

Study on Janghang Industrial Site Using Place Memory in South Korea

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ABSTRACT: Recent years, industrial heritages are used to the important contents of urban revitalization. Historical industrial site is a cultural landscape which contain not only physical architecture but also the others; the material, immaterial and networks of relation. Janghang is a historical site which was constructed for the early modern industry in Korea.

This article focused on place memory to interpret the industrial landscape. To gather the place memory, we suggest semi-standardized interview. And we select the interviewee by using the snow-balling method. And then, place memory is analyzed with the frequency and semantic network.

According to the research, places related with the industry in Janghang were the most meaningful. Janghang refinery, port, railway & station and warehouse for paddy were significant heritages in Janghang. According to the Park(2007) who researched the important industrial heritages in Janghang, 10% of the places were similar with places form place memory. In addition, place memory was included not only place but also event, persons, time and others. With analyzing semantic network, we could understand the invisible relations which connected with each other.

This study shows that place memory in local people is the critical medium to obtain the information of landscape. In addition, we can represent the relative relation of places in a visual map.

Keywords: place memory, landscape, industrial heritage, Janghang, semantic network, place

1. INTRODUCTION

1-1 Background and purpose

In recent years, industrial heritages are used as an important content for urban regenerations. Sunyoudo park and Art factory in Korea, Tienzfang and Dashanzi 798 in China, Emscher park project in Germany, Tate modern art museum in UK are well known cases in the world.

Janghang is one of the most representative industrial sites not only in early modern Korea but also in Asia. However, local government and experts have decided to put off the preservation of due to the Janghang refinery's chimney, which is a symbolic structure, reconstructed in 1979. According to Park and Sung (2007, 2012a), however, Janghang has three major industrial heritages: Janghang refinery, port, and railway. For the construction of three heritages, they built related factories, warehouses and company houses. Those related facilities that were followed general houses, offices and commercial buildings. These buildings and structures are related to each other creating a network. UNESCO (2005) introduced the concept of cultural landscape for preserving the combined work of nature and of man. To keep its originality, they made an endeavor to conserve not only physical heritages but also related process and structures.

Though the most of present research methodologies for historical places are based on substantialism, it is difficult to understand relations and hidden structure of the historical places. Therefore, we attempt to find new methodology to interpret relations and networks based on relationalism. To accomplish this purpose, we attempt to use Place memory as a main term, frequency analysis and semantic network as a methodology.

For the purpose of this article, we shall firstly extract the landscape information from place memory based the semi-standardized interview with local people, and analysis the frequency of words which are consist of places, materials. Finally, we interpret the semantic network of places. Those show us the hidden structure and relations of the site.

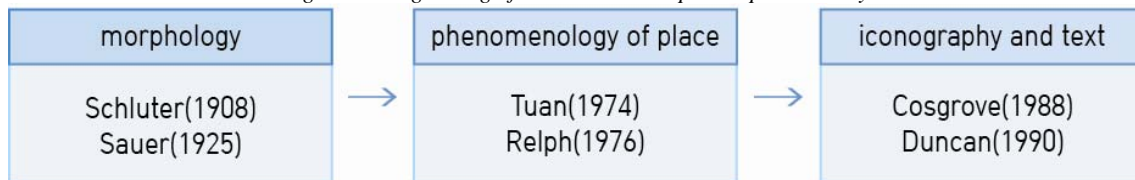
1-2 THEORETICAL RESEARCH

1) Place memory as a cultural landscape theory

The concept of landscape can be found in European tradition landscape painting and landscape garden. First, Otto Schluter (1908) and Carl s. Sauer (1925), however, suggest the concept of cultural landscape as a morphology. In 1970, Yi-Fu Tuan (1974) and Edward Relph (1976) insist the importance of human experience and the research method of 'a phenomenology of place'. In 1980, Denis Cosgrove (1988) and James S. Duncan (1990) focus on the meaning of landscape. And they suggest new methodologies which are iconography and landscape as text for the interpretation of cultural landscape.

