITAMURA, Ritsumeikan University

Editor in Subchief

Yuko TSUCHIYA, Hiroshima University of Economics

Editorial board members

Kunikazu AMAGASA, Showa Women's University

Kaoru ENDO, Gakushuin University

Hiroyuki FUJISHIRO, Hosei University

Kenji IJIMA, Prefectural University of Kumamoto

Kenichi ITO, Gunma University

Tomoko KANAYAMA, Institute of Advanced Media Arts and Sciences

Shogo KATO, Tokyo Woman's Christian University

Yuuki KATO, Sagami Women's University

Nobuaki KAWAI, Jissen Women's University

Takahiro KAWAMATA, The University of Nagasaki, Siebold

Shigeo KAWASHIMA, Aoyama Gakuin Women's Junior College

Sangmi KIM, Nagoya University

Tadamasa KIMURA, Rikkyo University

Yuko KITORA, Doshisha Women's College of Liberal Arts

Ron KORENAGA, Rikkyo University

Atsushi KOTERA, Toyo Eiwa University

Keita MATSUSHITA, Jissen Women's University

Kunihiko NAKANO, Shimane University

Morihiro OGASAHARA, Toyo University

Akiko OGAWA, Nagoya University

Shungo SAKAKI, Tokyo University of Technology

Isao SAKUMA, Bunkyo University

Seiichiro SAKURAI, Meiji Gakuin University

Yuichi SASAKI, Tokyo Keizai University

Masahito SHIMAZAKI, Akita Prefectural University

Akashi SUGIYAMA, Kyushu University

Soichiro TAKAGI, The University of Tokyo

Toru TAKAHASHI, Chuo University

Nobumoto UEHARA, Tokyo International University

Hitoshi YAMAMOTO, Rissho University

Shaoyu YE, University of Tsukuba

Journal of Socio-Informatics Vol.12, No.1

Sep. 2019

Published

The Society of Socio-Informatics (SSI)

Akuahakusan Bld.5F, 1-13-7, Hakusan, Bunkyo-ku, Tokyo

113-0001 Japan

Tel. 03-3812-5223 Fax. 03-3816-1561

Print/Binding

Shobi Printing Co., Ltd.
