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Symposium: What can we learn from the Tohoku Earthquake? : Disaster and Socio-Informatics

Mamoru ITO[1], Waseda University
Takeshi HIROMATSU[2], Institute of Information Security

Scope and goal of this symposium

On the 11th March a magnitude 9 earthquake and tsunami in Tohoku brought about unprecedented disaster, particularly in the prefectures of Iwate, Miyagi and Fukushima. On top of that, the huge tremors and the tsunami - whose size far surpassed all expectations - caused breakdowns at the Fukushima No. 1 nuclear reactor. While this accident is moving towards recovery, it has also given rise to a radiation pollution crisis.

In response to this great disaster, most academic societies have engaged themselves in relief activities, issuing urgent proclamations regarding restoration and revival.

Starting with scientific organizations in the fields of civil engineering and construction, mechanical engineering and disaster revival, in addition to welfare, politics and medicine, Japanese scholarship must analyze this disaster from all angles, for example through the investigation of natural disaster prediction and strategies for disaster prevention and for victim aid. We should continue to gather such knowledge for the next several years of reconstruction or for the many decades it may take.

Matters such as these are also touched upon by the research fields of informatics, media studies as well as Socio-Informatics. In what way does existing media and journalism report the present situation? Does it live up to the expectations of the majority of people, including the disaster victims? What sort of information is flowing through the internet, social media and so on? Did Geographic Information Systems and Disaster Prevention Information Systems function effectively? We hope that investigations will be based on the reality of the circumstances of ‘information production - transmission - reception’ that occur during social information processes, and that they will be conducted from a variety of angles, clarifying topics for the future.

The goal of this symposium is to reveal many new entrance points for future discussions on the background of the rapidly increasing complexity and multidimensionality of social information processes.

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Information and International Exchange in Meiji-Period Nagasaki

Brian BURKE-GAFFNEY, Nagasaki Institute of Applied Science

1. Introduction

During Japan's more than two-century long period of national isolation (1641-1859), the Japanese people lived in a state of peace and self-sufficiency under the benevolent dictatorship of the Tokugawa Shogun and his train of feudal lords. World news trickled into the country via the Dutch and Chinese in Nagasaki, but the insularity of the country was such that the Industrial Revolution, the Napoleonic Wars and other global events were as consequential to most of the nation as temperature shifts on Jupiter. As a result of its monopoly on international exchange, Nagasaki served as Japan's foremost receptacle for information from overseas and developed a unique eclectic culture evident in architecture, language, food, and local customs.

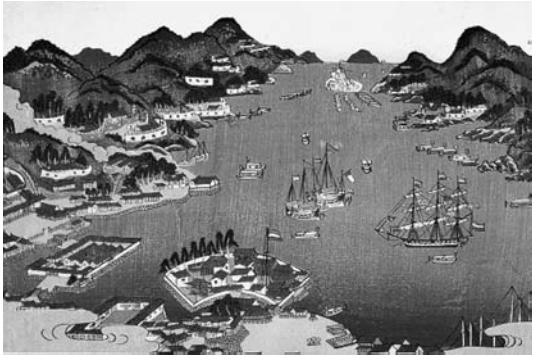


Fig. 1 Nagasaki Harbor in the Edo Period. The fan-shaped artificial island of Dejima, site of a Dutch factory (trading post) for more than two centuries, was like an antenna reaching out for information from abroad. (Nagasaki Museum of History and Culture)

In July 1853, Commodore Matthew Perry anchored a squadron of American warships in Tokyo Bay and presented an ultimatum to the stunned Tokugawa Shogunate, demanding the opening of Japan to trade and diplomatic relations with the United States. The following month, Russian Admiral Evfimii Putiatin sailed into Nagasaki Harbor to accomplish the same mission, competing directly with Perry but taking the more judicious approach of submitting the request through the open port of Nagasaki. Both the Americans and Russians eventually succeeded in winning agreements from the Shogunate, setting precedents that were followed by Britain, France and the Netherlands.

In 1858, the Tokugawa Shogunate signed full-fledged commercial treaties with the United States, Russia, Britain, France and the Netherlands and opened – effective July 1, 1859 – the three ports of

Nagasaki, Yokohama and Hakodate. Nagasaki was the most important of the three because 1) it had been Japan's only open window during the period of national isolation and had both an infrastructure geared to foreign trade and a population accustomed to rubbing shoulders with foreigners, and 2) it was close to Shanghai, the point of departure for most of the ships making the first voyages to Japan. The foreign settlements of Yokohama and Kobe, adjacent as they were to the metropolises of Tokyo and Osaka, would later far surpass Nagasaki as foreign enclaves and hubs of international trade, but Nagasaki continued to enjoy the benefits of being the closest Japanese port to China and a receptacle for the information, technology and merchandise of a new era.

2. The Printed Word

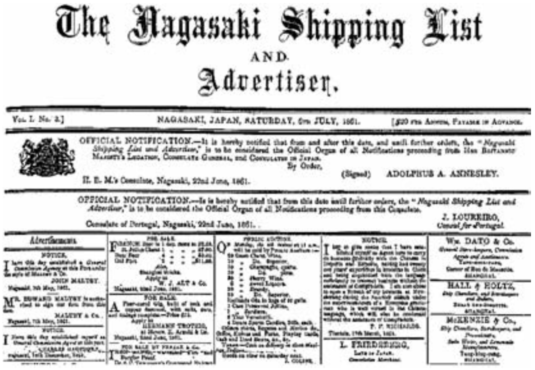
Although officially opened in July 1859, the Nagasaki Foreign Settlement was little more than an idea until the Tokugawa Shogunate fulfilled its treaty obligations by reclaiming flat land from Nagasaki Harbor, building embankment walls along the waterfront, and reinforcing the hillside lots where foreign residents planned to build houses. The interval between the official opening of Nagasaki as a treaty port and the completion of the foreign settlement groundwork witnessed a brief but hectic meeting of cultures reminiscent of the days in the sixteenth century when Portuguese traders mingled with Japanese merchants and Chinese, Korean and Spanish buccaneers on the back streets of Nagasaki. The foreigners landing here were in effect free to take up lodgings wherever they could rent a house or room. The neighborhood of choice was Hirobaba, two blocks of wooden houses facing each other across the stone-paved path leading up to the entrance to the old Chinese Quarter. A Japanese-Chinese interface since the late seventeenth century, this little enclave turned into a kind of makeshift international bazaar after the opening of the port, with European adventurers, Chinese residents, and the young representatives of various feudal clans of southwestern Japan establishing the first tentative commercial links.

The foreign consuls in Nagasaki issued an order for all foreign residents still lingering in the Japanese town to move into the confines of the foreign settlement by April 15, 1861. This was delayed a few weeks when Japanese authorities asked renters to wait until all the spring crops had been harvested by local farmers, but, by the time wisteria blossoms dressed the skirts of hills, the multinational community of Nagasaki was ensconced both physically and legally in its new settlement.

One of the young Britons setting up shop in the Nagasaki Foreign Settlement in 1861 was Albert W. Hansard, the publisher of Japan's first modern newspaper. A grandson of the noted parliamentary printer Luke Hansard, he had undergone training as a printer's apprentice in his native London and then traveled to New Zealand where he worked at various posts such as secretary to the Auckland Club and the New Zealand Insurance Co. He arrived in Nagasaki with his own printing press and published the first issue of *The Nagasaki Shipping List and Advertiser* on June 22, 1861. In a letter to Rutherford Alcock dated May 29, 1861, British Consul George Morrison relayed Hansard's request for the appointment of the newspaper as an official organ of the British government and added his personal recommendation to that end.[1] The request was accepted, and the first issue of the four-page newspaper carried the following message at the top of its front page: "OFFICIAL

NOTIFICATION.—It is hereby notified that from and after this date, and until further orders, the 'Nagasaki Shipping List and Advertiser,' is to be considered the Official Organ of all Notifications proceeding from Her Britannic Majesty's Legation, Consulate General, and Consulates in Japan." This shows that Nagasaki was not only the cradle of foreign-language newspapers in Japan but also the "capital" of international relations during the early months after the opening of the ports.

Hansard provided the foreign community with local news, consular messages, advertisements for products and services, and, most importantly, information on the comings and goings of ships carrying precious merchandise and mail. He reported the installation of lamps on the Oura waterfront and the recruitment of European constables to form the first foreign settlement police force, published the minutes of the first meetings of the Municipal Council, market reports, and news pieces from Britain, and voiced his opinion on a variety of subjects ranging from the question of Chinese residents in the foreign settlement to the latest complaints about the intractability of Japanese officials. Half of the advertisements he printed on the front page were taken out by businesses in Shanghai, evidence of the umbilical cord connecting Nagasaki with the British community in Shanghai. In October, he decided to move his equipment to Yokohama, where he continued publication of the newspaper under the name *The Japan Herald*. He remained in Yokohama until 1865, when deteriorating health forced him to return to England. The founding father of newspaper publishing in Japan died in London the following year, still only forty-five years old.



The Nagasaki Shipping List
AND
Advertiser.

NAGASAKI, JAPAN, SATURDAY, 6th JULY, 1861.

OFFICIAL NOTIFICATION.—

By Order,
(Signed) ADOLPHUS A. ANNESLEY.

OFFICIAL NOTIFICATION.—

J. LOUREIRO,

Wm. DATO & Co.

HALL & HOLTZ,

McKENZIE & Co.

Fig. 2 Published from June to October 1861, *The Nagasaki Shipping List and Advertiser* was Japan's first modern newspaper. (Nagasaki Museum of History and Culture)

Nagasaki was also the site of Japan's first modern printing press, established here by Motoki Shozo (1824-1892) – the "Gutenberg of Japan." The Motoki family of Nagasaki had served since the Edo Period as oranda *tsūji*, interpreters in relations between the Japanese in Nagasaki and the Dutch merchants arriving at the Dutch Factory (trading post) on Dejima. Motoki Shozo studied the Dutch language from childhood and showed a keen interest in Western science and technology. In the pre-Meiji period he headed the establishment of a printing press in the Nagasaki Magistrate's Office and, as director of the Nagasaki Iron Foundry (established with Dutch assistance in 1857), he built Japan's first iron bridge over Nakashima River. In 1869, Motoki consulted with William Gamble, a missionary and printing expert at the American Presbyterian Mission Press in Shanghai who had succeeded in manufacturing Chinese lead type on an industrial scale. Motoki mastered Gamble's method and established the Shinmachi Printing Press in Nagasaki the following year, beginning a revolution in Japanese typography. His *minchōtai* (Ming Dynasty type), named after Gamble's Song/Meihua type, remains to this day as Japan's most popular typeface.[2] The pioneer printer later established printing presses in Osaka, Tokyo and Yokohama, and his *Yokohama Shimbun* (later renamed *Yokohama Mainichi Shimbun*) is remembered today as Japan's first daily newspaper.[3]

3. Thomas B. Glover: Bridge Across Cultures

Thomas Blake Glover (1838-1911) arrived in Nagasaki in September 1859 to work as a clerk in the Jardine, Matheson & Co. branch office in this port. The twenty-one year-old native of Fraserburgh, Scotland quickly emerged as a leader in the foreign community and a conduit for interaction with Japanese merchants and representatives of feudal clans. He declared his independence as a "general commission agent" in May 1861 and, in February the following year, joined with British colleague Francis Groom in launching a new business enterprise called "Glover & Co." He also enlisted Japanese carpenters to build a unique colonial-style bungalow at No. 3 Minamiyamate, the hillside residential neighbourhood commanding a panoramic view over Nagasaki Harbour. Combining Japanese, British and hybrid colonial architectural styles, the house was like a new-generation castle symbolizing the new era of commercial and diplomatic exchange upon which Japan was bravely embarking.[4]

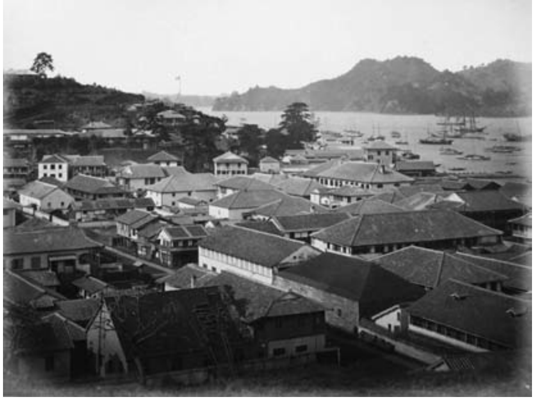


Fig.3 The Nagasaki Foreign Settlement ca 1867. The fusion of Japanese and European architectural styles is evident in the buildings. The house built by Thomas B. Glover at No.3 Minamiyamate is visible beside the pine tree in the upper left corner. (Glover Garden)

From his earliest days in Japan, Thomas Glover cut an unusual figure among his British and American colleagues by his eagerness to cross the cultural-linguistic border and to engage in direct encounters with Japanese people. As a result he developed such ability in the Japanese language and knowledge of Japanese culture and customs that he turned into a kind of freelance diplomat. In 1863, less that four years after his arrival in Japan, British Consul George Morrison reported to his superiors in Edo that, "Mr Glover is fluent in the

Fig.4 Thomas B. Glover (1838-1911) (Nagasaki University Library)

Japanese language and is on terms of intimacy and friendship with many Japanese of rank, amongst whom he is much esteemed."[5]

In addition to trade negotiations, discussions in the office of Glover & Co. included whispered requests from young Japanese samurai for the Scotsman's assistance in traveling abroad. Glover responded with his full cooperation, providing transportation and making other arrangements for forward-thinking samurai to smuggle themselves out of Japan and to study in England. One of the recipients of these favours was a young samurai of the Choshu Clan named Ito Hirobumi, who would later serve as the prime minister of Japan for four terms.

While promoting the import and export trade, Glover & Co. acted as local agent for Lloyds Register of Shipping, five international insurance companies as well as the influential Hongkong and Shanghai Banking Corporation. In 1868, however, the feudal system functioning in Japan since the early seventeenth century suddenly collapsed. This upheaval came at a time when Nagasaki's status as this country's main entranceway and hub of international activity was waning. Many of the foreigners who had invested initially in Nagasaki had already come to the conclusion that Yokohama held greater potential because of its proximity to the centre of Japanese power, because it was more convenient for ships making the voyage to Japan from the west coast of North America, and because it enjoyed the added advantage of direct access to the silk-producing districts of northeastern Japan. The opening of Hyogo (Kobe) and Osaka as treaty ports in 1868 only added to the run on Nagasaki's business fortunes.

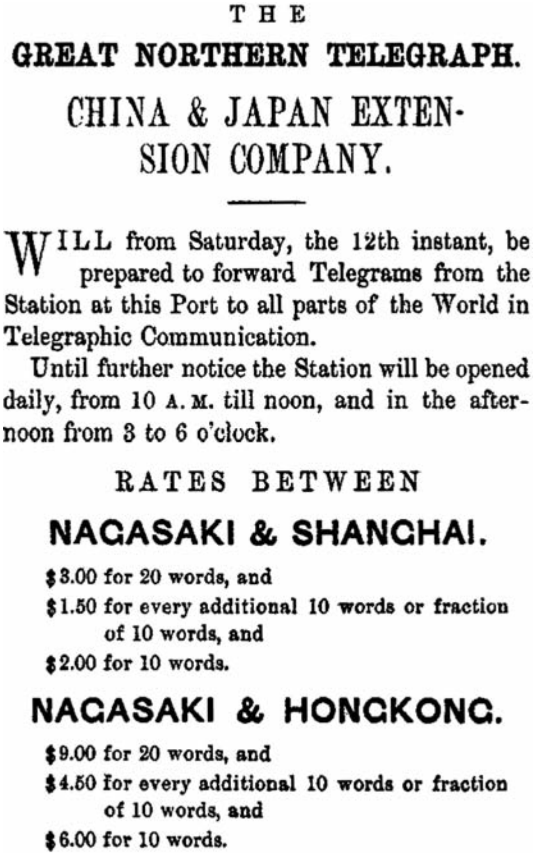
In late 1868 Thomas Glover dissolved the partnership of Glover & Co. and revamped the company business, turning the various departments over to former employees and saving his own energy for the promotion of modern industries in collaboration with Japanese colleagues. His subsequent achievements earned him a place of honor in the annals of Japan's industrialization and modernization. These include the construction of Japan's first modern colliery and ship-repair dock, the introduction of equipment for the first mint, and the installment of lighthouses. However, his hope to rescue his company from bankruptcy using the revenue from these undertakings was not to be fulfilled: Glover & Co. declared bankruptcy in the summer of 1870 and the Scotsman began the long process of sorting out the convoluted mass of assets and liabilities. He remained in Nagasaki until 1876 and watched over the transfer of the Takashima Colliery to the Mitsubishi Co. After that he accepted a position as a Mitsubishi consultant and split his time between Nagasaki and Tokyo. He also played a leading role in the establishment of the Japan Brewery Company, predecessor of Kirin Beer Company. In 1908, the Japanese government awarded him the prestigious Second Class Order of the Rising Sun in recognition of his contributions to this country. He died in Tokyo in 1911, a legend in his time, and was buried at Sakamoto International Cemetery in Nagasaki.

4. Telegraphy and Telephones

Nagasaki's proximity to China and Russia made it an important link, not only in foreign trade, but also in the field of telecommunications. In 1868, the Russian government invited tenders for a contract to lay cables connecting Russia with China, Japan and Hong Kong. The Great Northern Telegraph Company of Denmark won the contract and set up a subsidiary firm, the Great Northern

China and Japan Extension Company, to carry out the work. The Meiji Government guaranteed access to Nagasaki and allowed the company to manage the cables between Japan and the continent, its lack of financial leverage, political savvy and technological capability in the early years of the Meiji Period leaving it little choice but to follow the imperatives spelled out by foreign interests.

The Great Northern China and Japan Extension Company laid cables from Vladivostok to Nagasaki, Shanghai and Hong Kong, a distance of 2,300 nautical miles, and established a station in the Belle Vue Hotel at No.11 Minamiyamate in the Nagasaki Foreign Settlement. One of the first Western-style hotels in Japan, the Belle Vue Hotel was an imposing two-story structure designed in a bracket shape around an inner courtyard and standing at the tree-clad foot of the Minamiyamate hillside, near the customs jetty where foreign visitors came ashore. Japan's first overseas telegraph service began on August 12, 1871 with a notice In *The Nagasaki Express* telling readers that the company was "prepared to forward telegrams from the station at this port to all parts of the world in telegraphic communication."[6]



THE

GREAT NORTHERN TELEGRAPH.

CHINA & JAPAN EXTENSION COMPANY.

WILL from Saturday, the 12th instant, be prepared to forward Telegrams from the Station at this Port to all parts of the World in Telegraphic Communication.

Until further notice the Station will be opened daily, from 10 A. M. till noon, and in the afternoon from 3 to 6 o'clock.

RATES BETWEEN

NAGASAKI & SHANGHAI.

$3.00 for 20 words, and
$1.50 for every additional 10 words or fraction of 10 words, and
$2.00 for 10 words.

NAGASAKI & HONGKONG.

$9.00 for 20 words, and
$4.50 for every additional 10 words or fraction of 10 words, and
$6.00 for 10 words.

Fig.5 The article in the August 12, 1871 issue of *The Nagasaki Express* announcing the opening of Japan's first telegraph station. (Nagasaki Museum of History and Culture)

In 1874, the Great Northern Telegraph Company established its Nagasaki headquarters in a new Western-style building at No. 2 Umegasaki and became one of the pillars of the Nagasaki Foreign Settlement, while at the same time clutching the aortic artery of international telecommunications in Japan.

Nagasaki was also the site of a telephone experiment that was probably the first of its kind in this country. In May 1878, only two years after Alexander Graham Bell's epoch-making conversation with his assistant Mr. Watson and less than a year since the formation of the Bell Telephone Company, Norwegian merchant H.M. Fleischer installed an experimental line between his office in Oura and the premises of the Great Northern Telegraph Company in Umegasaki. The acting Danish consul in Nagasaki, Fleischer was serving as local agent for a number of overseas shipping lines and business enterprises, including the Bell Telephone Company. The first demonstration was conducted on May 9, 1878, when two groups of foreign residents assembled at the two ends of the line and gasped in astonishment at the marvel of telephone communication. The editor of the English-language newspaper *The Rising Sun and Nagasaki Express* attended the demonstration and reported the event in the newspaper. He was disappointed that the voices over the line were often feeble or totally inaudible, and he ended his article on a realistic note: "As far as we can judge, the invention, though doubtless of paramount importance, is yet in its infancy and requires considerable development before [it] can come into universal use as the enforced silence, which is now necessary to hear what is spoken, cannot help mitigating against its employment in factories etc., where constant noise is going on."[7]

Despite initial glitches, the telephone was soon demonstrating its importance worldwide as a communication tool. The first permanent connection in Nagasaki was installed within the precincts of the Mitsubishi Nagasaki Shipyard in October 1885, a line of about 1.2 km in length and probably the first industrial application of the technology in Japan.[8] This was followed by lines connecting the Nagasaki Prefecture Office with the Umegasaki Police Station and Megami Quarantine Office in April and May 1886, respectively.[9]

In September 1886, British merchant Frederick Ringer asked J.J. Enslie, the British consul in Nagasaki, to submit a request to the Nagasaki prefecture government for permission to install a private telephone line between the office of his firm, Holme, Ringer & Co., at No. 12 Oura and the Mitsubishi Coal Office, located on the waterfront a few hundred meters to the south.[10] Ringer had arrived in Nagasaki in 1865 to work for Thomas Glover and later took over for the latter as the leader of international business in this port. Before granting permission, the prefecture government asked for detailed information on the route of the line and location of poles, in response to which Ringer provided a list showing the intended site of the six poles and two brackets needed to complete the line, "none of which in any way impede public thoroughfares or roads."[11] Funded entirely at the expense of Holme, Ringer & Co. and completed in May 1887, this early connection was probably the first privately installed telephone line in Japan.