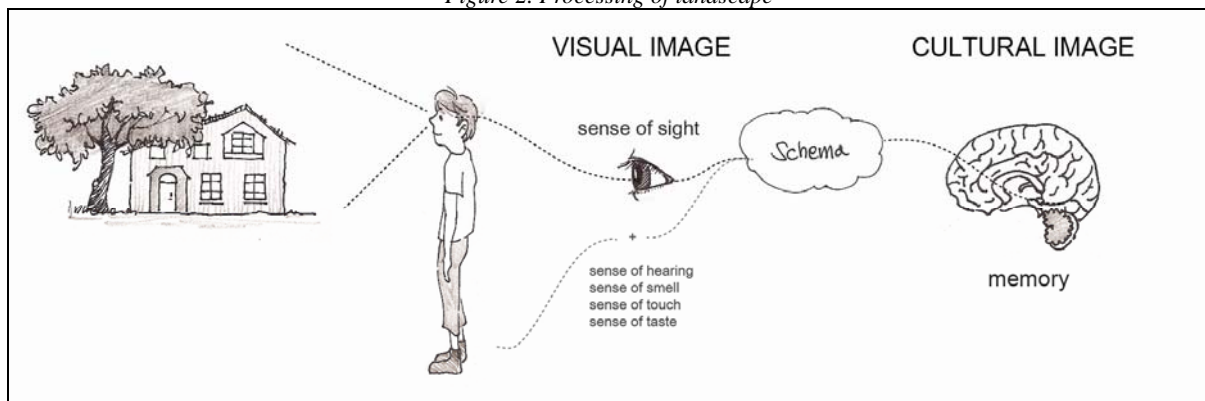
However, many scholars criticize these ideas because of several reasons. First morphology can not be understood inside, second experts research about place are so much subjective, and then iconography and text theory is so huge discourse (Jin, 2009). In addition, it is difficult to apply in planning and design field.

Figure 1. Progressing of cultural landscape and place theory



Recently, Park and Sung (2012b) suggest that place memory can use as a one of the alternative methodology in cultural landscape theory. In connection with place memory, Casey (1987) concerns about the relation between place and memory. Creswell (2004) insists that place and memory are related inevitably in landscape. Place memory is remained in and concerned about place as a trace and memory. In generally, memory is oriented and based on place (Casey, 1987). And people possess the collective memory (Halbwachs, 1992) and then they save the information in their brain.

Figure 2. Processing of landscape



2) Place memory from cognitive science

When people cognize environment, they accept visual information first. Then throughout schema, they re-interpret it and finally set up the information of landscape (Hwang, 2011). People accumulate it in there brain as memory.

Most of landscape information is stored in brain as a long-term memory. It consists of episodic and semantic memory in declarative memory (Squire, 1984). In other words, people save only their collected meaningful

information into long-term memory. If we read long-term memory, we can get the information of landscape. Also we can get not only visual image but also other sense information.

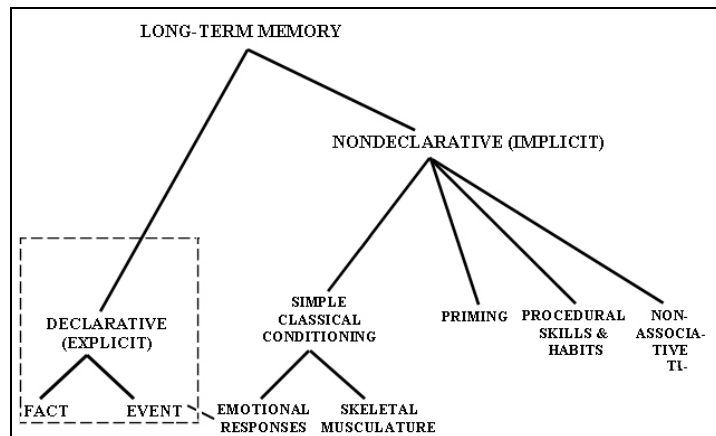


Figure 3. Structure of long-term memory (Squire, 2004 edited)

2) Semantic network analysis

A semantic network is a network which represents semantic relations between concepts. This is often used as a form of knowledge representation. It is a directed or undirected graph consisting of vertices, which represent concepts, and edges (Sowa, 1992). Semantic network analysis is based not on substantialism but relationalism. Therefore it illustrates us the knowledge of 'hidden structure' in phenomenon. Nowadays network analysis has become an interdisciplinary area of study from anthropology, communication, computer science, education, economics, political science criminology, and other disciplines (Martin and Wellman, 2010).

1-3 SITE OUTVIEW

1) Industrial history on Janghang in Korea in modern

Janghang is located in Seochon-gun, South chungcheong in South-Korea, This site was constructed for the colonial industry city in 1920 with Japanese. In 1918, Japan had a situation which was the rice crisis, they needed rice. And they tried to get rice from colonized Korea. And for invading China in 1930's, Japan needed money to buy arms. Thus, they gathered the gold for exchange for military equipments and others.

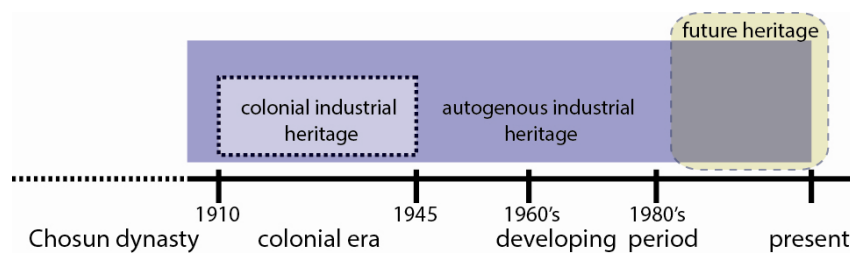


Figure 4. Division of Industrial heritage in Korea (Park, 2012a)

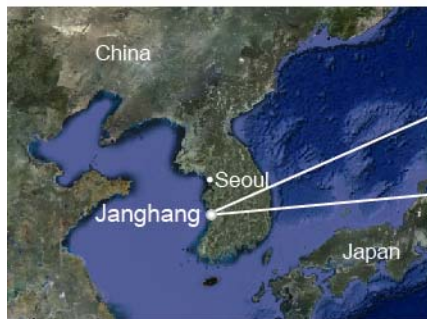
In 1929, Japanese started landfills, and made rice fields on Janghang. Janghang port was followed in 1932 and Janghang refinery was constructed in 1936. It was taken out from Korea to Japan about 0.6 million bag of rice and the whole gold which are produced in Korea. After independence, 1945, most of them were stopped. During 1960~80's, however, Korean reuse this site for industrial development in Korea. Then Janghang is a most famous and symbolic of modern industrialization site in Korea. Therefore, Janghang industrial site contain not only colonial industrial memory but also autogenous development memory during from 1920 to 1980's.

Table 1. Description of the Study Area

Period	contents
1929-1945	1928 decision of railway station
	1929 start landfill
	1931 opening Koynngnam railway
	1932 opening Janghang port
	1936 start Janghang refinery
1945-1957	1938 raised to Janghang-eup
	1945 independence, stopped Janghang refinery
	1955 nationalization of railway changed name to Janghang railway
1957-1989	1957 President Lee, seungman visited
	1961 Chair Park, junghee visited
	1962 restart Janghang refinery
	1979 reconstructed the chimney of Janghang refineryJ
1989-present	1989 closed Janghang refinery of melting processing
	1993 constructed Kumkang river weir
	2009 closed ferry from Janghang to Gunsan
	2010 stopped old railway and station

2) Historical places on Janghang in modern times

Janghang has three important industrial heritages which are Janghang refinery, port and railways & station. However, industrial facilities which are warehouses and factories were constructed to assist three major industries. And there were followed housings, commercial buildings, offices and educations. Thus Janghang included not only industrial building but also residence and the other places for daily life, and all are related with each other. According to Park (2007), he found 32 historical places, exclude private house (figure 6). However, he did not show its relative relations.