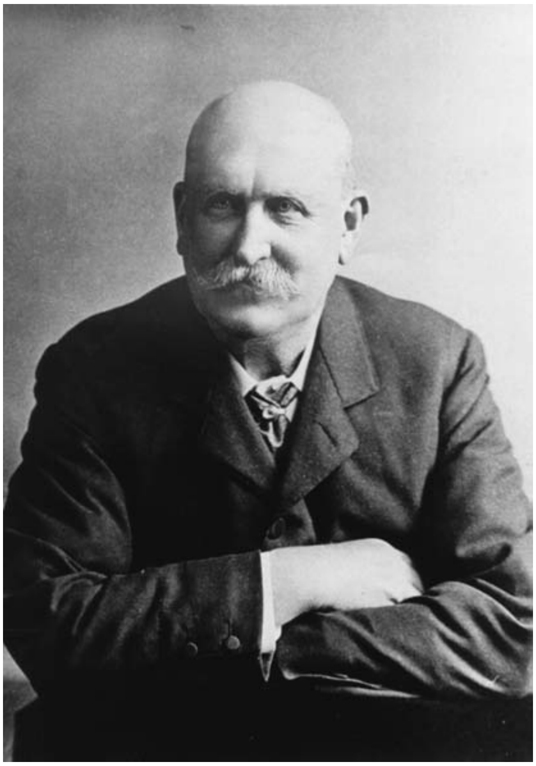


Fig. 6 Frederick Ringer (1838-1907) (Glover Garden)

In October 1888, Holme, Ringer & Co. moved into the two-story Western-style building at No.7 Oura, next door to the British Consulate. Frederick Ringer's request for permission to move the telephone line from the old office at No. 12 Oura to the new company premises should have been a mere formality, but it ran into a wall of bureaucratic reticence, apparently because officialdom was beginning to regard the telephone as a potential tool of subversion. Much to Ringer's puzzlement,

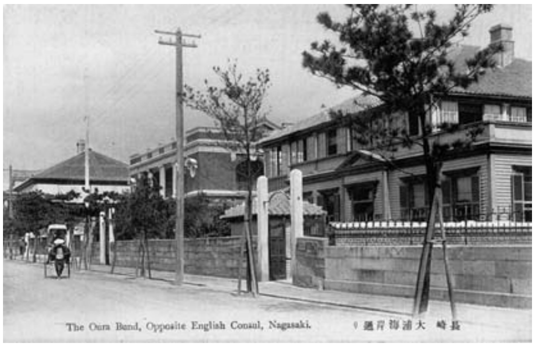


Fig. 7 The Holme, Ringer & Co. office at No.7 Oura (right). The former Nagasaki British Consulate (center) remains today as a nationally designated Important Cultural Asset. (Author's collection)

the Nagasaki authorities put their response to his request on hold, claiming that they had to wait for approval from the central government. Ringer lodged a complaint with the British consul, pointing out that, "The line was constructed at our cost… and as we expressly stipulated that we would surrender the privilege directly if the government desired to establish a line of their own, the present delay on the part of the local officials seems to us to be a little unreasonable."[12] After an exchange of appeals and fuzzy replies, Governor Kusaka Yoshio finally informed the British consul that permission had been granted to install the line between the Holme, Ringer & Co. office and the Mitsubishi Coal Office.[13] Again, it was the relationship of international cooperation in Nagasaki that won the day. Japan's first public telephone exchange was launched the following year between Tokyo and Yokohama, but Nagasaki, the cradle of the technology in this country, would have to wait until 1899 to join the national network of telephone communication.

5. Golden Age of International Exchange

Nagasaki lost ground to Yokohama and Kobe in commercial and political importance but was catapulted into a new period of prosperity by Japan's victory in the Sino-Japanese War (1854-5) and acquirement of Taiwan, by the extension of Euro-American colonial tentacles to various parts of East Asia, by the use of the port as an anchorage for the Russian East Asian fleet, by the Spanish-American War in the Philippines, and by a commensurate and dramatic increase in the number of naval and commercial ships visiting this port. The increase in harbor traffic translated into a boost of activity for the little port at the western extremity of Japan. On any one day, several thousand people might disembark from ships and pour out into the city. Sailors disappeared into the bars and bowling allies in the back quarters of the foreign settlement or stole themselves into the brothels in Maruyama, Izumo and Inasa. Others streamed out of the settlement into the labyrinth of narrow streets in the Japanese town, eddying in the studio of pioneer photographer Ueno Hikoma and reaching out in adventurous trickles to Suwa Shinto Shrine, the Buddhist temples in Teramachi and the still pristine countryside in Urakami and Tomachi. In the shops in the Japanese town, where signs in English and Russian trumpeted a hearty welcome, visitors could choose from an array of fine arts and crafts like tortoiseshell ware, Nagasaki embroidery, cloisonné, Arita porcelain, Russian-made silver spoons, ukiyoe prints and lacquerware. Silk kimono, pearl necklaces, souvenir photograph albums and picture postcards sold so quickly that the shop owners could barely keep their showcases decorated, and rickshaw drivers became so proficient at English and French that they were able to serve as guides for tourists.

The transportation and information boom at the turn of the century also resulted in the publication of an unprecedented number of foreign-language newspapers. After the demise of *The Nagasaki Shipping List and Advertiser* in 1861, a string of newspapers provided information to the foreign community of Nagasaki. These included *The Nagasaki Times* (1868), *The Nagasaki Shipping List* (1869-1870), *The Nagasaki Express* (1870-1874), *The Rising Sun and Nagasaki Express* (1874-1897), *The Cosmopolitan Press* (1878), *The Kiusiu Times* (1878), and *The Nagasaki Shipping List* (1895-1897). The editor of the *The Rising Sun and Nagasaki Express* was Arthur Norman, a longtime British resident who used his columns to comment on controversial issues and often to criticize government decisions related to foreigners. In the end, Norman was literally driven insane by the tribulations of newspaper publication at the edge of the world. In June 1897, the British consul declared him incapable of handling his own affairs and put his property up for sale by public auction the same month. The auction advertisement posted in Norman's own newspaper was entitled "Estate of A. Norman, Esq., a lunatic."[14]

In the wake of the demise of Norman's newspaper, Frederick Ringer purchased both *The Rising Sun and Nagasaki Express* and *The Nagasaki Shipping List* and amalgamated them to form a daily called *The Nagasaki Press*. Like its predecessors, the newspaper provided local news, advertisements, editorials, and information on shipping and hotel guests, but it also benefited from modern wire services that kept the foreign community better up to date on world news than ever before. In addition, the newspaper engaged in remarkably frank editorial debates with Japanese newspapers of the city such as *Chinzei Nippō* and *Nagasaki Nichinichi Shimbun*, surmounting political and cultural as well as linguistic barriers.

One of the most significant examples of international exchange at the turn of the century was the "Nagasaki International Club" established in 1899, only days after the revision of Japan's treaties with the Western powers and the abolition of the foreign settlements as legal entities.

Japanese and foreign residents of Nagasaki gathered to create a British-style men's club "to promote a more genial and easy intercourse between Japanese and those of other nations" now that the barriers of the foreign settlement had been removed. The first gathering held on August 1, 1899 was attended by 125 Japanese businessmen, politicians and physicians, as well as five Chinese and twenty Euro-American residents. The chief mover behind the project was Kuraba Tomisaburo (1870-1945), the son of Thomas Glover and a Japanese woman named Kaga Maki who, like his father before him, was working at the vanguard of business and international exchange in Nagasaki. In 1903, Frederick Ringer provided the lot at No. 7 Dejima for the construction of a new club building. Part of the former Dejima Dutch Factory, this had been absorbed into the Nagasaki Foreign Settlement in 1866 and later acquired by Holme Ringer & Co. Dejima was certainly an appropriate location for the club, having served as Japan's only open window to the Western world and the only meeting place for Japanese and Europeans for more than two centuries. The two-story Western-style building, which still stands today, featured a billiard lounge, bar, dining room, and reading and smoking rooms furnished with fine European tables and chairs. At social events members were expected to dress appropriately: either black tie and tails or Japanese *haori and hakama*.

The first monthly dinner at the new club building was held on the evening of November 10, 1903.

The author of an article in *The Nagasaki Press* described the proceedings as follows:

> There were present no less than seventy-six members, and the evening passed off as gaily and happily as could be desired. Mayor Yokoyama – who is also Chairman of the Club – was in the chair and it would be difficult to find a more genial director of the evening. On his right was Governor Arakawa, and on his left Mr. C.B. Harris, U.S. Consul, while the remaining seventy-three included representative men of all races and callings. There was no stiffness, or undue formality, and an excellent meal progressed smoothly throughout. Applause signalled the uprising of the Chairman, who in a brief speech outlined the scheme of these monthly dinners, and the conviction of the promoters that they would contribute towards those objects for which the Club was founded. He was followed by Mr. C.B. Harris, who announced – to the general amusement – that he had been called on to interpret the Chairman's speech. He passed from this to the more serious aspect of the moment, and enlarged on the benefits which, he felt certain, would accrue from a continuance of these dinners."[15]

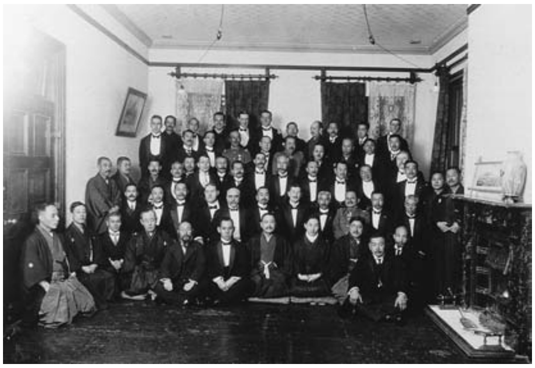
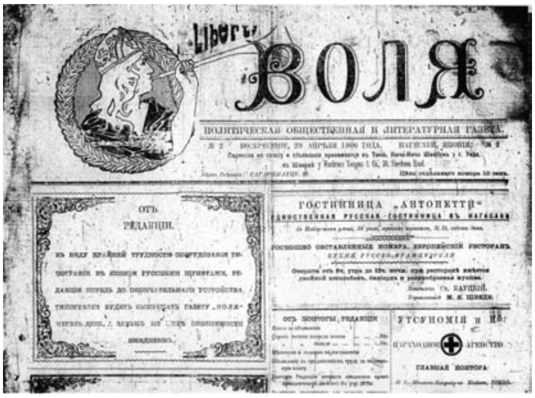


Fig. 8 The members of the Nagasaki International Club ca 1907. (Nagasaki Museum of History and Culture)

Nagasaki's cosmopolitan atmosphere and liberal attitudes attracted a wave of Russian emigrants after the Russo-Japanese War of 1904-5, including revolutionaries and refugees from the Vladivostok mutiny who chose this port, not as a tourist or business destination, but as a base to distribute populist propaganda and to stir up anti-tsarist feelings among their compatriots. In April 1906, the Russians gathered donations from sympathizers and launched a newspaper called *Volya* to broadcast their political messages. Japan's first Russian-language newspaper, this was printed without hindrance by a Japanese printing company in the rear quarter of the former Nagasaki Foreign Settlement.[16] The experiment proved short: *Volya* ceased publication in March 1907 and most of the members of the "Nagasaki commune" returned to Russia. Still, however forgotten in both Russia and Japan, the little Russian newspaper they published in Nagasaki in 1906 contributed – like the pioneering revolutionary organization *Nardovaya Volya* ("Will of the People") from which it drew its



ВОЛЯ

ПОЛИТИЧЕСКАЯ ОБЩЕСТВЕННАЯ И ЛИТЕРАТУРНАЯ ГАЗЕТА

ОТЪ РЕДАКЦІИ.

ГОСТИННИЦА „АНТОНЕТТИ“

ГЛАВНАЯ КОНТОРА

Fig. 9 The Russian populist newspaper *Volya* was published in Nagasaki for a short period from April 1906. (Tokyo University Library)

name – to the Bolshevik Revolution that turned Russia upside-down a decade later.

6. Conclusion

In 1917, at the height of World War I, Holme, Ringer & Co. decided to close *The Nagasaki Press*, but a group of Japanese businessmen stepped in, hoping to keep it in print as one of the last indications of Nagasaki's status as an international port. By the summer of 1928, however, the red ink was too deep and the readership too shallow to allow further hesitation. The final issue on July 31 proclaimed the end of English-language journalism in Nagasaki with the terse comment: "We beg to announce to our subscribers and advertisers, as well as to the general public, that on and after 1 August 1928, the publication of the 'Nagasaki Press' will be suspended until further notice." Nagasaki's role in international trade declined in the ensuing years and was all but abolished by the atomic bombing, but many of the newspapers published here in the late 19th and early 20th centuries are preserved today in libraries both at home and abroad and provide a wealth of information on the business, culture and daily events of the port in its heyday.

Nagasaki's unique eclectic culture and history of international exchange are attributable to two main factors. One is the city's geographical proximity to China and Russia, a feature that made it a primary port-of-call in times of both peace and war. The other, which stems from the first, is the fact that the city served as an interface for direct communication, cooperation, and often romance between people of differing cultures, from its inception as a Portuguese enclave in 1570 until the calamity of the atomic bombing in 1945.

The term "information age" in vogue today denotes the use of computers and other devices to hasten and globalize communication. But, as the history of Nagasaki clearly shows, the rush to computerize should not obscure the truth that genuine human understanding and cooperation can only be achieved by direct human contact and dialogue. The following *senryū* poem expresses the point: *konpyu-ta, teiden sureba, tada no hako* (computer: in a blackout it's just a box).

NOTES

1 George Morrison to Rutherford Alcock, May 29, 1861 (FO 262/29, National Archives of the UK, Kew).

2 Christopher A. Reed, *Gutenberg in Shanghai: Chinese Print Capitalism, 1876-1937* (University of Hawaii Press, 2004), pp. 49-53.

3 Nagasaki Bunkensha Co. (ed.), *Nagasaki jiten: rekishihen* (Nagasaki Dictionary: Volume on History) (Nagasaki, 1982), p. 216.

4 Brian Burke-Gaffney, *Nagasaki: The British Experience 1854-1945* (Folkestone: Global Oriental, 2009), pp. 18-56.

5 "Statement of Mr. Glover, July 12, 1863" (FO 262/60/144).

6 *The Nagasaki Express,* August 12, 1871.

7 *The Rising Sun and Nagasaki Express,* May 15, 1878.

8 Mitsubishi Shashi Kankōkai (ed.) *Mitsubishi shashi* (Mitsubishi Company Records) (Tokyo: Tokyo University Press, 1981), Vol.12, p.376-8.

9 Murakami Masayuki, *Nagasaki no denshin denwa shi* (History of the Telegraph and Telephone in Nagasaki) (private publication: 1973), pp. 191-2.

10 Holme, Ringer & Co. to J.J. Enslie, September 20, 1886 (FO 796/101).

11 Holme, Ringer & Co. to J.J. Enslie, January 28, 1887 (FO 796/101). The locations were as follows: one pole in the Holme, Ringer & Co. office

compound (No. 12 Oura), one bracket on the wall of Anderson's Saloon (No.42 Sagarimatsu), one pole at the Belle Vue Hotel (No. 11 Minamiyamate), one bracket on the wall of the Bowling Club (No. 10A Minamiyamate), one pole at J.C. Smith's house (No. 9 Minamiyamate), one pole outside the Russian Consulate (No. 5 Minamiyamate), one pole on the hillside opposite the coal office, and one pole in the Mitsubishi Coal Office compound.

12 Holme, Ringer & Co. to J.J. Quin, May 3, 1889 (FO 262/623).

13 Kusaka Yoshio to J.J. Quin, May 20, 1889 (FO 262/623).

14 Arthur Norman was given into the care of an insane asylum in Hong Kong and died there in November 1897.

15 *The Nagasaki Press*, November 12, 1903.

16 Wada Haruki, *Nikorai rasseru* (Nicholai Russel) (Tokyo: Chūokōronsha, 1973), Vol. 2, p 110. Copies of *Volya* are preserved today at the Historiographical Institute, Tokyo University, Meiji Newspaper Collection, Tokyo, Japan.

Refereed Paper

The Effects of Internet Use on Internet Dependency, Psychological Health, and Interpersonal Relationships

Keywords:
Internet use, panel study, Internet dependency, psychological health, interpersonal relationships

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Abstract

This study investigated the effects of the use of various Internet applications on Internet dependency, psychological health (loneliness, depression, and life satisfaction), and interpersonal relationships (online friends, offline friends, and social supports). A two-wave panel study between 1999 and 2000, targeting 314 students of engineering university (278 men, 36 women), showed that Internet use for all applications increased Internet dependency. In addition, a number of results showed that Internet dependency increased use, indicating that a bidirectional effect existed between Internet use and Internet dependency, and that they intensified each other. In relation to the effects of psychological health and interpersonal relationships, some results showed that Internet use increased the number of online friends, but the impact was limited to other variables for psychological health and interpersonal relationships.

1. Introduction

In recent years, the effects of Internet use on psychological and behavioral aspects of human beings have drawn significant attention. One of the issues discussed with the effects of the Internet is the Internet dependency problem(1).

Young (1998) pointed out that some online users became dependent on the Internet in the same way as others with drugs, alcohol, and gambling. They could no longer control the use by themselves and thus resulted in lower academic and occupational performances or created conflicts in their marriages, which in some cases led to a divorce.

In past research, emphasis has been placed on the relationship between Internet dependency and the amount of Internet use. For instance, Young (1998) indicated that Internet-dependent users who had full time jobs spent more than 8 hours per week on the Internet. Yang & Tunga (2007) claimed that Internet-dependent users went online twice as long as non-dependent ones. Furthermore, online activities and applications are said to be essential for Internet addiction. Young (1998) noted that use of communication applications, such as Internet chats and role-playing games, were associated with Internet dependency, whereas Chou, Chou, and Tyan (1999) reported that the use of forums was crucial in Asia.

Although these studies revealed a correlation between Internet use and Internet dependency, they did not clarify the causal relationship: (a) does using the Internet for a long time make the user lose their self control and lead to Internet dependency? or (b) does Internet dependence cause the Internet to be used even longer? In addition, there are limited findings about what particular Internet applications affect Internet dependency or can be affected.

In this paper, we will report the results of investigating this causal relationship using a two-wave panel study of university students(2). University students were important participants because it seemed that they could become dependent on Internet use due to their flexibility of time. This panel study was conducted between 1999 and 2000, but to our knowledge, to date, few (if any) reports have investigated the causal relationship of Internet use and Internet addiction by a panel study.

In addition, this panel study also examined causal relationships among psychological health, interpersonal relationships, Internet dependency, and Internet use. The psychological health variables included loneliness, depression, and life satisfaction, while the interpersonal relationship variables included number of online friends, offline friends, and social supports(3).

Starting with the “Internet paradox” (Kraut, Patterson, Lundmark, Kiesler, & Mukopadhyay, 1998), the impacts of Internet use on psychological health and interpersonal relationships have been often investigated and diverse results have been obtained in the past.

For example, different results were obtained for loneliness. Some studies reported that Internet use increased loneliness (Kraut et al., 1998; Ando, Takahira, & Sakamoto, 2005), some said it had no impact (Kraut, Kiesler, Boneva, Cummings, Helgeson, & Crawford, 2002), while other studies stated the opposite, saying that Internet use in fact decreased loneliness (McKenna & Bargh, 1998; Shaw & Gant, 2002; Ando, Takahira, & Sakamoto, 2004). In addition, one study showed that creating a website reduced loneliness (Takahira, Ando, & Sakamoto, 2004). With regard to depression, some studies argued that Internet use increased depression (Kraut et al., 1998), while other stated that it had no impact (Kraut et al, 2002), and still other concluded that it decreased depression (Shaw & Gant, 2002). Furthermore, some specific communication applications, including email and chats, increased depression (Bessière, Kiesler, Kraut, & Boneva, 2008; Takahira, Ando, Sakamoto 2004). Although the positive effects of the Internet were often found in the results for life satisfaction, number of online friends, and social supports, results for number of offline friends were lowest (Ando, Sakamoto, Suzuki, Kobayashi, Kashibushi, & Kimura, 2004; Ando et al., 2005; Parks & Roberts, 1998; Shaw & Gant, 2002).

As seen above, research findings about the effects of Internet use on psychological health and interpersonal relationships are not simple, and thus further study is required (Takahira, 2009). The results of our study will contribute towards the accumulation of findings on this issue.

For Internet use, two types of studies were conducted: one only focused on the total Internet use hours and the other focused on the amount of time spent on each Internet application (Takahira, 2009). As described above, understanding how the results vary among different applications is crucial. Therefore, we also measured the amount of time spent on each Internet application, and examined its effects on the relationships among Internet dependency, psychological health, and interpersonal relationships.

1.1 Research Questions

The following four research questions were investigated in our study(4):

(1) The effect of Internet use and its relationship with Internet dependency.

(2) For what kind of applications is the effect of point (1) significant.