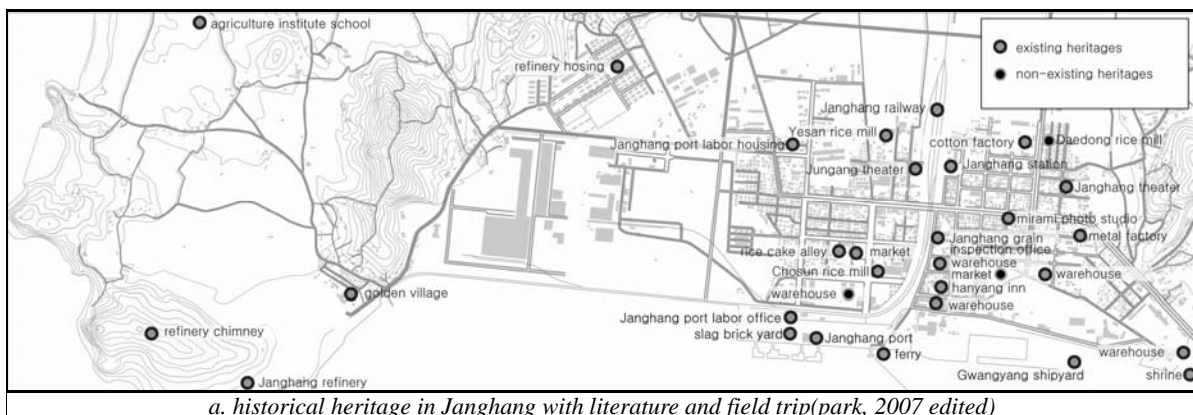
Location: Janghang-eup, Seocheon-gun, South chungcheong in Korea

Area: 18.80 km²

Population: 13,890 persons (Seocheon-gun, 2011)

a. Location of Janghang industrial site

Figure 5. Study location and general information

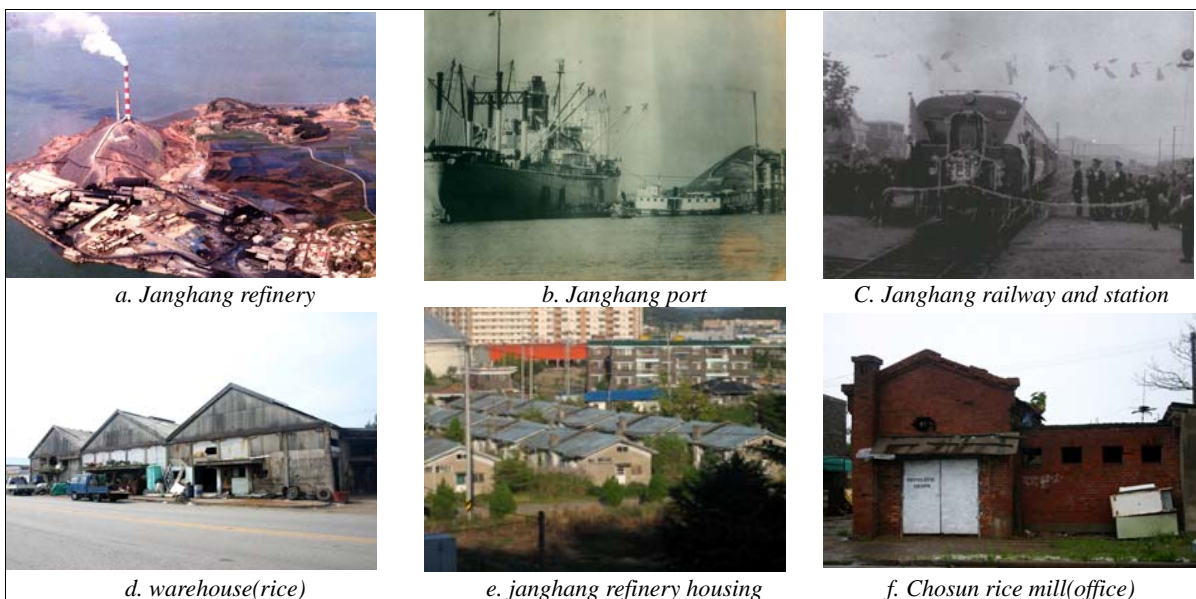


a. historical heritage in Janghang with literature and field trip (park, 2007 edited)



b. historical places in Janghang with place memory

Figure 6. Comparing between Park(2007)with literature and field trip and this study with place memory about historical place in Janghang



a. Janghang refinery

b. Janghang port

c. Janghang railway and station

d. warehouse(rice)

e. janghang refinery housing

f. Chosun rice mill(office)

Figure 7. The representative industrial heritage in Janghang

2. METHOD

This study explores some of the ways in which are the semi-standardized interview, the frequency of words and the analysis of semantic network from oral statement.

2-1 INTERVIEW

It progressed 20 interviews during 9 days, took from minimum 18 min to maximum 144 min. This study, however, excluded the 6 interviews below 30 min which was not performed faithfully. It exercised from individual to group (max 4) and performed 14 interviewees, totally 25 local people. It took totally 853 min and average 61 min.

This paper selected the interviewees who lived in Janghang during 1920-1980. For choosing, we first got the some name list from local government officers, community readers and a village head. Snow balling method is used to find properly interviewees.

For structuring interview, we defined and divided questions to the period and life; childhood, adolescence, manhood and daily, work, commercial, education, leisure and rest.

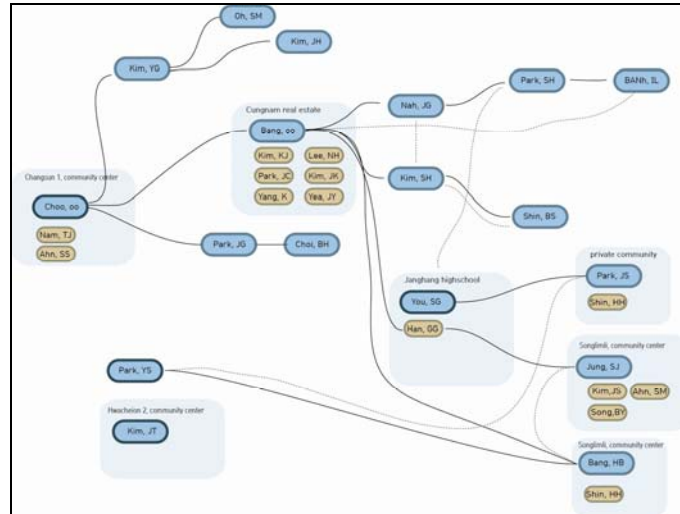


Figure 8. Processing to select the interviewee in Janghang

2-2 FREQUENCY ANALYSIS WITH PLACE MEMORY

Interview data were recorded and detached to words. Words are part of place memory include places, events, persons, time, food, regions and others. Thus place memory is contained not only material but also immaterial information. Materials are included places, products, food, region and immaterial are covered with event, behavior, phenomenon, time and language. This paper, however, is limited the subject on place and materials (product and food). To executing, It is used the programs that are Microsoft excel 2007 and Adobe illustrator CS5.

2-3 Semantic Network Analysis

For analyzing the semantic network, first we divide material and immaterial in the top 5%, 10% and 20% words. It is exchanged to matrix for calculating. The matrix is analyzed a centrality and modularity, and draw. It is used network programs which are Pajek and Gephi for visualizing.

3. RESULT

3-1 Frequency about Place Memory

1) Place frequency

Local people used total 23,252 words during interview. The numbers of words related with 'place' are 1,301 words that are mentioned by interviewees. It is merged into 173 words because of overlap places. The interviewees illustrate only 173 places in Janghang.