(3) The effect of Internet use and its relationship with psychological health (loneliness, depression, and life satisfaction) and interpersonal relationships (number of online friends, number of offline friends, and social supports).

(4) For what kind of applications is the effect of point (3) significant.

2. Methods

2.1 Participants

A two-wave panel study was carried out over two academic terms, and students of an engineering university in the Tokyo area were targeted. The participants were students in one particular course, and with the instructor's assistance, a survey was conducted at two time points. Table 1 shows the gender and school year of the participants in two time points in the first and second terms each. Data in the first and the second terms are analyzed together.

The total number of participants who responded for time points in the two terms was 314 (278 men, 36 women)(5). By school year, there were 28 first-year students, 171 second-year students, 99 third-year students, 13 fourth-year students, and 3 students who were more senior than fifth-year students. The average age of the overall participants was 19.9 at the first time point (T1) and 20.1 at the

Table 1 Participants' gender and school year

	First term		Second term	
	T1	T2	T1	T2
Men	243	93	231	214
Women	38	23	17	16
Gender not mentioned	10	0	1	0
First year	109	42	138	0
Second year	141	47	96	128
Third year	23	15	11	92
Fourth year	10	10	2	9
Fifth year or above	1	1	0	0
School year not mentioned	7	1	0	1

second time point (T2).

2.2 Survey period

The panel study at two time points was conducted over two academic terms. In the first term, T1 was September 1999 and T2 was December 1999. In the second term, T1 was April-May 2000, and T2 was July 2000.

2.3 Questionnaires

2.3.1 Internet use

Based on a study by Sakamoto et al. (1999), we asked the participant to answer the daily average use time for the following 6 applications: e-mail, creating websites, browsing websites, chats, bulletin board systems (BBS), and online games. The average use time was obtained in following ranges: 0-30 min, 30 min to 1 hour, 1-2 hours, 2-3 hours, 3-4 hours, and more than 4 hours. The answers for these ranges were given the score of 1 through 6, respectively. The weekly average use time was obtained in following categories: not at all, 1 day, 2 days, 3 days, 4 days, 5 days, 6 days, and every day. The answers for these categories were given the score of 1 through 8, respectively. Thus, the data of non-Internet users are analyzed with those of Internet users.

2.3.2 Internet dependency

In the present study, per the Internet addiction survey checklist provided by "The Health Resource Network" (1996), we employed eight items and translated them based on Kawaura's (1997) study(6). The eight items are as follows: "I spend more time than I think I should surfing the Internet," "I feel I have a problem limiting the time I spend on the Internet," "None of my friends or family members complained about the time I spend at my computer" (reverse item), "I find it hard to stay away from the Internet for several days at a time," "Neither my work output nor my personal relationships suffered as a result of spending too much time on the Internet" (reverse item), "There are no particular sites on the Internet that I cannot stay off" (reverse item), "I have unsuccessfully tried to curtail my use of the Internet even for a day," "My satisfaction and pleasure will not be lost without the Internet." Each item was answered as "yes" or "no," and a total score was calculated by counting each "yes" as 1 point. When calculating Cronbach's coefficient alpha, both T1 and T2 data were given coefficients of .68.

2.3.3 Psychological health

We employed a 20-item questionnaire from a revised version of the UCLA Loneliness Scale (Buss, 1991) for loneliness. The items include "I feel that there is no one I can turn to" and "I feel left out," and each item was responded to on a four-point scale ranging from "never" to "always." Eight out of the 20 items were reverse items and the total score was computed after these 8 reverse items were processed (T1: α=.88; T2: α=.84). For depression, the Self-rating Depression Scale (SDS; Fukuda & Kobayashi, 1973) was employed. This scale also had 20 items, including "I feel low and depressed" and "I feel tired for no reason." Each item was responded to on a four-point scale ranging from "almost never" to "almost always." Seven out of the 20 items were reverse items and the total score was computed after these 7 items were processed (T1: α=.63; T2: α=.62). For life satisfaction, we used 12 items from the Positive Evaluation Scale for Life (Sumino, 1995) and others. Each item, such as "My life is wonderful" and "I am thankful for being born," was responded to on a seven-point scale ranging from "absolutely not true" to "absolutely true." Two out of the 12 items were reverse items and the total score was computed after these 2 items were processed (T1: α=.89; T2: α=.88).

2.3.4 Interpersonal relationships

The participants were asked to answer the number of friends whom they contacted every day both online and offline. Offline friends mean friends in real life. The participants selected one from the following six categories: none, 1-5 friends, 6-10 friends, 11-15 friends, 16-20 friends, and 21 friends or more. This became the index for the number of both online friends and offline friends. We also asked respondents to answer the number of friends who they contacted 2-3 times a week, 2-3 times a month, 2-3 times every 3 months, and 2-3 times a year, respectively. The same six categories mentioned above were used for the participants to answer.

For social supports, we translated and used the 20-item Interpersonal Support Evaluation List (ISEL), prepared by Cohen, Mermelstein, Kamarck, and Hoberma (1985). Out of 20 items, 7 were reverse items. The respondents were asked whether they have access to a support system, to which they provided answers such as “I have someone to talk to when I feel alone,” “When I have registered mail to be sent out the same day, I have someone who can go to the post office if I cannot go myself.” The respondents were asked to answer “yes” or “no,” and after processing the reverse items, we calculated the total score by counting each “yes” as 1 point (T1: α=.75; T2: α=.78).

2.3 Demographic variables

We requested the school year, gender, and age of the participants.

2.4 Procedure

The same questionnaires were distributed in T1 and T2 for both the first and the second terms. We asked the subjects’ faculties to conduct the survey immediately after the classes were dismissed.

3. Results

The average and standard deviation of Internet use in T1 and T2 are presented in Table 2. The daily Internet use was over 30 min for browsing websites, while others were less frequent than that. The weekly Internet use was also around 2 or 3 days for e-mail and browsing websites, while others were less frequent. The total score of each application use per day was marked as the score for daily overall Internet use, and the total score of each application use per week was considered as the score for weekly overall Internet use.

Table 3 presents the average value and standard deviation of the following items: Internet dependency, loneliness, life satisfaction, depression, number of online friends who they contact everyday (hereafter, referred to as

Table 2 Internet use (*SD*) (*N* = 314)

	Daily		Weekly	
	T1	T2	T1	T2
E-mail	1.31(.66)	1.35(.69)	3.36(2.60)	3.60(2.67)
Creating website	1.09(.38)	1.08(.43)	1.33(1.18)	1.36(1.17)
Browsing website	1.61(.96)	1.64(1.01)	3.41(2.40)	3.47(2.43)
Chat	1.19(.66)	1.20(.67)	1.53(1.45)	1.71(1.68)
BBS	1.11(.39)	1.15(.58)	1.59(1.46)	1.79(1.75)
Online Game	1.09(.39)	1.15(.55)	1.30(.93)	1.35(1.12)
Overall use	7.38(2.27)	7.55(2.78)	12.44(2.27)	13.26(7.8)

Table 3 Psychological variables (*SD*) (*N* = 314)

	T1	T2
Internet dependency	1.66(1.78)	1.77(1.80)
Loneliness	39.71(9.18)	40.35(9.52)
Depression	41.70(6.02)	41.55(5.88)
Life satisfaction	50.47(12.81)	50.82(12.20)
Number of online friends	1.81(1.12)	1.92(1.14)
Number of offline friends	2.35(1.21)	2.17(.99)
Social support	13.82(3.66)	14.14(3.72)

"number of online friends"), number of offline friends who they contact everyday (hereafter, referred to as "number of offline friends"), and social supports.

The causal relationships between Internet use and psychological variables (Internet dependency, psychological health, and interpersonal relationships) were examined by employing the cross-lagged effects model (Figure 1), which is based on structural equation modeling(7). For Internet use variables, the use hours per application were inputted, and for psychological variables, Internet dependency, loneliness, life satisfaction, depression, number of online friends, number of offline friends, and social supports were inputted separately.

In order to analyze with the cross-lagged effects model, it is favored to have variable stability in the period. The value of autocorrelation (*r*) in the first and second time points was .39–.76 for each Internet use variable. The value was .60 for Internet dependency, .76 for isolation, .65 for depression, .70 for life satisfaction, .51 for the number of online friends, .47 for the number of offline friends, and .79 for social supports. All values were significant at the 1% level and thus unlikely to have a stability problem.

The results of the standardized coefficient of path from Internet use to psychological variables are presented in Table 4. If this coefficient is significant, the impacts of Internet use on psychological variables will be suggested. These results provided answers to four research questions.

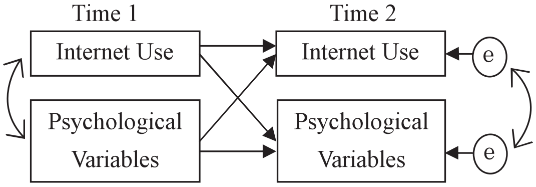

Figure 1 Cross-lagged effects model

In contrast, the standardized coefficient of path from psychological variables to Internet uses is shown in Table 5. Whether or not this coefficient is significant will indicate whether psychological variables could affect Internet uses.

According to Table 4, in the Internet dependency category, the only marginally significant item was the amount of time spent on online games for a week. All other Internet applications uses significantly increased Internet dependency, and furthermore, some results in Table 5 show that Internet dependency promoted Internet use. The results indicate that a bidirectional relationship exists between Internet use and Internet dependency.

Meanwhile, concerning psychological health and interpersonal relationships, the effect of online game use on the number of online friends was significant, for both daily and weekly use hours, as shown in Table 4. In addition, for other psychological variables, there are some significant results which indicate the negative effects of the Internet. However, as the number of such results is low, it seems difficult to say we detected the effects of Internet use when considering the overall picture.

Table 5 shows the influence of psychological variables on Internet use. Some results indicated that number of online friends encouraged Internet use, whereas number of offline friends restricted Internet use. Specifically, a significant restricting effect was found in website browsing in both daily and weekly use hours.

Table 4 Standardized coefficient of path from Internet use to psychological variables

		Dependency	Loneliness	Depression	Life Satisfaction	Online Friends	Offline Friends	Social Support
E-mail	Hours/day	$.12^{*}$	-	-	-	-	-	-
	Days/week	$.18^{**}$	$.07^{\dagger}$	$.10^{*}$	$-.09^{*}$	-	-	-
Creating website	Hours/day	$.11^{*}$	-	-	-	-	-	-
	Days/week	$.12^{**}$	-	$.08^{\dagger}$	-	-	-	-
Browing website	Hours/day	$.19^{***}$	-	-	-	$.11^{*}$	-	-
	Days/week	$.25^{***}$	-	-	-	-	-	-
Chat	Hours/day	$.12^{*}$	-	-	-	-	-	-
	Days/week	$.15^{**}$	-	-	-	$.14^{*}$	$.10^{*}$	-
BBS	Hours/day	$.15^{***}$	-	$.09^{\dagger}$	-	-	-	-
	Days/week	$.18^{***}$	-	-	-	-	-	-
Online game	Hours/day	$.14^{**}$	-	-	-	$.11^{*}$	-	-
	Days/week	$.08^{\dagger}$	-	-	-	$.23^{***}$	-	$-.11^{*}$
Overall	Hours/day	$.24^{***}$	-	-	-	-	-	-
	Days/week	$.28^{**}$	$.08^{\dagger}$	-	-	-	-	-

$^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$, $^{\dagger}p < .10$

Table 5 Standardized coefficient of path from psychological variables to Internet use

		Dependency	Loneliness	Depression	Life Satisfaction	Online Friends	Offline Friends	Social Support
E-mail	Hours/day	-	-	-	-	-	-	-
	Days/week	$.08^{\dagger}$	-	-	-	-	-	-
Creating website	Hours/day	-	-	-	-	-	$-.12^{*}$	-
	Days/week	$.22^{***}$	$.08^{\dagger}$	$-.09^{\dagger}$	-	$.15^{*}$	-	-
Browing website	Hours/day	$.16^{***}$	-	-	-	-	$-.09^{*}$	-
	Days/week	-	-	-	-	-	$-.13^{*}$	-
Chat	Hours/day	$.09^{\dagger}$	-	-	-	-	-	-
	Days/week	$.19^{***}$	-	-	-	-	-	-
BBS	Hours/day	$.09^{\dagger}$	-	-	-	$.10^{*}$	-	-
	Days/week	$.10^{*}$	-	-	-	-	-	$-.08^{\dagger}$
Online game	Hours/day	$.14^{**}$	$.09^{\dagger}$	-	-	-	$-.10^{*}$	-
	Days/week	$.09^{\dagger}$	-	-	-	-	-	$.10^{*}$
Overall	Hours/day	-	-	-	-	-	$-.09^{*}$	-
	Days/week	$.13^{**}$	-	-	-	$.12^{*}$	-	-

$^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$, $^{\dagger}p < .10$

4. Discussion

Using a two-wave panel study, this research investigated the effect of use by different Internet applications on Internet dependency, psychological health, and interpersonal relationships.

Use for most Internet applications had a significant effect in promoting Internet dependency. The results suggested that the long use of the Internet would not only restrict users from participating in other activities but also often cause dependency, wherein they could no longer have self-control over their use of the Internet[8].

Furthermore, the effect of Internet dependency on Internet use was frequently significant, indicating that Internet use and Internet dependency could increase each other in a synergistic way. In other words, the results suggested a process that once they use the Internet for many hours, Internet dependency can be incurred, leading to generating the further use of the Internet. In the results of this research, the relationships between such Internet use and Internet dependency did not seem markedly changed by differences in the applications. Chou et al. (1999), in fact, discussed a development of Internet dependency based on the play theory of mass communication, which was proposed by Stephenson (1988). Chou et al. (1999) argued that Internet use produces pleasure in communicating with others, which leads to the longer use of the Internet. However, the results in our research showed that Internet dependency could not only be influenced by communication-oriented applications but also affected by other applications (e.g., browsing websites). This suggests that other factors than pleasure from communication with others would also mediate the development process of Internet dependency and the process of mutual influence which exists between Internet use and Internet dependency.

The relationship between Internet use and psychological health as well as interpersonal relationships were limited. Internet use had a small effect in increasing the number of online friends, and this is congruent with the results from previous studies (Ando et al., 2004; Parks & Roberts, 1998), but there was no clear effect for other variables. As previously noted, findings in this issue are mixed and it seems the chaos cannot be solved easily. Considerable further research findings need to be accumulated, and the present findings contribute to part of this effort.

Although there was no clear effect on psychological health and interpersonal relationships, we obtained two solid results. The first result showed that the use of online games increased number of online friends. This was true for both number of hours per day and number of day per week. For online games, users with common game interests do not just encounter each other but also often perform certain tasks together for a common goal. This may be playing a role in increasing friendliness and a sense of solidarity among users, which may contribute to building friendships (Sherif, Harvey, White, Hood, & Sherif, 1961).

The second result showed that while number of online friends enhanced Internet use, number of offline friends regulated the same. The results were particularly remarkable for number of offline friends, that is, the number of offline friends seemed to suppress website browsing. If users have more offline friends, they would become more active outside the computer, so it is understandable that Internet use would be reduced by number of offline friends. In addition, since communication applications such as e-mails and chats can be used among offline friends, the reduction could not become great. However, website browsing is not usually used for such a purpose, therefore, it is believed to be particularly reduced.

The present study indicated that once people use the Internet for a long time, it would further bring on longer hours of Internet use through Internet dependency. This result can send out a warning against excessive Internet use. The present study also obtained results concerning the relationships between internet usage, psychological health, and interpersonal relationships.

However, the results of the present study have three limitations. First, the participants in this study were limited to students at an engineering university, although university students were important participants as mentioned earlier. Secondly, this study did not investigate places in which the participants used the Internet, and therefore could not reveal differences in the effects of internet use between such places as their home, schools and offices. Thirdly, the present study was conducted from 1999 to 2000, more than 10 years ago. Internet service provided by cellular phones was initiated in February 1999, and packet transmission fees were higher than current rates, and thus internet usage through cellular phone was not prevalent. Therefore, it is believed that the participants mainly used personal computers. In recent years, although internet usage through personal computers is widespread, internet usage through cellular phones has increased(9). In addition, there are now applications which are much more popular than they used to such as online games, video sites, weblogs, social networking sites.

Although the results of the present study are limited by these factors, the results suggest that at least at that time and for students at the engineering university, a bidirectional influence existed between internet usage and Internet dependency. Although 10 years have passed, no paper has investigated and reported the influence of internet usage and Internet dependency on each other by using an empirical method capable of identifying a causal relationship. This paper provides evidence that was previously lacking for the problematic nature of excessive internet usage, and we believe that this is its most significant contribution. In any case, in the future it will be important to re-examine the universality of the results of the present study, especially with coping with the aforementioned problems such as the restriction of sampled participants, the ambiguity of places, and differences in hardware and applications between periods. We believe that the present study enriches the significance of the findings from such studies.

Notes

(1) In addition to “Internet dependency,” other similar terms used to refer this issue include “Internet addiction” and “internet pathological use.” “Addiction,” originally refers to the undesirable changes owing to ingestion of something regardless of the likes and dislikes of the subject, whereas “dependency” refers to the socially maladaptive effects of the behavior of a subject with regards to his or her own free will (Murakami, 2009). The usage of the term “Internet dependency” in this paper is substantiated by this view.

(2) A panel study is a study in which the same group of questions is asked twice or more to the same subjects after a certain interval. Performing the survey twice makes it possible to investigate the causal relationship of the influence exerted by independent variables in the first wave on dependent variables in the second wave.

(3) In this study, “social support” refers to the support one may obtain from others. A large amount of this support indicates that individual has rich relationships with others.

(4) As previously described, different studies have obtained different results regarding the effects of internet usage. Because it is difficult to derive any particular hypothesis from these results, we have established research questions.

(5) Because the analysis targeted experimental subjects who gave answers for both time points, the numbers differ from those in Table 1.

(6) The name of the scale included the term "Internet addiction," but the content of the scale addressed Internet dependency. This original Japanese scale is available in Kawaura (1997).

(7) For examining whether gender and age measured in T1 could affect Internet use and psychological variables (Internet dependency, psychological health, and interpersonal relationships) measured in T2, we conducted analysis based on the model where the gender and age in T1 were added to the model described in Figure 1. As the result, it was indicated that the gender and age in T1 would not affect Internet use and psychological variables in T2, and therefore we reported the results of analysis based on the model of Figure 1 in this paper.

(8) It is said that if the time between surveys in a panel study is significantly short, Internet usage and Internet dependency is unlikely to influence each other, which this study was concerned with, and any such influence would be difficult to detect. However, we believe that in this study the various cross-lagged effects were significant, and therefore this problem was not serious.

(9) The number of internet users at the time of the study differed from the present situation. There were not as many Internet users at that time. And the rate of broad band use was only 6.8%, and narrow band services prevailed. In any case, this study indicates that there was a risk that a user who engages in excessive internet usage would fall into Internet dependency, suggesting that at present, excessive internet usage may have caused the problem to become more severe.

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Refereed Paper

Comparison of Mobile TV Acceptance in Indonesia with Japan

Keywords:
Mobile TV service, Behavioural intention to use, Technology Acceptance Model, Japan, Indonesia

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Abstract

A comparative study of mobile TV service in two different countries, Indonesia and Japan, was conducted to determine the user important factors to accept the mobile TV service. The influences of consumer normative pressure, price level, perceived usefulness, enjoyment, availability, and quality on using mobile TV services between Indonesian and consumers were examined to explain the differences and similarities in consumer mobile TV service adoption behaviour in this study. Structural equation modelling was employed as the main method of analysis in this study. A multi-group analysis of invariance was performed on the two sample groups. The results show that effect of attitude toward mobile TV and perceived availability was found to be significant difference between Indonesian and Japanese mobile TV consumer.

1. Introduction

Mobile service providers in Indonesia are seeking new revenue streams to compensate for declining voice service incomes caused by increased competition. The providers started offering innovative services, not only attempting to persuade dissatisfied competitor customers but also to acquire as many new potential customers as possible.

Compared to other innovative mobile services, mobile TV service has the most potential to increase providers' income; in fact, in many advanced countries, including South Korea, Japan, the United Kingdom, and Italy, this service is popular and has become a new revenue stream for mobile service providers. Nevertheless, since its introduction into the Indonesian market in 2006, the revenue of this service in Indonesia is very small compared to the cost of the investment in upgrading the network capability. Understanding the determinants of consumers' behaviour will help in evaluating the low adoption rate of this service in Indonesia.

Mobile multimedia service in Japan is a leader in innovation, and the growth of this service in Japan is astonishing compared to other advanced countries. According to data from the Japan Electronics and Information Technology Industries Association, there were only a small number of mobile TV enabled phones in March 2006, but in December 2007, that number reached 22.3 million or 45% of all mobile phone in Japan. (JEITA, 2007) Meanwhile, less than 0.5% consumer 3G service reported using mobile TV application regularly. (TELKOM, 2009) This shows that even though mobile phone penetration rates between Indonesia and Japan are almost the same (approximately 80% and 93%, respectively), the adoption and use of mobile TV service in Indonesia are very low compared to Japan. Hence, understanding the different acceptance patterns between Indonesian and Japanese consumers would aid our comprehension of the important factors that affect the low adoption rate of mobile TV in Indonesia. Therefore, an examination of the factors causing differences in the use of mobile TV services across countries is needed to develop appropriate strategy for mobile TV service in Indonesia.

This study hypothesized that the different mobile TV adoption behaviours between countries could be explained by the actual effects of mobile TV service and social characteristics on people's attitudes. In a characteristic of country environment context, individuals can be viewed as actualizing their environment characteristics, which depend on personal attitude, service attribute and social norm.

In this regard, this study performed consumer perceived usefulness, perceived enjoyment, perceived availability, and perceived quality on attitude toward and price level, and normative pressure as antecedent variables affecting mobile TV service adoption behaviour for Indonesian and Japanese consumers. Thus, the purpose of the study is to examine differences of each antecedent's effects on consumers' behavioural intentions to use mobile TV service between Indonesian and Japanese consumers.

2. Conceptual framework and research model

Understanding the determinants for adopting and using various types of information technologies has been an issue for research since 1970 (Compeau & Higgins, 1995) and the basis for most of these studies can be found within the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), and the theory of planned behaviour (TPB) (Ajzen, 1991), and the technology acceptance model (TAM) proposed by Davis (1989). Although some TAM studies focusing on motives for using mobile services have been suggested (Hung, Ku, & Chang, 2002; Lai, 2002; Nysveen, Pedersen, & Thorbjørnsen, 2005; Pin & Lin, 2005; Wu & Wang, 2005), the factors influencing the intention to use a mobile TV service are not fully explained by either the basic TAM or the above extended models.

The technology acceptance model (Davis, 1989) hypothesizes that behavioural intention is determined by salient beliefs about the perceived usefulness and perceived ease of use, either directly or via mediator attitudes. Meanwhile, a later study from the motivational model adopts two key constructs: extrinsic and intrinsic motivation, where perceived usefulness is an example of extrinsic motivation and perceived enjoyment is an example of intrinsic motivation. (Davis, Bagozzi, & Warshaw, 1992) In that study, perceived enjoyment was significantly related to perceived ease of use. Therefore, in the present study the perceived ease of use has been substituted by perceived enjoyment, for the reason that like standard mobile phone service operation, the mobile TV is relatively simple to use and as a hedonic system, the mobile TV can be better associated to enjoyment rather than ease of use.

The attitude towards behaviour may be defined as an individual's positive or negative feelings about performing the target behaviour. (Fishbein & Ajzen, 1975) On the basis of many research findings (Cheong & Park, 2005; Kuo & Yen, 2009; Nysveen, Pedersen, & Thorbjørnsen, 2005; Shin, 2007), we anticipated that the general causalities found would also apply to the mobile TV context.

In general, customer service of companies in Indonesia is poorer than in Japan, so their potential subscribers seek unofficial channels by which to obtain more information concerning products or services. The uncertainty in service level agreement would also affect subscribers' willingness to adopt mobile TV service. Therefore, we hypothesize:

H1. The effect of attitude on behaviour intention to use mobile TV will differ between Indonesian and Japanese consumers.

In this study, perceived usefulness is defined as the degree to which a person believes that a mobile TV would enhance his or her performance when utilized advantageously. Since mobile TV not only provides entertainment content but also useful recorded or live programs that a consumer might possibly use to improve their performance.

Mobile TV service in Indonesia is limited in valuable and informative contents. A few number of broadcaster join this service in Indonesia, meanwhile purchasing content from international broadcaster require a lot investment cost. It is difference with mobile TV service in Japan, where number of useful content is many. Therefore, we hypothesize:

H2. The effect of perceived usefulness on attitude toward mobile TV will differ between Indonesian and Japanese consumers.

Perceived enjoyment is defined as an activity related to an enjoyable purpose, quite apart from consequences related to the user's performance. (Davis, Bagozzi, & Warshaw, 1992) The mobile TV service can be seen as a hedonic system as it offers entertainment content so customers look to the hedonic mobile TV to satisfy their entertainment intentions. Watching television must provide consumer with enjoyment, as part of their basic nature. Similarly a TAM for this system must incorporate enjoyment, including interest, pleasure and fun, as influences on attitude.

Related to condition of previous hypothesis rational, compared to mobile TV service in Japan, mobile TV service in Indonesia is limited in entertaining contents. Efforts to enrich mobile TV content had been conducted, however, operator have no justification to invest in contents as long as the market in Indonesia cannot be predicted. Therefore, we hypothesize:

H3. The effect of perceived enjoyment on attitude toward mobile TV will differ between Indonesian and Japanese consumers.

2.1 Normative pressure and price level

The present study introduces normative pressure, defined as a person's perception that most of the people who are important to her/him think she/he should or should not perform the behaviour in question. (Fishbein & Ajzen, 1975) Consumers may believe that family, friends, and peer groups favour certain behaviours, and their beliefs influence their behavioural intentions. (Pavlou & Chai, 2002)

People use mobile TV service in a public social context in which they observe their social circle's activities and in which they must adapt to its interaction. Positive social response over this service will affect the intention to use a mobile TV.

In Indonesia, mobile TV service can be used only by consumers in big cities where individualism more dominant than social pressure. Meanwhile in Japan, this service can be easily founded in many place and used also by older community that keep tradition in social life and maintain group-oriented culture.

Therefore, we hypothesize:

H4. The effect of normative pressure on behaviour intention to use mobile TV will differ between Indonesian and Japanese consumers.

The price level is defined by a consumer's belief that using mobile TV will cost money. Some scholars have considered behavioural intention of customers is thus influenced by their valuation of the service, which is related to the price level. (Wu & Wang, 2005)

Because the purchasing power of Indonesian consumers is different from that of Japanese consumers, we hypothesize:

H5. The effect of price level on behaviour intention to use mobile TV will differ between Indonesian and Japanese consumers.

2.2 Perceived availability and perceived quality

Perceived availability is defined as a consumer's belief that the system is able to provide relevant service anytime and anywhere ones require. The mobility feature in mobile TV is possibly the main reason for adopting this service, but an unavailable service in a required area because of a network problem, for example, which can be replaced effortlessly using traditional television service, becomes a most negative experience in the customer's mind.

The mobile TV service covers almost all of Japan, support indoor and outdoor access, and it possible be used in high speed vehicle, it likely makes Japanese consumer feel freely to access anytime anywhere. Meanwhile, in Indonesia, mobile TV service is not always an option because it is accessible only in big cities. Therefore, we hypothesize:

H6. The effect of perceived availability on attitude toward mobile TV will differ between Indonesian and Japanese consumers.

Perceived quality is defined as a consumer's belief that the system can provide a satisfactory presentation and reliable service. There may be differences in the authority and flexibility between watching the television content from a public television service and using their own mobile phone. Offering a more personal service in a personal device is powerful in persuading customers, but lack of quality of content and service due to an unreliable system is disturbing and affects customer satisfaction.

Japanese consumer feel quality of mobile TV service higher since this service provides high access speed and frames per second. Meanwhile broken link is common connection problem of this service in Indonesia. Therefore, we hypothesize:

H7. The effect of perceived quality on attitude toward mobile TV will differ between Indonesian and Japanese consumers.

3. Data and methodology

3.1 Participants

These hypotheses were empirically tested using random sampling data collected from weeklong surveys in Indonesia and Japan during March and September of 2010, respectively. The participants for this study comprised 344 (198 females and 146 males) and 400 (200 females and 200 males) respondents in Indonesia and Japan respectively. The largest group of respondents was between the ages of 18 and 30 for Indonesian respondent (mean 20.33 years old) and between 20 and 59 for Japanese respondent (mean 39.87 years old). A different mean age in each group of respondents is quite natural because the actual median age in Indonesia and Japan is 27.9 and 44.6 years old, respectively. (CIA, 2007)

We used a questionnaire to test our theoretical model. The questionnaire included two parts. The first part asked our respondents questions measuring the constructs in the research model. The second part asked demographic questions about the respondents. Prior to completing the questionnaire, all participants were briefed on the purpose of this study and their rights not to participate in the study during or after the study. All respondents were required to have a mobile phone and to have tried mobile TV service. On average, each participant took not more than 20 minutes to complete the questionnaire.

3.2 Measures

To examine the hypothesized paths in the research model, existing measurement scales with good internal consistencies were adapted from previous study. Three items measuring behaviour intention to user mobile TV service were adapted from (Taylor & Todd, 1995). Two items measuring attitude toward mobile TV service were adapted from (Taylor & Todd, 1995). Four items measuring normative pressure were adapted from (Moore & Benbasat, 1991). Three items measuring perceived usefulness were adapted from (Davis, 1989). Two items measuring perceived enjoyment were adapted from (Davis, Bagozzi, & Warshaw, 1992). Three items measuring perceived availability were adapted from (Shin, 2007). Three items measuring perceived quality were adapted from (Shin, 2007). A total of eight constructs were measured using 22 multiple items using a 5-point scale from 1: “strongly disagree” to 5: “strongly agree”.

3.3 Structural equation modelling analysis for cross-national comparison

To test our hypotheses and estimate the proposed model we performed structural equation modelling (SEM). To obtain a reliable and valid measure of constructs before attempting to draw relationships among constructs, there are two stages that should be conducted. (Hulland, 1996)

The first stage is a measurement model that assesses reliability and validity of the scales used to measure each latent construct. The second stage includes a structural model that tests the latent constructs and estimates multiple dependent relationships between the constructs of interest. (Kale, Singh, & Perlmutter, 2000)

This research addresses not only simultaneous estimations of latent constructs by taking the measurement error into consideration; it also includes a comparison of different groups with respect to the national culture. One of the most important and yet only partially answered issues in cross-cultural research is establishing construct comparability in different samples. (Robert, Probst, Martocchio, Drasgow, & Lawler, 2000) Herein, the measurement of the different constructs has to be statistically invariant.

In all research that focuses on multi-group comparisons, the instrument of measurement has to work in the same way. (Byrne, 2004) This assumption is important for implications and can be tested statistically. Before testing for invariance of the measurement model, it is customary to consider a baseline model that is estimated for each group separately. The baseline model represents a model that best fits the data, according to parsimony and substantial meaningfulness. As the analysis of baseline models involves no constraints between groups, the data can be estimated separately for each group. In contrast, when testing for invariance across groups, equality constraints are imposed on particular parameters, and therefore the data for all groups must be estimated simultaneously in order to achieve efficient results. (Bentler & Chou, 1987) Fixed parameters are constrained equal across groups. Instead, free parameters can take dissimilar values across groups. Nevertheless, the pattern of the fixed or free parameters across groups remains consistent with the baseline model specification.

4. Results

4.1 Baseline models

Baseline models have to be tested for the single-model goodness of fit, for the multi-group goodness of fit, and for invariance. The structure of the baseline model is given in Figure 1. We estimated the models using the maximum likelihood estimation procedure of AMOS 18.0.0.

To examine the goodness-of-fit of model, we consider to criteria the normalized chi-square value (Kale, Singh, & Perlmutter, 2000), comparative fit index (CFI) value (Byrne, 2001), and root mean square error of approximation (RMSEA) value (Brown, 1993) for indicate a good model fit. Examination of goodness-of-fit of baseline model of both Indonesian group and Japanese group show that proposed model in Figure 1 is acceptable.

Thus, local goodness of fit adequacy of the model has to be considered by looking at individual item reliabilities, the convergent validity of the measures linked with individual constructs, discriminant validity and adequate discriminant validity. Individual item reliability can be assessed ad-hoc by examining the standardized loadings of

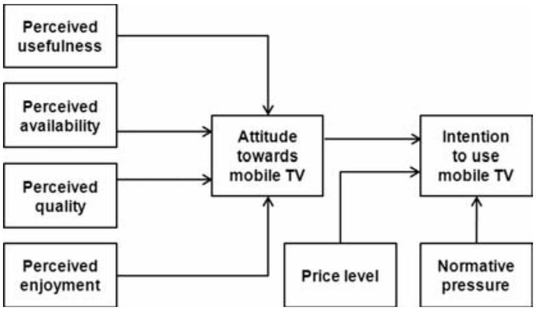

Figure 1.Research model.

the measures with their respective construct. In general, items with loadings of less than 0.4 (a threshold commonly used for factor analysis results) should be dropped. (Hulland, 1996) The significance of the factor loadings provides support for the convergent validity of the respective scales. (Anderson & Gerbing, 1988) The loadings and the associated significance are shown in Table 1.

To measure convergent validity, (Nunnally & Bernstein, 1994) suggest 0.7 as a benchmark for Cronbach's alpha. For composite reliabilities, values greater than about 0.6 are desirable. (Bagozzi & Yi, 1988) Discriminant validity represents the extent to which measures of a given construct differ from measures of other constructs in the same model. To assess discriminant validity, Fornell and Larcker suggest the use of the average variance shared between a construct and its measures. This measure should be greater than the variance shared between the construct and other constructs in the model. That is the case when the average variance extracted (AVE) is greater than 0.5. (Fornell & Larcker, 1981)

In sum, both 22 item baseline models have very good fit according to the measures discussed before. Measuring models are usually group-specific and therefore the baseline models are equal across groups. (Byrne, 2004)

Table 1.

Local goodness of fit

Indicator		Indonesian sample (n = 344)				Japanese sample (n = 400)			
		Loading	AVE	α^a	CR	Loading	AVE	α^a	CR
Behavioural Intention	BI1	0.896	0.978	0.907	0.946	0.890	0.931	0.909	0.851
	BI2	0.977				0.846			
	BI3	0.996				0.799			
Attitude Toward	AT1	0.847	0.936	0.872	0.862	0.780	0.883	0.835	0.732
	AT2	0.906				0.837			
Normative Pressure	NP1	0.885	0.932	0.929	0.853	0.796	0.879	0.861	0.732
	NP2	0.977				0.850			
	NP3	0.801				0.896			
	NP4	0.814				0.914			
Price Level	PL1	0.973	0.974	0.944	0.945	0.782	0.892	0.720	0.774
	PL2	0.973				0.853			
Perceived Usefulness	PU1	0.856	0.958	0.878	0.894	0.902	0.904	0.854	0.785
	PU2	0.893				0.901			
	PU3	1.000				0.738			
Perceived Enjoyments	PE1	0.950	0.976	0.953	0.951	0.843	0.961	0.920	0.917
	PE2	0.956				0.812			
	PA1	0.746	0.913	0.884	0.810	0.812	0.875	0.793	0.726
Perceived Availability	PA2	0.897				0.852			
	PA3	0.885				0.837			
Perceived Quality	PQ1	0.796	0.920	0.887	0.825	0.853	0.932	0.900	0.852
	PQ2	0.903				0.891			
	PQ3	0.842				0.823			

[a] Cronbach's alpha

4.2 Multi-Group Invariance

The first step in testing for invariance of the groups we assess the validity of the structure of the model across Indonesian and Japanese groups. Here, the validity of the structure is tested simultaneously across the Indonesian and Japanese groups where all parameters are estimated for all groups at the same time. In this simultaneous model all parameters have no equality constraints. With respect to chi-square statistics and their degrees of freedom that are summarized, the overall chi-square value obtained is to be tested for each group. This multi-group model reflects the fit of the data when no cross-group constrains are imposed.

The unconstrained model (χ^2=1538.546, df=340, CFI=0.910, RMSEA=0.069) provides the baseline value against which the following test for invariance has to be compared. Value of CFI and RMSEA indicates that the hypothesized model of this model still represents a good fit across the two cultures.

The next step is to compare for the equality of the set of parameters of the measurement model. In different groups it is most likely that a fully constrained model is non invariant across groups. In AMOS 18.0.0, which we were using, different parameters could be defined and measured by fixed and free.

The chi-square difference tests and overall model fit indices were used to evaluate overall measurement structure consistency (Myers, Calantone, Page, & Taylor, 2000) in this study. Since the chi-square difference test only suggests that the fit of the nested models is beyond what would be expected by chance, other model fit indices (e.g. CFI, and RMSEA) need to be examined to check the extent of differences among the models. If there the model is significantly worse than the unconstrained model, then we have to deal with some non invariance. Consequently, we have to explore if there is complete non invariance or if there are only some unequal parameters. In our study, we find that the fully constrained model (χ^2=1836.906, df=379, CFI=0.890, RMSEA=0.072) is significantly worse than the unconstrained model.

The results for each invariance test can be explained by the change in the chi-square value ($\Delta\chi^2$), however, since chi-square sensitivity to sample size (Cheung & Rensvold, 2002) suggested that the change in CFI (ΔCFI) higher than 0.010 was indicative of a significant drop in fit. So we have to proceed with testing for invariance of specific parameters.

After the complete procedure of testing and removing each factor and each item related to the factor we finally reached a best fit multi-group model with some parameters fixed and some freely estimated (χ^2=1685.041, df=353, CFI=0.900, RMSEA=0.071). In this model we strive to fix as many parameters as possible but still achieving multi-group invariance.

4.3 Path coefficients

Table 2 summarizes measure according to the significance of the paths for and across the countries. The first column gives information about the specific paths being measured. The last two columns give information about the differences of the paths coefficients across the two countries. In general, levels of $p \leq 0.05$ indicate a significant difference of the path across the countries.

5. Discussion

Table 2 shows the effect attitude toward on

Table 2

Results of hypotheses testing

Paths	Indonesian		Japanese		Differences	
	β	*t* value	β	*t* value	CR	*p* value
H1: Attitude on Behaviour Intention	0.692***	10.187	1.159***	14.869	6.506	0.000
H2: Perceived Usefulness on Attitude	0.251**	3.260	0.391***	3.530	1.109	0.267
H3: Perceived Enjoyment on Attitude	0.348***	5.065	0.466***	4.500	0.689	0.491
H4: Normative Pressure on Behaviour Intention	0.143*	2.355	-0.372***	-5.241	-5.693	0.000
H5: Price Level on Behaviour Intention	-0.082*	-2.151	-0.090**	-3.213	-0.604	0.546
H6: Perceived Availability on Attitude	-0.068	-1.404	0.143*	2.456	2.806	0.005
H7: Perceived Quality on Attitude	0.184**	3.169	0.167***	3.458	-0.526	0.599

behaviour intention for Japanese is difference with Indonesian sample and the path value of Japanese is higher than Indonesian sample. The table shows that Japanese consumers are more confident about adopting mobile TV service than Indonesian consumers. Educating consumer concerning mobile TV service will be effective approach to increase consumer acceptance in Indonesia.

Comparing the effect of perceived availability on attitudes in the two countries, the results show that the perceived availability in Indonesia had no effects on behaviour, which is different than the Japanese results. One suggestion base on the result may be that the availability (e.g. coverage of service and user expected content) aspects of mobile TV services in Indonesia must be concerned by operator.

The results of the study of consumer perceptions on attitudes towards mobile TV service indicate that the effects of perceived usefulness and perceived enjoyment on attitudes towards mobile TV service are not different between the two countries. Also, effects perceived quality on attitude toward is not different between Indonesian and Japanese consumer. These results show that, for consumers in both countries, perceived usefulness, perceived enjoyment and perceived quality of mobile TV service have identical effects on attitudes towards using mobile TV service.

This study predicted that the effect of normative pressure would generate different consequences of consumers' adoption behaviour between Indonesian and Japanese consumers. Interestingly, the effect of normative pressure on attitude was negative for Japanese consumer and positive for Indonesian consumer. One explanation of this result is that Indonesian respondents are younger, more involved in social activities and more enthusiastic about building relationships. It is quite different with Japanese respondent which more mature and independent.

This study shows that the cultural differences between Indonesian and Japanese consumers can have different effects on attitudes towards mobile TV service. The cultural differences, which include normative pressure, show that information exchange and social interaction among Indonesian consumers affect attitudes towards mobile TV. Therefore, the differences in mobile TV service adoption behaviour between Indonesian and Japanese consumers can be explained not only by characteristics of mobile TV infrastructure but also by cultural influences on the use of mobile TV services.

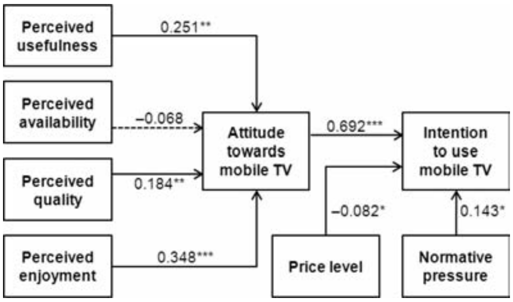
Perceived usefulness
0.251**
Perceived availability
−0.068
Attitude towards mobile TV
0.692***
Intention to use mobile TV
Perceived quality
0.184**
−0.082*
0.143*
Perceived enjoyment
0.348***
Price level
Normative pressure

Figure 3.Path coefficients for Japanese consumer.

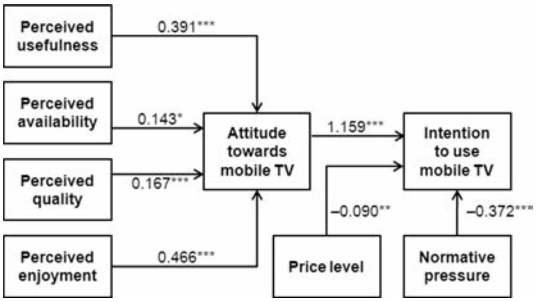
Perceived usefulness
0.391***
Perceived availability
0.143*
Attitude towards mobile TV
1.159***
Intention to use mobile TV
Perceived quality
0.167***
−0.090**
−0.372***
Perceived enjoyment
0.466***
Price level
Normative pressure

Figure 2.Path coefficients for Indonesian consumer.

The limitation of this study is related to the sample selection. This study used consumer panels obtained from marketing research companies in each country, thus, the results may not represent the general population in each country and may be not generalized to all Indonesian and Japanese consumers.