Table2. Frequency analysis of words from Place memory

		frequency	%	frequency (merged similar words)	%
material	Places	1,301	6.2	173	2.3
	Regions	284	1.2	118	1.6
	the others	1,500	6.5	161	2.2
immaterial	persons	201	0.9	95	1.3
	time	32	0.1	16	0.2
	the others	169	0.7	82	1.1
others		19,765	84.4	6,826	91.3
sum		23,252	100.0	7,471	100.0

Janghang refinery (164) is the most mentioned place. Followed, Janghang port (84), Warehouse (49), Refinery housing (39), rice mill (38) and Janghang railway & station (38). This result is similar Park (2007) who researched the most historical industrial heritage in Janghang.

Table3. Frequency about places words from Place memory

distribution frequency (%)	cumulative frequency (%)	appearance frequency (max~min)	contents
0~5%	38%	164~30	Janghang refinery, Janghang port, warehouse, refinery housing, rice mill, Janghang railway and station, factory, theater
5% ~ 10%	55%	29~20	market, refinery chimney, sand beach, golden village, fine forest, bars, new village, fish market, inn
10% ~ 20%	73%	19~11	vacant yard, rice cake alley, ferry, Jiguji(village), new village market, Janghang agriculture high school, Chosun rice mill, bank, Hansol paper factory, agriculture institute school, shrine, Jungang theater, Kumkang river weir, Janghang theater, front view mountain, Fungnong factory, Dangkmae, cotton factory, rice warehouse, photo studio
20% ~ 30%	82%	10~6	Docsal (wall for fishing), airfield, rear view mountain, Daedong rice mill, LG metal factory, Janghang town office, Janghang grain inspection office, Janghang port labor office, biotic resources, Marine bio technology, Yongdang hill, oil factory, concentrate factory, new market, Oksan mill, Haeyang restaurant

Under 5 % (p=8) places can explain total cumulated 38% place words. The places of 5% show us all the most symbolic and historical place. 10 % (p=17) places explain total 55%. It is included not only historical place but also meaningful place for local people. For example, old market, historical sand beach and grouped bars near to New market and Golden village. 20 % (p=37) places explain total 73 %. It contains the little historical and meaningful places, Janghang and Jungang theater, Mirami photo studio, Rice cake alley, Janghang agriculture high school. 30 % (p=53) places explain total 82 %. Even though it contains not enough historical places, it showed us meaningful place in local people. It informs us detailed place. For example, airfield which is not existed in field, 3 major rice mill factories which are not found in the literature. It gives us the information of concrete places. Over 30%, it shows us low meaningful places. But, some place words give us very important information. For instance, the first market in Janghang (not exist), Son's house which is constructed in 1940's and Mr. Son worked as the chief of Chosun inspection office.

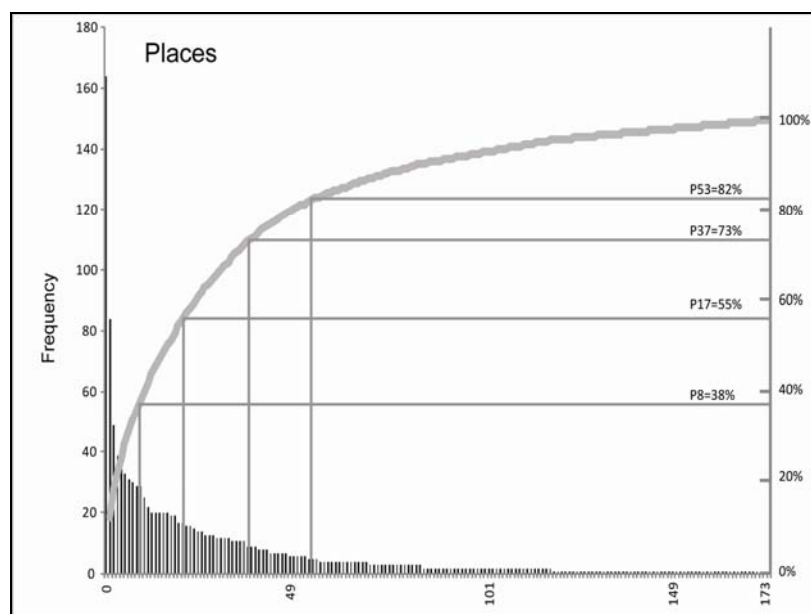


Figure 9. Frequency distribution graphs (black) and cumulative frequency (grey lines) of places from place memory

As a result, 5% place words inform us the most symbolic and historical place in Janghang. And 5~10% show us considerable meaningful places. 10~20% give us meaningful places. 20~30% tells us a little meaningful places. Thus, if we understand until 20% places, we can explain 73% places and important place in Janghang. It is similar to Pareto's Law in economy; 20% can explain total 80%.