6. Conclusion

This study performed consumer personal attitude, price level and normative pressure determinants. As shown in the results, this study found that perceived availability had the different effect on using mobile data services for Indonesian and Japanese. Improve availability factor can be enhanced when operator in Indonesia consider to their limitation in coverage of service 3G mobile network in Indonesia. It is likely that development of mobile TV service in Indonesia did not take into account the overall shortcomings in resources and networks. Normative pressure was a positive effect on Indonesian but negative effect on Japanese consumers' intention to use mobile TV services in this study. Mobile TV operators in Indonesia have an opportunity to increase subscribers by initiating massive community channels and thus increasing socialization via mobile TV service.

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Refereed Research Note

Being Quiet in Internet Cafes: Private Booths and the Isolation of *Net Cafe Nanmin*

Keywords:
Internet Cafe, Net Cafe Nanmin (Refugee), Public and Private Spheres, Social Isolation, Comparative Media Research

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Abstract

In Japan, Internet cafes, which are generally called “net cafes”, have been linked to various kinds of social problems since around 2004. The quintessential example is the phrase “*net cafe nanmin”* (Internet cafe refugees). This phrase was first used by a TV programme at the beginning of 2007 to describe homeless people who have no choice but to live in or frequently stay overnight at net cafes because of their unstable working conditions and low income. Their terrible situation caused a stir in Japan and the phrase became widely known among Japanese people. Surveys on *net cafe nanmin* have clarified that the crucial problem is their isolation. They have no one to ask for help because of their isolation, so they try to improve their life all alone, although they seem to need help from someone.

The purpose of this research paper is to answer the question, “Why are *net cafe nanmin* isolated?” from the viewpoint of socio-informatics. To accomplish this purpose, this article will discuss related issues through a focus on net cafes which are equipped with private booths. Private booths are significant because we can assume that they would physically and actually prevent customers from communicating with each other. This enables us to approach the answer to the question above from a broader perspective

In the following sections, first the author will confirm the facts above more precisely (Section 1) and introduce net cafes and *net cafe nanmin* (Section 2). Then, some of the problems which derive from private booths will be confirmed and the background to their being introduced to net cafes will be clarified by referring to a book and newspaper articles (Section 3). Next, to understand the specificity of the net cafe in Japan, net cafe use in Japan will be compared with the Internet cafe usage of migrants in Hong Kong and Singapore (Section 4). Finally, the author will answer the original question as the conclusion of this paper (Section 5).

1. Introduction

In Japan, Internet cafes, generally called net cafes(1), have been linked to various kinds of social problems since around 2004. The quintessential example is the phrase *net cafe nanmin* (net cafe refugee(s)). This phrase was first used by a TV program at the beginning of 2007 to designate a type of homeless people who have no choice but to live in or frequently stay overnight at net cafes because of their unstable working conditions and low income.

Some scholars, correspondents and NGO group members interested in the problem of poverty in contemporary Japan have tried to understand and describe it from the perspective of social exclusion and inclusion. In this context, the very strong term *nanmin* (refugee(s)) was selected as it indicates people suffering from extreme social exclusion in Japan.

This phrase caused a stir in Japan and became widely known among Japanese people. In fact, not only did the Ministry of Health, Labour, and Welfare (MHLW) research the reality of *net cafe nanmin* (MHLW, 2007) but also the phrase *net cafe nanmin* was nominated for Japan's Keyword of the Year contest in 2007 and placed in the top 10.

Surveys on *net cafe nanmin* have clarified that the crucial problem is their isolation. Hiroaki Mizushima, the creator of the phrase *net cafe nanmin*, says in his report that the reason why he used the term *nanmin* to describe people suffering from extreme social exclusion is that their isolation reminded him of that of real refugees in the world (Mizushima, 2007: 4-5). The MHLW also reported that the percentage of *net cafe nanmin* who had no one to talk to about their problems was 42.2% in Tokyo (MHLW, 2007: 41).

Their isolation also becomes a barrier to realizing more social inclusion, because *net cafe nanmin* tend to see their terrible situation as their own fault, as the result of alienation from company, family, public welfare and education (Mizushima, 2007: 74-6). They try to improve their life all alone although they seem to need help from someone.

But why are *net cafe nanmin* isolated? And why don't they try to help each other? The purpose of this research paper is to answer these questions and I(2) think we must consider them from the viewpoint of socio-informatics because if we try to answer these questions, we also have to ask what kind of space the net cafe is for Japanese including *net cafe nanmin*.

In this paper, I'll discuss these questions and related matters through focusing on the private booths which segment most of the floor area of net cafes into approximately 1.5 m^2 personal cubicles with 1.5 meter-high walls with doors, each equipped with a personal computer, TV and reclining chair or flat mattress.

The primary reason for focusing on private booths is that we can assume that personal booths would physically and actually prevent customers, including *net cafe nanmin,* from communicating with each other. However there are two further reasons as follows.

Firstly, there were no private booths in early net cafes, but once they were introduced into some net cafes around 1998, they become widely accepted by others. At present, it's hard to imagine a net cafe without them. It seems that private booths both elicit people's hidden desire for solitude and realise it by offering personal space with the Internet.

Secondly, it's very rare for there to be private booths in Internet cafes in the rest of the world. In my field survey in East and Southeast Asian countries, I found private booths with doors only in a few Internet cafes in Korea whose style was introduced from Japan.

Therefore, by focusing on private booths and the difference between Japan and the other countries, we can come closer to not only resolving the question of *net cafe nanmin*'s isolation but also clarifying some of the aspects of Internet use in Japan.

2. A Brief Remark on Net Cafes and Net Cafe Nanmin

Generally speaking, almost all net cafes have a lot of private booths and little space is used for open-plan computer workstations. Net cafes are basically open 24 hours a day, every day of the year, and fees for a private booth usually cost from 200 to 500 JPY (2.46 to 6.15 USD(3)) per hour. According to my survey, the cheapest discount package costs 1,000 JPY per 10 hours.

Not only mineral water, coffee, tea and soft drinks, but also amenity goods like shavers, individually-wrapped towelettes, toothbrushes and toothpaste, are provided for free. Every net cafe has public flush lavatories. Some of them have shower rooms which customers can use at no or a minimal charge.

Not a few net cafes also have a lot of comics, magazines and newspapers freely available to read. On the other hand, a lot of manga cafes offer Internet access, so the two are more or less interchangeable in contemporary Japan. For this reason, we can treat the combined number of net cafes and manga cafes which is provided by the MHLW report as that of net cafes for our purposes. This figure was 3,246 in 2007 (MHLW, 2007: 1).

It's difficult to know precisely the proportion of private booths with computers and open-plan computer areas in net cafes. In my estimation, the average ratio of the private booth area would be more than 70% of the total area. It's clear that the people who are envisaged as the main customers of the net cafe are the users of booths, from the amount of advertising for private booths and the wide variety of booths described on net cafe websites.

According to the MHLW report, 7.8% of customers who have ever stayed all night at net cafes are homeless people. Homeless people who stay overnight at net cafes more than 3 times per week - the definition of *net cafe nanmin* in a broad sense(4) - can be estimated at approximately 5,400 in number.

More than 90% of *net cafe nanmin* are male. More than 50% of *net cafe nanmin* are in unstable working conditions and most of them are temporary dispatch workers at various kinds of workplaces. The percentage of *net cafe nanmin* who have finished professional schools, junior or technical college, or university is less than 10% in Tokyo (MHLW, 2007).

Accommodation other than net cafes which is commonly used by *net cafe nanmin* in Tokyo is as follows (in descending order from first to fifth, with multiple answers allowed except when “only using net cafes and manga cafes for accommodation”): the streets, including parks, riverbanks, roadsides and public facilities such as railway stations etc. (29.5%); fast food restaurants (23.7%); saunas (23.2%); capsule hotels (16.1%); their friends' houses (7.6%) (MHLW, 2007: 22).

This indicates that *net cafe nanmin* have incompatible criteria for selection of their accommodation: price and relaxing in solitude, and we can guess their choices are some variations of compromise between these criteria(5). In this sense, we may be able to regard private booths in net cafes as the ideal accommodation for these people which fulfils both criteria to a large degree.

It's also possible that there are a number of homeless people who use net cafes for accommodation occasionally. For example, Makoto Yuasa argues that the estimated total number of *net cafe nanmin* should be higher because the MHLW survey only counts the number of customers who have no home and stay at a net cafe more than 3 times per week as *net cafe nanmin,* so homeless people who have no choice but stay overnight at a net cafe less than 2 times per week are eliminated from the total (Yuasa, 2007).

However, we can describe the terrible situation which confronts *net cafe nanmin* by referring to other data from the same report. For instance, the average income of *net cafe nanmin* in Tokyo is 107,000 JPY per month (MHLW, 2007: 37). It can be seen that they'd have difficulty even to afford to live in private booths in net cafes.

3. The Origin of Private Booths and Their Problems

Even the limited solution of living in private booths in net cafes isn't secure. The Metropolitan Police Department (MPD) has enacted an ordinance regulating the operation of Internet terminals which obliges customers using private booths with Internet access to show ID from July 2010. In this ordinance, a private booth is defined as "a space which one can't easily look inside" (MPD, 2010) and "a space in which users could commit various kinds of crimes" (MPD, 2010).

Since the media broadcasted news of this ordinance, some people have argued that it makes it more difficult for *net cafe nanmin* to live because they don't have a fixed address to get ID.

People who don't have fixed addresses are placed at a severe disadvantage in Japan. Because they have little chance of gaining regular employment and they're forced to work in low-paid, part-time jobs they can't save enough money for the deposit needed to rent a room, or to pay for health insurance. *Net cafe nanmin* are a typical example of these people (Mizushima, 2007; Iwata, 2007).

Additionally, net cafes have fulfilled the role of shelters for runaways, including young people, who have suffered from or witnessed domestic violence. Recently, some of these young people, mainly girls, have been seeking for someone to provide a room, board, and money for free to them through Internet bulletin boards (Kuroba, 2010). They are called "*kamimachi shozyo*" meaning "girls waiting for a saviour"(6). One of the purposes of the ordinance is preventing such young people from becoming victims or perpetrators of crime.

From these facts, it's clear that what's at a stake here is a problem of social security. More precisely, it's a problem of the compromise between having a free private sphere and having a secure private sphere, either of which would be directly placed in the public sphere in this case. This problem in the actual public sphere is similar to that in the Internet space as a virtual public sphere, so it's possible to discuss their commonalities and differences.

However, for the purposes of this paper, let us provisionally consider a solution for it as follows: for net cafes to increase the number of open-plan computer workstations. If security is at stake, reducing or removing private booths can be considered the best solution.

The reason why I dare to propose such an extreme solution is to remind us of the opposite opinion: the need to protect the right to a free private sphere, demonstrated by the fact that most Japanese prefer to use private booths, so net cafe owners have to keep a high ratio of personal booths to open-plan computer workstations to maintain their earnings.

This is certainly true to some degree. According to a newspaper article, a net cafe owner intended to introduce an ID card system into his/her net cafe(s) in line with the new ordinance, but finally decided to close up the shop(s) after calculating that it would cost about 10,000,000 JPY to introduce this system⑺. This article doesn't clarify the total number of his/her shops, so we can't see the cost of implementing an ID system per shop. However, we can see that the owner wanted to keep private booths in his/her shop(s) so as not to reduce income.

However the actual situation seems to be more complex. Some of my informants who are users of net cafes said net cafes are scary places because they never are able to know what the other customers will do. At the same time, they presumably still like personal booths because they offer a personal space to freely take a rest and relax. It can be said that, taking their financial situation into account, the very people who most need to have both freely available and secure private booths are *net cafe nanmin* in the first place.

People in Japan apparently have two different feelings, relaxation and anxiety, towards personal booths in net cafes, which seem to be contradictory. But why is this the case? I will try to answer this question by referring to a book and newspaper articles from around 2000.

Senichi Tanaka, one of the first net cafe owners who introduced private booths, describes his job as "to lease comfortable spaces for customers" (Tanaka, 2003). Another owner said in a newspaper article that what his shop offers is personal space to use media such as manga, video games, and the Internet⑻.

Another article reported that customers who can't access personal space at their home or office buy time in a private booth. After introducing the various media and wide variety of relaxation tools which are offered in net cafes, this article concludes with the words "you are free to choose anything, and no one cares" and a comment from a customer about private booths: "what an excellent place to have in the middle of a city!"⑼.

According to these commentators, from the very beginning private booths in net cafes were introduced and used as a personal space where anyone can do what he or she wants without worrying about others' observing eyes.

However, a private booth doesn't stand alone but with other booths, so it's not surprising that customers of net cafes unconsciously accept a hidden norm that, "you can do anything you want except disturb others". If this norm is shared by all customers of net cafes including *net cafe nanmin*, they'd hardly be able to do anything because they can't tell what behaviour may disturb others.

In fact it can be observed that the air of net cafes is filled with near-total silence. According to my informants, one of the most problematic behaviours in net cafes is to make noise. We guess that the reason why they think so is that noise is one of the few behaviours which can disturb others in a private booth where people are prevented from seeing each other.

4. Singing Songs and Searching for Jobs in Internet Cafes

To understand the particularity of the situation above, let us now consider Internet cafes in Hong

Kong and Singapore since they have a lot in common with Japanese net cafes except for private booths. For example, they opened within already highly-developed Internet environments in Asia(10) and offer use of the Internet and personal computers at very low prices(11). Therefore their main customers are relatively poor people such as migrants from India, Indonesia, and the Philippines.

These migrants have a lot in common with *net cafe nanmin*. They're usually workers on less than two-year contracts and must return to their home country when their contract expires.

However this doesn't mean that they have their own home to which they can easily go back, because they have to earn money to feed their family and to bring up their children. So, most of them are living continuously in a foreign country, or among my informants, some have moved from one foreign country to another to find jobs.

Their financial situation is as bad as that of *net cafe nanmin*. The migrants have to pay a lot of money initially to their agent for intermediary charges to work in Hong Kong or Singapore. According to my informants, this is equivalent to 7 months of their income.

In Hong Kong, the minimum wage for domestic helpers is fixed at 3,580 HKD (433 USD) per month (Hong Kong Labour Department, 2008). The average wage of the six of my informants who work as domestic helpers is approximately 3,600 HKD per month.

On the other hand, in Singapore, domestic helpers are not covered by the Employment Act (Singapore Ministry of Manpower, 2010), so their wages depend on their contract with their employer. According to my informants, their average wage is 400 SGD (310 USD) per month. An Indian male informant with a working visa that expired in 6 months came to Singapore to work on a salary of 600 SGD at a restaurant, but the salary which was actually paid by his employer was only 300 SGD.

Of course there are some differences between these migrants and *net cafe nanmin*. For instance, migrants may be provided with accommodation by their employer. Especially domestic helpers at least are provided with food, health insurance, and a private room or space in their employer's house. So, although the average income of these migrants may seem low by comparison to that of *net cafe nanmin*, it is not necessarily reasonable to state which group is poorer.

However, this doesn't mean that the provided accommodation is necessarily comfortable. It may be a large room where a lot of migrants live together, while for domestic helpers the private room or space is within their workplace. The Singapore government advices employers that "where possible, your FDW (Foreign Domestic Worker) should be given a separate room of her own. In the event that is not possible, you should ensure that sufficient space for sleep is provided" (Singapore Ministry of Manpower, 2010).

For these migrants, Internet cafes in Hong Kong are one space for relaxation, although they have no private booths. They enjoy using Facebook, Yahoo Messenger, and Skype to communicate with their family members, lovers, and friends left in their home countries at open-plan computer workstations.

On Sundays and holidays, these Internet cafes become noisy, but apparently no one cares. Even a migrant woman teaching her child to sing "We wish you a Merry Christmas and a Happy New Year" and to play it on the recorder via Skype in an Internet cafe, is quite a normal scene. A Filipina migrant told me "I don't like people who speak loudly, but I also speak loudly. That is true for both of us."

In Singapore, there are two types of Internet cafe. One is the same as the type in Hong Kong, which can be seen, for example, at Lucky Plaza, a big shopping mall for migrants from the Philippines. These Internet cafes have no private booths and their main customers come in order to communicate with their loved ones via personal computers or talk to each other.

The other type of Internet cafes are mainly in Little India. They have simple booths which segment most of the floor-space into approximately 1 m^2 personal spaces with 1.8 meter-high walls but no doors, equipped with a chair each. Customers enjoy nearly-private space similar to private booths in net cafes. In fact, they use these Internet cafes for relaxation not only by communicating with their family and friends, but also gaming, gambling and watching movies or videos.

According to an owner of an Internet cafe, these simple booths are for migrant workers who are extending their working visas or seeking and applying for new jobs. Internet cafes in Little India are places where customers deal with a lot of personal information.

This is reflected in an advertisement for "100% privacy" in front of the entrance of some of them. An informant who is from Sri Lanka said that he thinks one of the good points of Internet cafes is anyone can go in and use the Internet, but two of the most important things in them are to be quiet and to protect privacy.

5. Conclusion

From the discussion above, net cafes can be viewed as the most private space among different types of Internet cafe. However, as has been shown, the more Internet cafes are made private by using booths, the more their customers worry about whether their behaviour disturbs other people or not. As a result, the Internet cafes get quieter and quieter.

So we can conclude that one reason why *net cafe nanmin* are isolated and do not mutually help each other is that they value their own personal sphere and so respect that of others. In this situation, it's reasonable to imagine that to ask someone for help could become one of the most problematic behaviours. But as a result of this privacy, net cafe users also fear others as unknown quantities because they don't know who they are or what they're doing.

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Notes

(1) Unless otherwise stated, the term net cafe is used to mean Internet cafe in Japan in this paper.

(2) First-person singular pronoun is used to mean the author of this paper in this paper.

(3) All exchange rates in this paper are as of 7, Nov., 2010.

(4) This definition includes permanent employees, freelance professionals, temporary workers, and unemployed people whether seeking work or not among *net cafe nanmin*. On the other hand, a narrower definition of *net cafe nanmin* only includes temporary workers. This paper uses *net cafe nanmin* in the former sense because, as we'll see, people who have no address easily fall into unstable working conditions.

(5) Here I couldn't go into detail, but it's clear that the first two choices prioritise cost over relaxing in

solitude. The fees of saunas and capsule hotels are relatively higher than that of net cafes. However each of them has its advantages. In this context, it's noteworthy that *net cafe nanmin* hardly ever selected karaoke rooms which provide private rooms at low cost similar to net cafes for their accommodation (3.1%). This percentage is less than that of people only using net cafes and manga cafes for accommodation (4.0%) (MHLW, 2007: 22). This may be because it's difficult to shut out the noise and although some karaoke rooms serve soft drinks free of charge, they must be ordered.

(6) My thanks to Professor Kentaro Azuma (Associate Professor, Nagoya University), who informed me about "Kamimachi Shozyo."

(7) Nikkan Sports, 31, Mar., 2010.

(8) Asahi Shinbun (Fukushima), 18, Nov., 1999.

(9) Yomiuri Shinbun (An evening paper in the Western part of Japan), 22, Dec., 2000.

(10) For example, the proportion of households with a computer and the Internet in Hong Kong is 74.6% and 70.9% respectively in 2008, and that in Singapore is 80% and 76% respectively for the same year. These figures are the third and fourth highest in Asia, after Korea (80.9%, 94.3%) and Japan (85.9%, 79.8%), and relatively high in the world (International Telecommunication Union, 2010: 103-4).

(11) The fees in Hong Kong are from 10 to 15 HKD (1.21 to 1.81 USD) per hour, and in Singapore, the price ranges from 0.6 to 3 SGD (0.47 to 2.33 USD) per hour.

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Refereed Research Note

Web-GIS based Outdoor Education Program as Environmental Education for Elementary Schools

Keywords:
Outdoor Education, Web-Based GIS (Geographic Information Systems), Environmental Education, School Education, Elementary School

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Abstract

This study aims to propose and implement a Web-GIS (Geographic Information Systems) based outdoor education program as environmental education for elementary schools which is then evaluated by users. The conclusion of this study can be summarized in the following three points.

(1) An eight-step outdoor education program based on Web-GIS was proposed as a “second school” for elementary schools and was then implemented before being evaluated by users (teachers, instructors, students and their parents).

(2) The program generally received a good evaluation. However, many students and their parents gave extremely negative evaluations for degree of discovery and degree of interest respectively in the questionnaire conducted after the “second school”. Teachers’ evaluations showed an intention to continue to operate the program in a positive manner and to pinpoint the issues concerning the use of Web-GIS as teaching materials.

(3) Based on the results of evaluation by users, two issues to improve the outdoor education program were determined. One concerns the Web-GIS based outdoor education program and the other is related to the use of Web-GIS.

1. Introduction

Urbanization in recent years has reduced opportunities and places for children to have contact with nature while playing in everyday life. The Environmental Education Promotion Law (2004) was enacted to promote outdoor education as environmental education. This law proposes the enhancement of outdoor education to promote environmental education for a sustainable society and to raise peoples' consciousness about environmental conservation. Furthermore, the School Education Law, as revised in 2007, includes "encouraging outdoor activities". Thus, the three ministries of Education, Culture, Sports, Science and Technology, Agriculture, Forestry and Fisheries, and Internal Affairs and Communications started the "Project for Interaction in Farming and Fishing Villages" (2008)(1) in which elementary and junior high school students stay for one week or more in farming or fishing villages for outdoor activities. Therefore, it can be said that outdoor education is extremely important as school-based environmental education for children.

On the other hand, since GIS (Geographic Information Systems) have various functions for database creation, information analysis, information provision and sharing and decision making support, they have often been used in school education in a versatile manner in recent years. Web-GIS are defined as information systems to manage, process and visualize the data which gives geographical location information on digital maps using the Internet. It is possible for anyone to use Web-GIS anywhere, anytime by accessing the Internet without installing any application software on their PC.

Consequently, based on the background mentioned above, this study, focusing on the importance of encouraging outdoor activities for children, aims to propose and implement a Web-GIS based outdoor education program as environmental education for elementary schools, which is then evaluated by users (teachers, instructors, students and their parents). By using the unique Web-GIS functions, since teachers input information about outdoor activities into digital maps and add pictures, comments and detailed information on them, they can clearly show students the object of study visually just by clicking on the screen. Therefore, it is possible to effectively focus students' interest on the object of study and enhance their understanding better than with any other teaching materials in paper format. Additionally, students can refer to and search information about outdoor activities with the teachers' guidance.

Studies on the actual use of GIS or Web-GIS in school environmental education are divided into the following two groups. Itoh et al. (1998), Ludwig et al. (2000), Itoh et al. (2004), Murayama (2004), Bendnarz (2004) and Demirci et al. (2009) concern the usage of GIS and Web-GIS as educational tools to support environmental education, and Yan et al. (2001) , Kerski (2001), Miura et al. (2003), Kubota et al. (2005), Bodzin et al. (2006) and Yuda et al. (2008) relate to environmental education classes using GIS and Web-GIS.

Among these studies, Murayama (2004) demonstrates the effectiveness of GIS as exercise/task-learning aid tools in school education as well as having high expectations for Web-GIS, in particular, to be used in whole-class teaching that is available online without having to install any application software. Miura et al. (2003) shows the importance of meeting needs in an education field by conducting a class using Web-GIS at an elementary school. Additionally, although GIS for

Education has not yet been fully developed in Japan, Itoh et al. (1998) pointed out that GIS had been used in school environmental education since the 1990s in the U.S. However, these previous studies only introduce examples of the usage of GIS and Web-GIS as educational tools and environmental education classes using GIS and Web-GIS. They do not propose or implement a series of outdoor education programs for school environmental education based on GIS or Web-GIS.

Taking into consideration the above-mentioned importance of outdoor activities as school environmental education for children and the potential use of GIS and Web-GIS in school environmental education presented by previous studies in related areas, this study proposes an outdoor education program for the purpose of improved outdoor activities in elementary school education chiefly using Web-GIS which offers an excellent tool for information provision and sharing. Using Web-GIS in the outdoor education program, teachers can enhance educational effects on students because the students are able to visually refer to diverse information about the outdoor activities on digital maps in order to understand the object of study. Additionally, teachers preserve a record of the second and pre-second schools on digital maps so that they can reflect their teaching methods and effectively make plans for future activities. Moreover, the proposed outdoor education program is actually implemented in elementary school education. These two points show the originality and utility of this study compared to previous studies.

2. Outline of examples

Identifying outdoor activities as an important program in school education, Musashino-shi, Tokyo has made various efforts to establish long-term outdoor activities since 1989. In 1996, Musashino-shi made the decision to implement outdoor activities for seven nights or more for fifth graders and four nights or more for first-year junior high school students. In 2003, a two-night “pre-second school” began for fourth graders as an introductory program for the second school. In Musashino-shi, 12 elementary and six junior high schools currently conduct the program every year. This program is designated as a pilot study for the “Project for Interaction in Farming and Fishing Villages” mentioned in Chapter 1.

The examples taken by this study are the second schools at Honjuku Elementary School which kindly cooperated with this study. The elementary school provides seven-night outdoor activities called second school for fifth graders (45 students in the 2009 academic year) and two-night activities called pre-second school for fourth graders (48 students in the 2009 academic year) as preparation for the second school. Since 2003, the second and pre-second schools have taken place mainly in Iiyama-shi, Nagano in October and Muikamachi-shi, Niigata in June respectively. Table 1 shows the outdoor activities during the second and pre-second schools.

Musashino-shi recruits university and graduate students aspiring to be teachers to work as instructors for the second and pre-second schools of elementary and junior high schools because the number of teachers at these schools is not high enough to be able to provide the necessary manpower. The authors have participated as instructors for the second and pre-second schools at Honjuku Elementary School since the 2008 academic year. (See Chapter 3 for details.)

In order to achieve smooth operation and

Table 1 Outdoor activities during the second and pre-second schools

Day	Second school	Pre-second school
1st day	Making rice cakes and chopsticks	Rice planting, star observation
2nd day	Social exchange with the local elementary school, rice crop harvest, making traditional local snacks (oyaki)	Hiking, making soba
3rd day	Social exchange with the local elementary school, fishing, visit to fishing port and aquarium	Collecting edible wild plants, observation of the views
4th day	Hiking, farming	-
5th day	Town walk	-
6th day	Forestry	-
7th day	Making soba and sushi, collecting mushrooms, dyeing with vegetable dyes	-
8th day	Making dried persimmons	-

enhanced educational effects, Honjuku Elementary School takes a number of measures before and after the second and pre-second schools that include:

1. Teachers: Teachers in charge inspect in advance the places where the second and pre-second schools will be held and meet with local staff there to make arrangements as preparation for classes before and after the second and pre-second schools and outdoor activities.
2. Instructors: Before the second and pre-second schools, a training session is given to instructors to ensure safety during the schools.
3. Students: Students carry out specific study before and after the second and pre-second schools mainly during integrated learning periods.
4. Parents: As the second and pre-second schools involve overnight stays, a briefing session is given to the students' parents beforehand by the teacher in charge concerning the purpose and details of the second and pre-second schools to give them an understanding of the activities. Additionally, after the second and pre-second schools, an open class is conducted to provide an opportunity for students to talk about their experiences during the schools in front of their parents.

3. Web-GIS based outdoor education program

As shown in Table 2, this study proposes, implements and evaluates the eight steps of the Web-GIS based outdoor education program. Its aims are as follows: (1) to enhance the educational effects on students, by arousing their interest in nature, promoting their understanding about the object of outdoor activities and supporting their choices of actions especially during hiking in mountainous areas. (2) to promote parents' understanding of the second school, by visually referring, in particular, to the information about the outdoor activities on digital maps, and (3) to ensure students' safety during outdoor activities. In the program, using the unique functions of Web-GIS especially for database creation, and information provision and sharing, it is possible to realize such aims. Moreover, the program is applicable in similar outdoor activities as elementary school education.

Each step is explained in detail below.

Step 1. Survey of second and pre-second schools: The authors participated and accompanied the second and pre-second schools for fourth and fifth graders respectively in order to understand and grasp their contents and subsequently acquired knowledge about events held by the elementary school before and after the second and pre-second schools in the 2008 academic year.

Step 2. Proposal of the program: A briefing on the purpose of this study and on the Web-GIS based outdoor education program was given to the principal of the elementary school who permitted the acceptance of the program. Then, a concrete form of the program was considered and the resultant proposal was presented to the principal and teachers in charge of the schools.

Table 2 Eight step process of Web-GIS based outdoor education program (academic year 2008-2009)

Step	Period	Activities
1. Survey of second and pre-second schools	May-November, 2008	Acquiring knowledge of events held by the elementary school including the period before and after the second and pre-second schools
	June, 2008	Accompanying to the second school
	October, 2008	Accompanying to the pre-second school
2. Proposal of the program	November, 2008	Giving the principal a briefing on the purpose of the study and on the program
	November – March, 2008	Considering a concrete form of the program
	April, 2009	Proposing the concrete form of the program
3. Adjustment to the elements	April, 2009	Making adjustments to the specific elements of the program before determination, given learning objectives for the second school
4. Sprcific composition of the program	May, 2009	Determining the specific composition of the program, supposing the use of Web-GIS as teaching and briefing materials
5. Preliminary operation	June, 2009	Conducting an operational test during the pre-second school for fourth graders using Web-GIS as teaching and briefing materials
6. Self-Evaluation/ Re-composition	July, 2009	Re-composing the program based on teachers' reaction and results of self-evaluation
7. Operation	September–October, 2009	Conducting full operation during the second school for fifth graders using Web-GIS as teaching and briefing materials
8. Evaluation	October–November, 2009	Evaluation by teachers, instructors, students and their parents

Step 3. Adjustment of elements: Specific elements of the Web-GIS based outdoor education program were considered after understanding learning objectives concerning the second and pre-second schools and after the intentions of the teachers were taken into consideration.

Step 4. Specific composition of the program: With the supposition that Web-GIS would be used as teaching and briefing materials, the specific elements of the Web-GIS based outdoor education program were determined before preparation for operation.

Step 5. Preliminary operation: An operational test was conducted for the pre-second school including the period before and after pre-second schools for fourth graders in the 2009 academic year. Web-GIS are used as teaching and briefing materials in specific study for students and the briefing session and open class for students' parents before and after pre-second schools, as mentioned in Chapter 2.

Step 6. Self-evaluation/Re-composition: The program was re-composed based on teachers' reactions and results of self-evaluation of the preliminary operation.

Step 7. Operation: The program was fully operated for the second school including the period before and after it for fifth graders in the 2009 academic year. The same measures including the use of Web-GIS that were taken during the pre-second school in Step 5 were applied before and after the second school.

Step 8. Evaluation: Face-to-face interviews and questionnaires were conducted on teachers, instructors, students and parents in order to evaluate the program.

In this study, an operational test was conducted during the pre-second school in Step 5 in order to improve the Web-GIS based outdoor education program before the second school in Step 7. After the preliminary operation in Step 5, the teachers gave the authors some specific comments to improve the Web-GIS. Therefore, in Step 6, the authors added information that was more closely related to outdoor activities, and devised the usage of the Web-GIS for the explanation to students and their parents for the operation in Step 7.

4. Use of Web-GIS for the outdoor education program

4.1 Usage of Web-GIS

The usage of Web-GIS mainly includes the specific composition of the Web-GIS based outdoor education program in Step 4 and preliminary operation and operation of the program in Steps 5 and 7 respectively. This was carried out in accordance with the process in Table 2. The functions of the Web-GIS for database creation, and information provision and sharing were used.

The "Denshi Kokudo" Web System(2) was used as Web-GIS application software and Kashmir 3D(3) as GIS application software in the Web-GIS based outdoor education program. Additionally, since the "Denshi Kokudo" version digital map from the Geographical Survey Institute shows more detailed geographical characteristics than any other digital maps such as Google maps especially in mountainous areas where outdoor activities are carried out at second and pre-second schools, it is used as a basic map in this study. Kashmir 3D is used to process and overlay the geographical location information related to the outdoor activities obtained in Steps 1 and 4 on a "Denshi Kokudo" version digital map.

4.2 Web-GIS as teaching and briefing materials

(1) Specific composition of the program

Based on the experiences of participating in the second and pre-second schools as instructors in the 2008 academic year in Step 1, the authors identified "conducting a class related to student experiences during the second school both before and after it", "operation of outdoor activities considering risk management for teachers and instructors during the second school" and "briefing session and open class about the second school for students' parents before and after it" as the main objectives for the use of Web-GIS. In Step 3, based on the survey in Step 1, the authors considered when and how to use the Web-GIS as teaching and briefing materials and what kinds of information should be included on the digital maps, consulting with the teachers about learning objectives.

Taking the above-mentioned things into consideration, therefore, teaching and briefing materials were composed according to the following procedure in Step 4 chiefly using the two kinds of applications software.

1. An inspection of specific places where the outdoor activities would be implemented was conducted to collect geographical location information on locations and routes through GPS and to carry out face-to-face interviews and research in the field.
2. Using Kashmir 3D, the information related to the outdoor activities was placed on the "Denshi Kokudo" version digital map to be processed as a Kashmir 3D version digital map in GPX format. It was converted into XML format to be used in the "Denshi Kokudo" Web System.
3. The Kashmir 3D version digital map in GPX format was clipped for editing in order to insert photos and comments. Additionally, it was converted into HTML format that allows reference to supplementary data and was posted using Pukiwiki(4) on the website run by the authors(5).

(2) Preliminary operation and operation

In Steps 5 and 7, the Web-GIS were used as teaching and briefing materials as illustrated in Figures 1, 2, 3 and 4 respectively for the three main objectives. Figure 1 shows a route for outdoor activities in Iiyama-shi, Nagano which is made by Kashmir 3D. The authors placed the geographical location information that was obtained especially by GPS on Kashmir 3D version digital maps and used it as the basic map to make "Denshi Kokudo" version detailed digital maps and Kashmir 3D version detailed digital maps. Figure 2 shows all routes including the same route as shown in Figure 1 which is prepared with the "Denshi Kokudo" Web System. It enables students and parents to search the locations and routes for outdoor activities during the second school.

Figure 3 describes the authors' website entry of

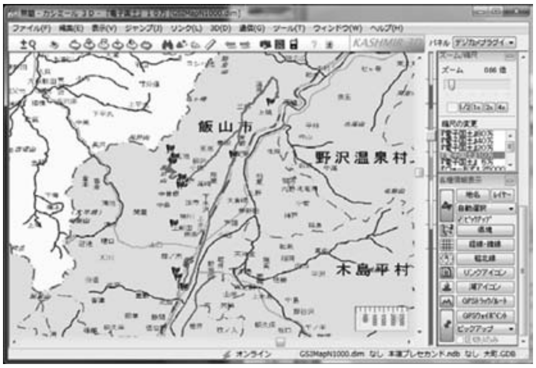


Figure 1 Kashmir 3D version digital map

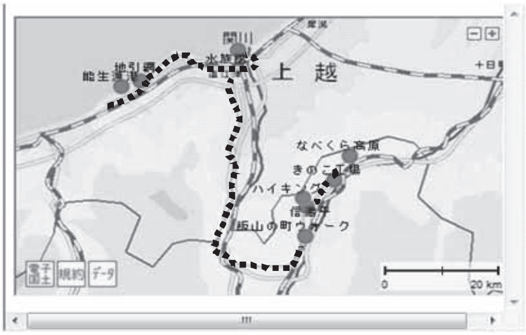
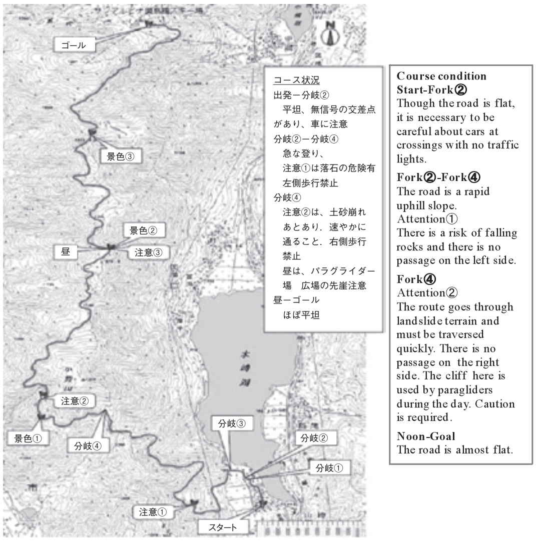


Figure 2 Map using the "Denshi Kokudo" Web System



コース状況
出発ー分岐②
平坦、無信号の交差点があり、車に注意
分岐②ー分岐④
急な登り、
注意①は落石の危険有
左側歩行禁止
分岐④
注意②は、土砂崩れあとあり．速やかに通ること．右側歩行禁止
昼は、パラグライダー場　広場の先崖注意
昼ーゴール
ほぼ平坦

Course condition

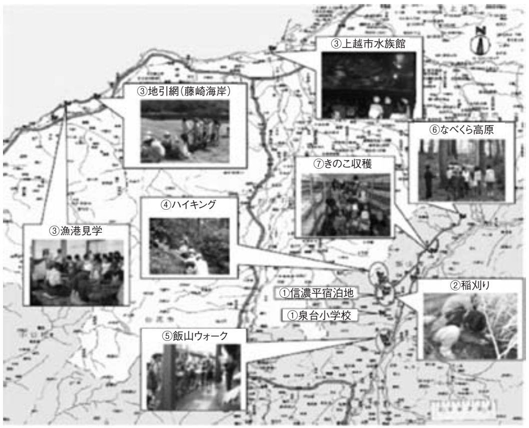
Start-Fork②
Though the road is flat, it is necessary to be careful about cars at crossings with no traffic lights.

Fork②-Fork④
The road is a rapid uphill slope.
Attention①
There is a risk of falling rocks and there is no passage on the left side.

Fork④
Attention②
The route goes through landslide terrain and must be traversed quickly. There is no passage on the right side. The cliff here is used by paragliders during the day. Caution is required.

Noon-Goal
The road is almost flat.

Figure 3 Hiking route map for risk management on authors' website



①Shinanodaira home, Izumidai Elementary School
②Harvesting rice
③ Visiting fishing port, fishing with a seine net (Fujisaki Shore), Joetsu City Aquarium
④Hiking
⑤Walking in Iiyama
⑥Nabekura Highlands
⑦Collecting mushrooms

Figure 4 Outdoor activities map on authors' website

a hiking route map which was inserted with geographical location information and information about dangers obtained in Steps 1 and 4. It enables teachers and instructors to consider risk management during the second school. Figure 4 also shows the authors' website entry of an outdoor activities map which was inserted with photos and comments related to the outdoor activities. It enables students and parents to understand the status of outdoor activities at a glance and it was printed to distribute as a briefing material at the open class after the second school.

Before the second and pre-second schools, referring to the digital maps as illustrated in Figures 1, 2 and 3, teachers explained the outdoor activities including risk management and notices to students and their parents to enhance their understanding. Since the details of the outdoor activities were shown visually on the digital maps, the students and their parents could understand the locations and contents. Additionally, using the

Web-GIS, they could search the locations and routes for outdoor activities with the authors' guidance.

After the second and pre-second schools, showing the digital maps inserted with pictures, comments and detailed information as illustrated in Figure 4, teachers explained the outdoor activities to students and their parents. This made students recollect their experiences and their parents understand the details of the second and pre-second schools.

5. Evaluation of the outdoor education program

5.1 Outline of evaluation

The Web-GIS based outdoor education program that was proposed and implemented was evaluated by its users (teachers, instructors, students and their parents) in Step 8 shown in Table 2. At the evaluation, mainly the usage of Web-GIS in the outdoor education program was evaluated. The overview of the evaluation is shown in Table 3 and its sub-items will be shown in 5.2. The authors intended that teachers should evaluate in terms of operation of the program and presence of educational effects and that instructors should evaluate in terms of operation of the program. Additionally, students should evaluate in terms of presence of learning effects and their parents should evaluate in terms of understanding of the second school.

Moreover, as shown in Table 4, face-to-face interviews and questionnaires were conducted for the evaluation of the outdoor education program in this study. The questionnaire for students and their parents was conducted both before and after the second school.

Table 3 Overview of evaluation

Respondents	**Item**
Teachers	Evaluation in terms of operation of the program Evaluation in terms of presence of educational effects

Respondents	**Item**	**Sub-item**
Instructors	Evaluation in terms of operation of the program	1. Level of difficulty
		2. Degree of expectation
		3. Possibility of continuation
		4. Degree of motivation improvement
		5. Level of understanding
Students	Evaluation in terns of presence of learning effect at class before the second school	1. Level of understanding
		2. Degree of interest
		3. Possibility of continuation
		4. Degree of motivation improvement
		5. Level of difficulty
		6. Degree of discovery
	Evaluation in terns of presence of learning effect at class after the second school	1. Level of understanding
		2. Degree of interest
		3. Possibility of continuation
		4. Degree of motivation improvement
		5. Level of difficulty
		6. Degree of discovery
Parents	Evaluation in terns of understanding of the second school at briefing session before the second school	1. Level of understanding about the place for activities
		2. Level of understanding about the activities
		3. Degree of interest
		4. Possibility of continuation
	Evaluation in terns of understanding of the second school at open class after the second school	1. Level of understanding about the activities and outcomes
		2. Degree of interest
		3. Possibility of continuation

Table 4 Outline of face-to-face interviews and questionnaires (September-November, 2009)

Respondents	**Teachers**	**Instructors**	**Students**		**Parents**	
			Before second school	**After second school**	**Before second school**	**After second school**
Method	Face-to-face interviews	Questionnaire				
Period	October - November	October - November	September 4th	October 9th	September 3rd	October 28th
Number of respondents	3	6	46	44	38	15
Number of valid responses	3	6	45	42	29	13
Response rate (%)	100.0	100.0	97.8	95.5	76.3	86.7

Before the second school, the authors asked the instructors, students and parents to use the Internet to make themselves aware of GIS and Web-GIS and Table 5 shows the results. From Table 5, it can be seen that although instructors and parents use the internet frequently, most of them were not used to using map retrieval pages, GIS or Web-GIS. Moreover, about 27% of students had used the Internet and half of them had used map retrieval pages.

5.2 Evaluation

(1) Evaluation by teachers

Results of the face-to-face interviews of the three teachers for evaluation in terms of operation of the program, intention to continue to use in a positive manner and advantages and disadvantages when using the Web-GIS based outdoor education program presented by the respondents are:

1. Advantages: As many of the teachers had no knowledge of GIS and Web-GIS, this opportunity offered them an incentive to learn. However, a more simplified package would be preferable without the need to learn about Web-GIS from scratch. A manual for the use of Web-GIS would be useful, and an assistant who specializes in the use of Web-GIS would be necessary. Moreover, the teachers suggested that the program could be applied in social studies, life environmental studies, science and integrated learning periods.
2. Disadvantages: Use of a computer requires the reduction of time to install for a classroom and to move from a classroom to a computer room. Excessively long time to prepare teaching materials is not suitable for use at an elementary school.

In terms of presence of educational effects, adequate coordination with the elementary school allowed additional educational effects to be provided to students compared to those provided by a regular class. It was useful for students to obtain information on places where outdoor activities were going to be carried out to raise their abilities in spatial recognition and to organize knowledge and experiences acquired through preparation for outdoor activities and through the activities themselves.

Table 5 Use of Internet, GIS and Web-GIS by instructors, students and parents before second school

Sub-item	Answer
Six instructors	
1. Frequency of Internet use	Use every day: 5 persons
	Do not use at all: 1 person
2. Frequency of map retrieval page use	Use once in a while: 4 persons
	Do not use at all: 1 person
3. Awareness of GIS and Web-GIS	Aware of GIS of Web-GIS: 1 person
	Not aware of GIS or Web-GIS: 5 persons
45 students before second school	
1. Frequency of Internet use	Use every day: 26.7%
	Have never used: 73.3%
2. Frequency of map retrieval page use	Have used: 55.6%
	Have never used: 44.4%
29 parents before second school	
1. Frequency of Internet use	Use every day: 69.0%
	Use once in a while: 24.2%
	Use rarely: 3.4%
	Do not use at all: 3.4%
2. Frequency of map retrieval page use	Use every day: 20.7%
	Use once in a while: 55.2%
	Use rarely: 17.2%
	Do not use at all: 6.9%
3. Awareness of GIS and Web-GIS	Aware of GIS or Web-GIS: 20.7%
	Not aware of GIS or Web-GIS: 79.3%

(2) Evaluation by instructors

Table 6 shows the results of the questionnaire in terms of operation of the program by instructors. Positive evaluation constitutes the majority for four of the sub-items: level of difficulty, degree of expectation, possibility of continuation and level of understanding. One instructor who does not use the Internet at all, however, evaluated negatively for all five sub-items.

(3) Evaluation by students

Table 7 gives results of the questionnaire in terms of presence of learning effects by the students before and after the second schools.

a) Evaluation before the second school

In the class before the second school, referring

Table 6 Results of questionnaire in terms of operation by the six instructors

Sub-item	Positive evaluation	Negative evaluation
1. Level of difficulty	Easy: 5 persons	Difficult: 1 person
2. Degree of expectation	Would like to apply: 4 persons	Would not like to apply: 2 persons
3. Possibility of continuation	Necessary: 4 persons	Neither: 2 persons
4. Degree of motivation improvement	More motivated: 3 persons	Neither: 3 persons
5. Level of understanding	Understood well: 5 persons	Did not understand well: 1 person

Table 7 Results of questionnaire for students before and after second school

Sub-item	Positive evaluation	Negative evaluation
45 students before second school		
1. Level of understanding	Understood well: 44.4%	Did not understand well: 2.3%
	Understood somewhat: 51.0%	Did not understand at all: 2.3%
2. Degree of interest	Became interested: 0.0%	Did not become interested: 8.9%
	Became somewhat interested: 91.1%	Did not become interested at all: 0.0%
3. Possibility of continuation	Necessary: 0.0%	Somewhat unnecessary: 8.9%
	Somewhat necessary: 91.1%	Not at all necessary: 0.0%
4. Degree of motivation improvement	More motivated: 0.0%	Somewhat discouraged: 15.6%
	Somewhat motivated: 80.0%	Discouraged: 4.4%
5. Level of difficulty	Very easy: 0.0%	Difficult: 6.7%
	Easy: 93.3%	Very difficult: 0.0%
6. Degree of discovery	Inspired to study or well enabled to discover something: 0.0%	Not inspired to study or well enabled to discover anything: 22.2%
	Inspired to study or enabled to discover something: 77.8%	Not inspired to study or enabled to discover anything at all: 0.0%
42 students after second school		
1. Level of understanding	Understood well: 50.0%	Did not understand well: 11.9%
	Understood somewhat: 38.1%	Did not understand at all: 0.0%
2. Degree of interest	Became interested: 0.0%	Did not become interested: 35.7%
	Became somewhat interested: 64.3%	Did not become interested at all: 0.0%
3. Possibility of continuation	Necessary: 0.0%	Somewhat unnecessary: 33.3%
	Somewhat necessary: 66.7%	Not at all necessary: 0.0%
4. Degree of motivation improvement	More motivated: 26.2%	Somewhat discouraged: 33.3%
	Somewhat motivated: 38.1%	Discouraged: 2.4%
5. Level of difficulty	Very easy: 0.0%	Difficult: 21.4%
	Easy: 78.6%	Very difficult: 0.0%
6. Degree of discovery	Inspired to study or well enabled to discover something: 0.0%	Not inspired to study or well enabled to discover anything: 78.6%
	Inspired to study or enabled to discover something: 21.4%	Not inspired to study or enabled to discover anything at all: 0.0%

to the digital maps as illustrated in Figures 1, 2 and 3 along with pictures of the second school held the previous year, teachers explained the outdoor activities to students. Positive evaluation accounts for approximately 80% of the total for all six sub-items indicating that students generally give good marks.

b) Evaluation after the second school

In the class after the second school, showing the digital maps as illustrated in Figure 4, teachers explained the outdoor activities to students. Positive evaluation makes up more than 65% of the total for the five sub-items with the exception of degree of discovery which had a predominant negative evaluation of about 79%. Additionally, the percentage of negative evaluation for the two sub-items of degree of interest and possibility of continuation is remarkably high compared to the questionnaire conducted before the second school. The reaction of the students during the class given after the second school implies that the negative evaluation might be mainly due to their inability to find things that interest them at the second school and that they would like to continue studying further after it has ended.

(4) Evaluation by parents

Table 8 gives results of the questionnaire in terms of understanding by the students' parents before and after the second school.

a) Evaluation before the second school

The results show that more than half of parents rather frequently use the Internet while only about 21% are aware of GIS / Web-GIS. In the same way as in the class given to students before the second school, a presentation using Web-GIS was provided during the briefing session for parents. Positive evaluation occupies more than 80% of the total for all four sub-items of level of understanding about the places for activities, level of understanding about the activities, degree of interest and possibility of continuation indicating that the parents generally give good marks.

Table 8 Results of questionnaire for students' parents before and after second school

Sub-item	Positive evaluation	Negative evaluation
29 parents before second school		
1. Level of understanding about the places for activities	Understood well: 65.5%	Did not understand well: 0.0%
	Understood somewhat: 34.5%	Did not understand at all: 0.0%
2. Level of understanding about the activities	Understood well: 51.7%%	Did not understand well: 0.0%
	Understood somewhat: 48.3%	Did not understand at all: 0.0%
3. Degree of interest	Would strongly like to view: 0.0%	Will probably not view: 17.2%
	Would like to view: 82.8%	Will not view at all: 0.0%
4. Possibility of continuation	Necessary: 0.0%	Somewhat unnecessary: 17.2%
	Somewhat necessary: 82.8%	Not at all necessary: 0.0%
13 parents after second school		
1. Level of understanding about the activities and outcomes	Understood well: 30.8%	Did not understand well: 0.0%
	Understood somewhat: 69.2%	Did not understand at all: 0.0%
2. Degree of interest	Would strongly like to view: 0.0%	Will probably not view: 53:8%
	Would like to view: 46.2%	Will not view at all: 0.0%
3. Possibility of continuation	Necessary: 0.0%	Somewhat unnecessary: 15.4%
	Somewhat necessary: 84.6%	Not at all necessary: 0.0%

b) Evaluation after the second school

In the same way as in the class given to students after the second school, a presentation using Web-GIS was provided during the open class. While positive evaluation by the parents constitutes more than 80% of the total for level of understanding about the activities and outcomes as well as for possibility of continuation, positive and negative evaluations are almost equal in proportion to the degree of interest. The percentage of positive evaluation for the degree of interest is remarkably low compared to the questionnaire conducted before the second school. This is presumably because the parents became less interested and found no need to view Web-GIS after the end of the second school.

6. Issues and improvements to the outdoor education program

6.1 Identification of Issues

At first, based on the results of evaluation by users (teachers, instructors, students and parents) in terms of teachers' operation in particular, the issues to be improved in the Web-GIS based outdoor education program that was proposed and implemented in this study are stated as follows.

(1) Web-GIS based outdoor education program

a) Operators

In the outdoor education program, Web-GIS was mainly used for "conducting a class related to student experiences during the second school both before and after it", "operation of outdoor activities considering risk management for teachers and instructors during the second school" and "briefing session and open class about the second school for students' parents before and after it". At these times, it is necessary to have an operator who can manage Web-GIS to conduct the outdoor education program. However, the teachers at the school in this study had no knowledge of GIS and Web-GIS and this situation is expected to be fairly similar at other schools. Therefore, there is the issue of the distribution of teachers and assistants who can operate Web-GIS.

b) Composition of outdoor education program

Because the outdoor education program was composed taking the intentions of teachers into account so that Web-GIS is effectively used as a teaching and briefing material, teachers evaluated our contribution to school education. The reason for this is that the authors suitably incorporated teachers' requirements as composers and operators of the Web-GIS based outdoor education program, and this therefore leads to good evaluations from users, especially teachers. Due to this fact, it is necessary to compose the outdoor education program with a comprehensive grasp of the current situation in school education in advance.

(2) Use of Web-GIS

a) Web-GIS as teaching materials

During the implementation of the Web-GIS based outdoor education program, the authors were asked for a more simplified package and manual for how to use Web-GIS. As mentioned in Chapter 1, GIS for Education has not yet been fully developed in Japan. Due to problems related to this kind of application software as well as technical difficulties and limited working hours, it is difficult for teachers to learn how to use these kinds of information tools effectively as teaching materials. Consequently, it is an issue that very little appropriate application software exists and that there are few manuals for the use of Web-GIS.

b) Continuous use of Web-GIS

After the second school, the percentage of negative evaluation for the three sub-items such as degrees of discovery and interest, and possibility of continuation was higher than that of before the second school. Since the reason is that students lost the motivation to learn further after the second school, this leads to the issue that they might miss opportunities to use Web-GIS.

6.2 Suggestions for improvements

Referring to the analysis of results of face-to-face interviews and questionnaires, the following improvements for the two issues concerning the Web-GIS based outdoor education program and the use of Web-GIS were suggested. In order to realize the following suggestions, it is not possible to implement the Web-GIS based outdoor education program as proposed in this study only at elementary schools. For example, cooperation between elementary schools and universities is proposed as in the case of this study.

(1) Web-GIS based outdoor education program

In order to operate the Web-GIS based outdoor education program, it is first necessary to distribute teachers and assistants who can manage information tools such as Web-GIS at schools and to increase teachers' opportunities to learn how to use Web-GIS. Additionally, the outdoor education program should be composed taking the intentions of teachers and the current situation in school education into account.

(2) Use of Web-GIS

It is necessary to teach appropriate applications software and provide manuals for the operation of the Web-GIS based outdoor education program to teachers who are interested so that they can implement it by themselves. Furthermore, it is also necessary to create opportunities to use Web-GIS in social studies, life environmental studies, science and integrated learning periods as well as in outdoor education. For example, it is necessary that Web-GIS should be also customized to be used for various activities outside of school in other subjects and excursions in rural and mountainous areas as this leads to the continuous use of Web-GIS after the second and pre-second schools. This will also contribute to enhancing the educational effects of the Web-GIS on students in outdoor education.

7. Conclusions

This study aims to propose and implement a

Web-GIS based outdoor education program as environmental education for elementary schools, which is evaluated by users. The conclusion of this study can be summarized in the following three points.

(1) An eight-step outdoor education program based on Web-GIS was proposed for a “second school” at elementary schools that was then implemented before being evaluated by users (teachers, instructors, students and their parents).

(2) The program generally received a good evaluation. However, many students and their parents evaluated extremely negatively for degree of discovery and for degree of interest respectively in the questionnaire that was conducted after the second school. Teachers’ evaluations showed the intention to continue to operate the program in a positive manner and pinpointed issues about preparations for using Web-GIS as teaching materials at elementary schools.

(3) Based on the results of evaluation by users, two issues to improve the outdoor education program proposed in this study were determined. One concerns the Web-GIS based outdoor education program and the other is about the use of Web-GIS. For the former, the distribution of people who can manage such information tools and effective methods of composing the program were suggested. For the latter, the provision of appropriate application software and manuals, and the use of Web-GIS in many subjects were suggested.

Issues to be studied include the application of the Web-GIS based outdoor education program proposed by the authors to other elementary schools.

Acknowledgements

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Notes

(1) Project for Interaction in Farming and Fishing Villages, http://www.maff.go.jp/j/nousin/kouryu/kodomo/index.html. Assessed May 15, 2008

(2) “Denshi Kokudo”, a concept proposed by the Geographical Survey Institute, Ministry of Land, Infrastructure, Transport and Tourism in 1999. Refer to Cyber Japan Portal.

(3) Kashmir 3D is an application software for GIS that provides functions including analyzing views of mountains, creating 3D computer graphics of landscapes, real-time flight simulation, analyzing GPS data and creating hyper maps.

(4) Pukiwiki, one of the so-called WikiEngines, is a content management system (CMS).

(5) The authors established “the Web-GIS based Outdoor Education Program” website using the “Denshi Kokudo” Web System. It can be found at: http:// www.ohta.is.uec.ac.jp/yamamoto/gis

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Refereed Research Note

Study of the Music Business Model Based on Comparison of Country Having Low Piracy Rate and Country Having High Rate

Keywords:
illegal copy, piracy rate, opposite approach, user benefit, social benefit

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Abstract

With the recent advances made in digital technology and escalating levels of competition in the field of music, there is a growing debate over how recording artists, music production firms, CD stores, rental shops, music distributors and consumers should go about protecting or expanding their rights. This paper provides a discussion of this subject based on the benefits for society as a whole on the premise that music requires an increase in benefits for all of society.

Introduction

Accompanying the conversion of information and recordings to digital media, although methods for purchasing music continue to expand from CDs to cellular telephones and the Internet (on-line music distribution), the value of analog contents (such as live concert performances and merchandise sales) is increasing. For example, in 2008 Madonna terminated her contract with the record giant, Warner Music, and instead concluded an agreement with an event production company known as Live Nation[i]. Many of her major recordings were released free of charge over the Internet as a means of attracting fans to her concerts. As a result, Madonna's income in 2008 moved to the top of list among music artists at 240 million dollars due to the sales of tickets for concerts held in Europe and throughout the U.S. starting in the summer of that year[ii]. This indicates a shift in the emphasis of music activities from CD sales to live performances and sales of T-shirts and other merchandise. In the U.S., Apple Records, which is considered to be one of the successful members of the music industry, is currently operating in the red with respect to on-line music distribution, and depends on sales of its iPod music player for its source of income. In the past, Japan's music business viewed live performances as a means for advertising CDs, and although it was considered okay for live performances to record a deficit, the current way of thinking may actually be the exact opposite. This model that adopts the opposite view of generating a profit with analog contents (such as live concerts and merchandise) by using digital contents (such as CDs and on-line music distribution) as publicity means has already become established in countries having high piracy rates where CD sales cannot be expected to generate income, and although we perceive such countries to be backward nations, we have developed a hypothesis by which these countries actually indicate an advanced music model for the digital age. Field surveys were conducted on six occasions in New Zealand, which has a low piracy rate, and in Vietnam and China, which have high piracy rates, after which this hypothesis was verified by discussing a music business model for the digital age based on the data obtained from those surveys.

Literature Review

Although Gayer and Shy (2006) treated creators in the manner of lyricists and composers and distributors in the manner of record companies and publishing companies as a single body in a previous theoretical model, it was decided to considered these two entities separately. They indicated that since creators are able to obtain benefits from not only CD sales, but also live concerts, it is not always wise to strictly apply copyright laws to this group. This was a model showing that the strict application of copyright laws goes against the interests of creators and distributors. In addition, a paper by Papies and Clement (2008) is an example of that describing the relationship between music distribution and the production of live concerts and so forth. These authors indicate that since users who attend live concerts and users of distributed music are divided into two segments based on their previous behavior patterns and affinity for technology, the results of their analyses are that there is no competitive relationship between the live concert business and the music distribution business. The paper by Asai (2009) is an example of music research conducted in Japan. This paper consists of an empirical analysis of the relationship between the concert production business and the package market. The publication by Vogel (2004), which deals with the entire spectrum of contents including music contents, describes a business model of the music industry comprising a structure based on how the music industry should be efficiently distributed between "creators", such as composers, lyricists, music publication companies and performers, and "users", and states that other countries are following the model employed in the U.S. Although Vogel (2004) claims that the U.S. is an advanced model for the world, this paper proposes and attempts to verify the hypothesis that the model employed in countries like Vietnam and China is conversely advanced from the viewpoint that it is more suited to the current era of advanced digital technology.

Although not necessarily academic publications, there are many surveys concerning music models. It is the intention of this paper to compare and examine the models of several countries while referring to these surveys.

Conceptual Framework

Three viewpoints are necessary for music to be enjoyed by not only a portion of affluent society, but also by persons of low income:

(1) characteristic of music being essential as entertainment service (essentiality);
(2) characteristic of music being able to be enjoyed at a price that is affordable to everyone (affordability); and,
(3) characteristic of music being able to be enjoyed regardless of regional differences (availability).

In the music field, it has become important to reexamine the business model due to changes in the situation in recent years.

Accompanying technical innovations, it has become possible to provide a diverse range of new access means and services, the proliferation of cell phones and broadband services in particular has progressed considerably, and popularity of distribution of abridged ring tones and unabridged ring tones for cell phones and their distribution over the Internet are growing.

This music distribution is characterized by a dramatic increase in the amount of available data resulting from rapid technological advances in the field of telecommunications and a growing selection of songs without having to consider usage time or the distance to a CD store.

On the other hand, the size of music-related markets such as CD stores, rental shops and Karaoke parlors is decreasing.

Along with this, there has been increase in the number of CD stores and rental shops that are going out of business, and the number of CD stores is decreasing.

In this manner, CD shop management is facing a critical situation, there is a strong need to strength business efficiency under conditions of negative growth, and stores with limited space are displaying and selling popular songs and songs by popular artists because of their high profit margin, while it is becoming increasingly difficult to handle products having a low profit margin even through they may be of high quality.

At actual stores having limited display space, there is the potential for offering an innovative product lineup with the aim of increasing sales despite lower profits through competition.

In addition to restrictions on usage time due to limited inventories, dissatisfaction with having to travel to stores is promoting the use of music distribution services, and the situation exists in which information available on the Internet is accelerating dissatisfaction with stores, while added value information such as reviews as well as essential information such as listening to demos is leading to the use of music stores.

Although the market for music distribution services is expanding in this manner, the existence of illegal sites that publicly release music files without the permission of the rights holder through a network is becoming increasingly conspicuous. Although users downloading illegal music files can be perceived to represent latent room for expansion of the fee-based music distribution market, awareness that network contents distributed over the Internet are free of charge appears to be firmly in place particularly among young people.

The live event market is continuing to grow steadily, and the music DVD market is also growing in conjunction with this market. In addition, live broadcasts using USTREAM have become conspicuous by providing live contents shared through video images of live performances that were previously only able to be enjoyed by persons who were able to purchase tickets.

The proliferation of personal computers and software has made it easier for individuals to edit music data, packaged products exclusively produced inexpensively by independents are being released, and it has become possible for persons around the world to release original music by using such services as Facebook, You-Tube and USTREAM. As a result, the boundary between professionals and amateurs in the music market has become increasingly obscure.

Amidst this period of structural change, although each member of the music industry is examining ways to construct an effective business model in order to secure an established position in the industry, in academic terms, what is more important is whether or not greater benefits are realized for society as a whole.

The securing of high-quality music contents cannot be realized with only some famous artists or affluent users alone, but rather is ultimately maintained by young persons having a broad range of tastes but insufficient funds to purchase CDs or at the burden of amateur artists desiring to become professionals, and the realization of a high level of social benefit can be said to be an essential condition of growth of the music industry.

According to the findings of previous studies, studies from this perspective are not considered to have been adequately and explicitly conducted, and it is therefore important to discuss this from the viewpoint of society in general.

In order to measure the effects on social benefits, a typical social benefit function is composed of the benefits of creators and users that compose the music industry.

(1) User Value

Users incur benefits by themselves making direct use of services. There is use value for users themselves (direct use value).

As indicated in Vogel (2004), expansion of benefits for teenagers and young adults is particularly important.

(2) Creator Benefits

In the case creators provide services, they incur benefits in terms of obtaining compensation for those services.

In the case of amateurs, this also includes the value of obtaining satisfaction from users enjoying the benefits of those services.

Although a comparison of these values is considered to vary depending on the individual and society, the result of presuming the existence of these values and totaling all such values can be considered to represent the benefits obtained from music for society as a whole.

In this paper, a comparison is made between two cases. The first case is that of the U.S. and Europe where, as a result of benefits for creators having been maximized by suppressing losses attributable to illegal copying and pirated versions by implementing strict copyright laws, the music industry is targeted at the affluent middle classes. In this paper, the cases of New Zealand and Japan are discussed as the countries having the lowest prevalence of pirated versions (refer to Table 1 for the reasons for having selected these countries for analysis).

In Japan, prices for music CDs are higher than those in the U.S. and Europe, music CDs are solid at the same price as a general rule based on the “resale price maintenance system”, and price competition does not function. On the other hand, the second case focuses on the countries of China and Vietnam (refer to Table 1 for the reasons for having selected these countries for analysis). Although these two countries have a high prevalence of pirated versions, the purpose of CD sales is to provide exposure for artists and songs, which in turn leads to increases in sales from concerts and live performances.

Fig. 1 indicates “user value” in New Zealand and Vietnam, while Fig. 2 indicates “creator value” in New Zealand and Vietnam.

The total of the two values indicated in Fig. 1 and Fig. 2 can be considered to represent the benefits obtained from music for society as a whole, and this is shown in Fig. 3.

Furthermore, since the U.S. market covers an excessively broad range for the target of this survey, it will be considered for analysis in a future study. During the field surveys, the author conducted interviews with persons related to the music industry in addition to surveying local CD stores, live performances and concerts in New Zealand (September 12-19, 2010), Vietnam (March 5-14, 2010), Shanghai, China (February 7-10, 2010) and Taiwan (August 3-7, 2009).

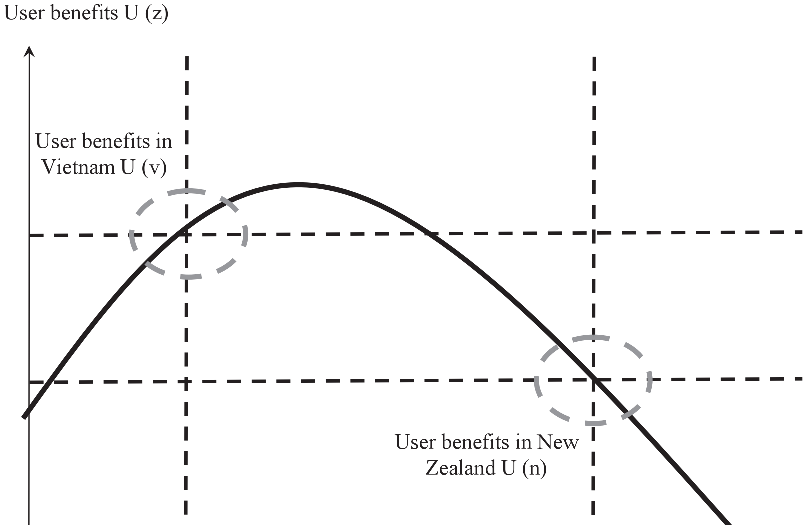
Music Situation in Vietnam

On the CD market in Vietnam, consumers can select either pirated versions or authorized versions. Since there are hardly any controls on pirated CDs, the number of stores selling pirated CDs is overwhelmingly large, with the number and sizes of major pirated CD stores being more prominent than even government-operated authorized CD stores. In Ho Chi Minh City, which was one of the cities surveyed, two authorized CD stores were also handling pirated versions of all CDs sold. This situation in Vietnam in which both authorized versions and pirated versions of CDs are present in the same store is clearly evident in the fact that major pirated CD stores also sell authorized versions of those CDs. In Vietnam where copyrights have very little meaning, a pirated CD is perceived as being of low quality rather than being illegal[iii]. Pirated CDs may have poor quality packaging and have problems with sound quality due to inadequate audio reproduction techniques. On the other hand, although authorized CDs do not have such problems, they are priced at 32,000 Vietnam dong (US$ 2.13)[iv], making them just under three times more expensive than pirated versions. Young people in Vietnam frequently purchase authorized versions of CDs of their favorite artists or when giving as a gift to friends[v].

Table 1 Survey of Diffusion Rates of Pirated Software

Countries having Low Piracy Rates		**Countries having High Piracy Rates**	
U.S.	22%	Vietnam	92%
New Zealand	23%	China	92%
Denmark	26%	Ukraine	91%
Sweden	27%	Indonesia	88%
Austria	27%	Zimbabwe	87%
Japan	29%	Russia	87%
Belgium	29%	Algeria	84%
U.K.	29%	Nigeria	84%
Germany	30%	Pakistan	83%
Finland	31%	Paraguay	83%

Source: Todd Weiss, Computerworld Online, U.S.

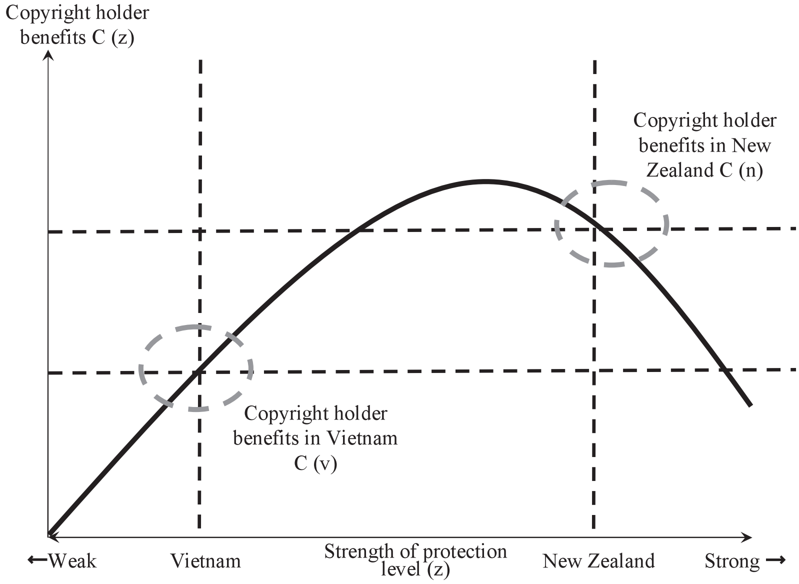


Source: Prepared by Ueda with reference to Tanaka and Hayashi (2008), p. 12

Figure 1 User Benefits in New Zealand and Vietnam

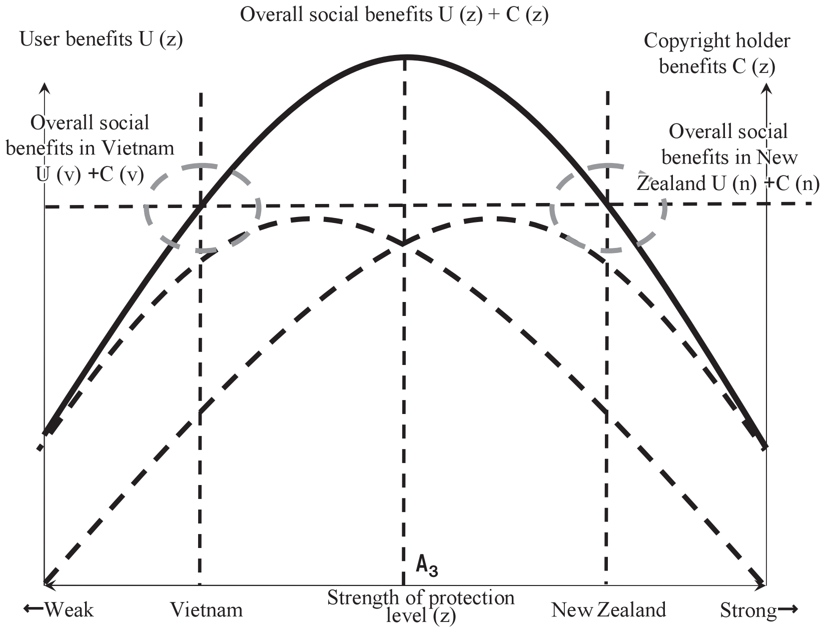
Music Situation in China

In looking at the situation in China, even though many CDs are pirated versions, singers are able to maintain their livelihood by obtaining revenues from stage performances. There are many singers who perceive pirated versions of CDs made from authorized versions as means of generating publicity for their stage performances. Since China does not have a system for singers to protect their copyrights, young singers produce CDs even



Source: Prepared by Ueda with reference to Tanaka and Hayashi (2008), p. 12

Figure 2 Copyright Holder Benefits in New Zealand and Vietnam



Source: Prepared by Ueda with reference to Tanaka and Hayashi (2008), p.12

Figure 3 Overall Social Benefits in New Zealand and Vietnam

though they know they are unable to cover production costs since pirated versions will soon appear on the market. For these singers, pirated CDs are recognized to be necessary since pirated CDs generated as a derivative of CD production function as means of publicity for letting people know of their existence even though they are unable to generate revenue from them. The major source of revenue of Chinese singers is stage performances, and compensation for those performances is dependent upon their popularity. In China where protection of copyrights is essentially ineffective, publicity effects of pirated CDs exist even though revenue cannot be expected to be generated from authorized versions of those CDs.

Differences between New Zealand and Vietnam:

In the case of New Zealand, although on-line music distribution sites allow users to listen to songs for several tens of seconds, it is not possible to listen to an entire song. A fee must be paid in order to listen to the entire song. This system is similar to that employed by Apple's iTunes in the U.S. Copyrights are firmly established in New Zealand, and because of this, artists can expect to generate sales from CD software. However, in the case of artists in New Zealand, if sales are attempted to be increased, efforts are made to expand CD sales on overseas markets due to the small size of the domestic market. An example of this is the desire for Hayley Westenra to establish

Table 2 Differences between High-Quality (High-Priced) Merchandise and Low-Quality (Low-Priced) Merchandise

	High-Quality (High-Priced) Merchandise	Low-Quality (Low-Priced) Merchandise
New Zealand	Recently released CDs	CDs for which considerable time has passed since their release and have yet to be sold at CD stores
Vietnam	Authorized versions of CDs	Pirated versions of CDs
Japan	No distinction due to existence of "resale price maintenance system"	

Source: Prepared by Ueda

Table 3 Losses Attributable to Proliferation of Pirating and Piracy Diffusion Rates in Vietnam

Year	2007	2006	2005
Computer software	90% (US$ 82 million)	88% (US$53 million)	90% (US$ 21 million)
Books	(US$ 17 million)	(US$ 18 million)	(US$ 16 million)
Music CDs	95%	95%	95%
Total	US$ 99 million	US$ 71 million	US$ 37 million

Source: International Intellectual Property Alliance (August 4, 2008) performance bases in the U.K. and Japan.

On the other hand, in Vietnam where copyrights have yet to be adequately established as in New Zealand, no matter how popular a song is and no matter how many CDs are sold, artists are not able to get by on royalties from those songs, forcing even major artists to generate revenue by performing on stage. Since there is very little awareness of copyrights among the Vietnamese, it is possible to listen to entire CD albums by on-line streaming. Since Vietnam is a socialist country, although it is strict with respect to monitoring and protecting its own copyrights, it is quite lax when it comes to infringement on overseas contents. In other words, since overseas copyrighted merchandise should not even exist in the country, at least on the surface, protection of such merchandise also ought not to exist. However, even though it is said that overseas copyrighted merchandise does not exist in the country, at least on the surface, in actuality such merchandise is sold without reserve at government-operated department stores, thus resulting in the existence of rampant pirated versions on the market, as well as the existence of a gap between what is expressed to the outside and true intentions.

Although we tend to think that advanced nations are more advanced, Vietnam is an

advanced nation in terms of having constructed a business model that generates earnings from live performances instead of packaged software. The reason for the circulation of pirated versions among consumers is that, from the viewpoint of the user, contents can be acquired free of charge if someone would allow them to make copies. On the other hand, from the viewpoint of artists, if users who ought to inherently purchase contents are able to obtain copies free of charge, this represents a decrease in earnings and is therefore disadvantageous. As can be seen from Table 1, since pirated versions constitute more than 90% of music consumption in Vietnam and China, artists are unable to generate revenue through the sales of CDs, and therefore record and produce singles for radio broadcasting instead of albums targeted at users. In the cases of countries like Vietnam and China where pirated versions and illegal copies have permeated deeply into the social life, the piracy diffusion rate is 90% or higher, thus meaning that 90% or more of listeners are excluded the instant music is taxed. In Vietnam and China, music is considered to be a luxury item for the middle class, or in other words, is not something that can be paid for easily. Artists become trusted as a music brand widely popular among the general public by using free media and enabling their work to be listened to by anyone. Consequently, there are many artists who perceive pirated versions of music CDs in a positive manner[vi]. Artists are aware that inexpensive pirated versions generate publicity effects that contribute to revenues from live performances even if they are unable to acquire copyright royalties. If CDs were sold at regular prices, many fans would be unable to purchase them, thereby preventing artists from obtaining a response or accolades from fans. Artists acquire revenues by appearing in media and commercials due to the popularity generated by pirated versions and illegal copies[vii]. They are also able to acquire earnings from live events and concert tours. In addition, even if a live event is not attended by a large number of people, those persons that actually attended write that they attended the live event or went to a concert and enjoyed it on their own blogs, thereby generating interest among readers of those blogs that makes them want to attend the next live event.

In this manner, from the viewpoint of total earnings obtained by artists in this manner, the perspective that illegal copying does not necessarily have only negative aspects may appear unexpected from persons such as ourselves residing in advanced countries where there is strict protection of copyrights. In advanced countries, the supply of contents decreases unless copyrights are protected, and under extreme circumstances, a market may not be established. However, under circumstances in which copyright protection is virtually nonexistent as in Vietnam and China, users are able to listen to music inexpensively thanks to pirated CDs. Conversely, although singers who have a hit song are able to generate huge copyright royalties from earnings from legitimate versions of CDs under conditions in which copyrights are strictly protected, users have fewer opportunities for coming in contact with music than when pirated CDs are available. There are also views that favorably evaluate pirated CDs since they fulfill the function of generating publicity in terms of increasing the number of music fans. Thus, the proliferation of pirated versions is expected to increase the scope of users while also demonstrating publicity effects that lead to purchases of legitimate CDs.

The rampant proliferation of pirated software and illegal copying has brought about an ironic outcome with respect to Japanese contents. In other words, these actions have fulfilled a considerable role in enabling music, animation, comics and other forms of Japanese culture known as “JPOP” culture to propagate and permeate various regions throughout Asia, including Beijing, Shanghai, Taipei, Seoul and Bangkok. In response to this result, although suppliers such as lyricists and composers, singers, performers, record companies, music producers and other members of the production side having copyrights and neighboring rights to songs have become increasingly sensitive to illegal music distribution, in consideration of the rapid growth of online music distribution over the Internet, there is also a growing opinion that it may be of more benefit to not become overly excessive with claims of copyright infringement [viii].

Music Situation in Japan

Traditionally, the Japanese music industry has positioned live performances as a form of publicity for increasing sales of CDs, and has tended to ignore the profitability of such live performances. At present, however, when it has become easy to copy digital contents, it has become necessary to adopt the opposite approach of generating earnings from live performances and using the providing of CD and other digital contents as publicity for live performances. In actuality, although sales of CD and other packaged media continue to struggle, the number of persons attending live performances and concerts is demonstrating solid growth. As the CD market gradually shrinks as a result of being pushed out by online music distribution, the live concert market has grown steadily to about 150 billion yen. In addition, live concert attendance figures have continued to increase steadily, currently standing at about 24 million after having surpassed the 23 million mark in 2003 [ix]. The major factor behind this is established popularity of summer festivals and the growing number of live performance venues. The contribution made by outdoor music festivals has been particularly significant after having become firmly established as Japanese summer events during the past 10 years. Ever since the start of the Fuji Rock Festival in 1997, roughly 50 music festivals are currently held in the summer alone [x]. Summer music festivals have gained the support of music fans since they provide an opportunity to see a wide range of musicians all at once. In addition, due to the strong event-like features of these outdoor festivals, they are also attended by persons other than core music fans. Moreover, there are also a growing number of music fans who decide to attend solo performances by artists they became interested in while attending a summer festival. Particularly famous artists tend to increase the number of live performances at large-scale venues and also tend to raise ticket prices. Thus, there is an increase in efforts to break away from the overemphasis on CD sales and place greater emphasis on revenues of live performances, merchandise sales and other music contents.

One area of the Japanese music industry where the model of using digital contents as publicity for analog contents has already been established is the popular music genre of Enka. In this model, since expectations cannot be placed on CD sales, Enka performers use appearances on television and radio (and particularly on special Year's End and New Year's programming that has extremely high ratings) as means for generating publicity, and generate earnings by traveling to regional night clubs or civic centers where they participate in numerous live shows. In addition to Enka performers, special Year's End and New Year's programming also provides the perfect opportunity to become known for artists who usually have little exposure and are not seen regularly by ordinary viewers[xi]. There are cases in which sales increase suddenly in the new year as a result of having appeared on a special music program aired on New Year's Eve. Thus, an artist is able to develop a new fan base by appealing to viewers, who ordinarily have little opportunity for coming in contact with music and usually do not watch music programs on television, but always watch the special Year End programming [xii].

Conclusion and further development

Although we tend to think of advanced nations as being advanced, in terms of constructing a business model in which revenues are generated through live performances instead of packaged software, countries like Vietnam and China are advanced. What is happening in Vietnam and China will also occur in other advanced countries throughout the world. In other words, a model will become established in which earnings are generated in a different manner than in the past by providing music free of charge and using it as a marketing tool for artists.

The business model described in this paper also has an effect on business models in such fields as animation, movies and video games. In each of these fields, the works produced are thought to converge into one of three types consisting of major productions, productions targeted at core fans and original productions in pursuit of artistry and novelty. In looking at the example of animation, the first type consisting of major productions refers to major productions released at movie theaters throughout the country, examples of which include Studio Ghibli, Pokemon, Conan and One Piece.

The second type consisting of productions targeted at core fans refers to television programs only broadcast during late night hours or movies released at only selected movie theaters. These include productions such as Evangelion and Keion. In terms of this paper, this is equivalent to the model used in New Zealand. Although productions are produced while minimizing costs, since production costs cannot be recovered from television broadcast right revenues and box office revenues alone, this model attempts to recover costs through revenue generated from the sales of figurines and character goods. This model also generates revenue through side businesses such as figurines and character goods by acquiring popularity through generating exposure by distributing productions over the Internet free of charge targeted at core fans present at about 5% in advanced countries throughout the world. This corresponds to the business model employed in Vietnam and China as discussed in this paper. This model takes advantage of the nature of core fans of continuing to remain fans for a long time once they have become interested.

The third type consists of original stories and productions that are produced from the ground up based on an original story, and are produced in pursuit of artistry and novelty. Examples of these productions include those by director Mamoru Hosoda and "Ghost in the Shell".

Finally, some important issues regarding this paper are discussed. In this research, models were simplified as shown in Fig 1, Fig. 2 and Fig. 3 based on an analysis framework of comparing and estimating characteristic models of each country. In this research, the targets of analysis consisted only of those large cities visited by the author, and therefore results in the problem of whether or not an interpretation of those findings can be expanded to include the entire music market of that country. Consequently, the results of this research should be interpreted with the proper care in regard to this point. In order to conduct a more precise analysis, it is hoped that an empirical analysis will be conducted based on quantitative data relating to an expanded area and time period. In addition, it is also hoped that future studies will be conducted regarding detailed surveys relating to the markets in the U.S and Japan.

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i Nikkei (newspaper) (abbr. of Nippon Keizai) (2009.3.11), p.6

ii Nikkei (newspaper) (abbr. of Nippon Keizai) (2009.3.11), p.6

iii Domon, K., Nakamura, K., (2006), "An Economic Analysis of Unauthorized Copying and File-Sharing in Developing Countries: A Vietnam Case Study by the Transaction Cost Approach", Infocom Research Inc., "InfoCom Review Vol. 38", pp. 120-129

iv Sueveyed by Ueda in Vietnam (March 5-14, 2010)

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vi BlackBurn, David [2004]" On-line Piracy and Recorded Music sales, "Job Market Paper.

vii Chris Anderson [2009] "Free," NHK, p. 265

viii Shintaku, J., Yanagikawa, N. (2008), "Economics of Free Copies", Nikkei Inc., p. 25

ix Nikkei Entertainment (2009.3) p. 91

x Nikkei Entertainment (2008.11) p. 102

xi Nikkei Entertainment (2009.12) p. 89

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Call for Papers of Journal of Socio-Informatics Vol.5 No.1

Editorial Board of Journal of Socio-Informatics

1. Aims and Scope

The Journal of Socio-Informatics (JSI) is the official English journal of JASI & JSIS (The Japanese Association for Social Informatics and The Japan Society for Socio-Information Studies). The Journal aims to contribute to promote social scientific studies relating with information and communication. It publishes papers once a year dealing with communications, media studies, information communication technology, business, sociology, economics, politics, psychology, education, computer science, simulation, and other various disciplines.

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The Editorial Board has plans to publish Vol.5 No.1 of the Journal in the summer or the autumn of 2012. One who would like to submit a paper on Vol.5 No.1 of the Journal must send the attached submission form to submit-jsi@yahoogroups.jp until October 14, 2011. The original manuscript and copy without authors' information must be sent to submit-jsi@yahoogroups.jp until November 14, 2011.

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Abstract

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Editor's Notes

The Great East Japan Earthquake is the most powerful earthquake and tsunami in Japan. Responding to the Great East Japan Earthquake, the emergent symposium, whose outline was published on the first page of this volume, was held on the Annual Joint Conference of JSIS and JASI 2011 and the contents of the symposium will be introduced later.

Journal of Socio-Informatics, which is called JSI short for, is the only academic journal in the field of Socio-Informatics in Japan. We the researchers and the students, Japanese or not, who study Socio-Informatics can enjoy establishing new theories and sharing the results of Socio-Informatics studies in this journal. This volume contains one invited paper based on the special lecture on the Annual Joint conference of JASI and JSIS 2010, two original refereed papers and three refereed research notes.

A submission to JSI is open to any researcher and student who studies Socio-Informatics.

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