2) Materials: product and food

Local people referred total 761 words related with product and food, and said 152 words excluded overlap materials. Rice (45) is the most mentioned material, followed, ore (40), water (26), gold (21), ship (21) and fine tree (20). Under 5 % (p=8) material can explain total cumulated 28% words which is related with material. The mentioned material is related with four historical industrial places which are Janghang refinery, Janghang port, and Janghang railway & station and rice warehouse. The 10 % (p=16) material words show us the relative and representative daily life in local people. 20 % (p=30) material explain total 61 %, and most of them are related with Janghang refinery. 30 % (p=46) material shows us total 74%. Materials explanation is lower than places.

Table 4. Frequency about Materials (product and food) words from Place memory

distribution frequency (%)	cumulative frequency (%)	appearance frequency (max~min)	contents
0~5%	28%	45~19	rice, ore, water, gold, ship, fine tree, melting pot, cow carriage
5% ~ 10%	46%	18~14	sand, alcohol, wind, salary, carriage, fish, machine, bronze
10% ~ 20%	61%	12~8	fertilizer, slag brick, barley, slag, smoke, tree, rice, steel, straw, money, stone, rice cake, food, air plane, straw bag
20% ~ 30%	74%	10~4	car, clam, excrement, soil, limestone, bedrock, Korean A-frame, wind ship, water storage, flour, ice fish, sewerage

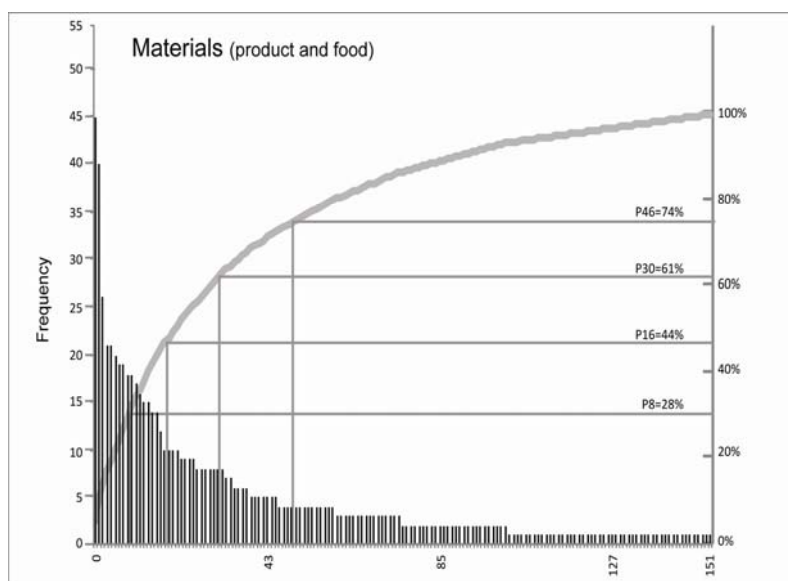


Figure 10. Frequency distribution graphs (black) and cumulative frequency (grey lines) of materials (only product and food) from place memory

3-1 Analysis of Semantic Network with Place Memory

1) Network analyzing with places

In this part, we analyze the relation about places and illustrate to the visual map with words in place memory. With frequency data, 30%, 20%, 10% and 5% of places are analyzed to the semantic network.

As a result, although places locate with physical distance in space, places are re-distributed with the gravity of relation. Typically, Janghang refinery, port, railway & station and rice warehouses are the most centered places, and the other places are spread outside of it. All of networks have similar shape. Increasing the place words, it is not effect to the basic structure of network.

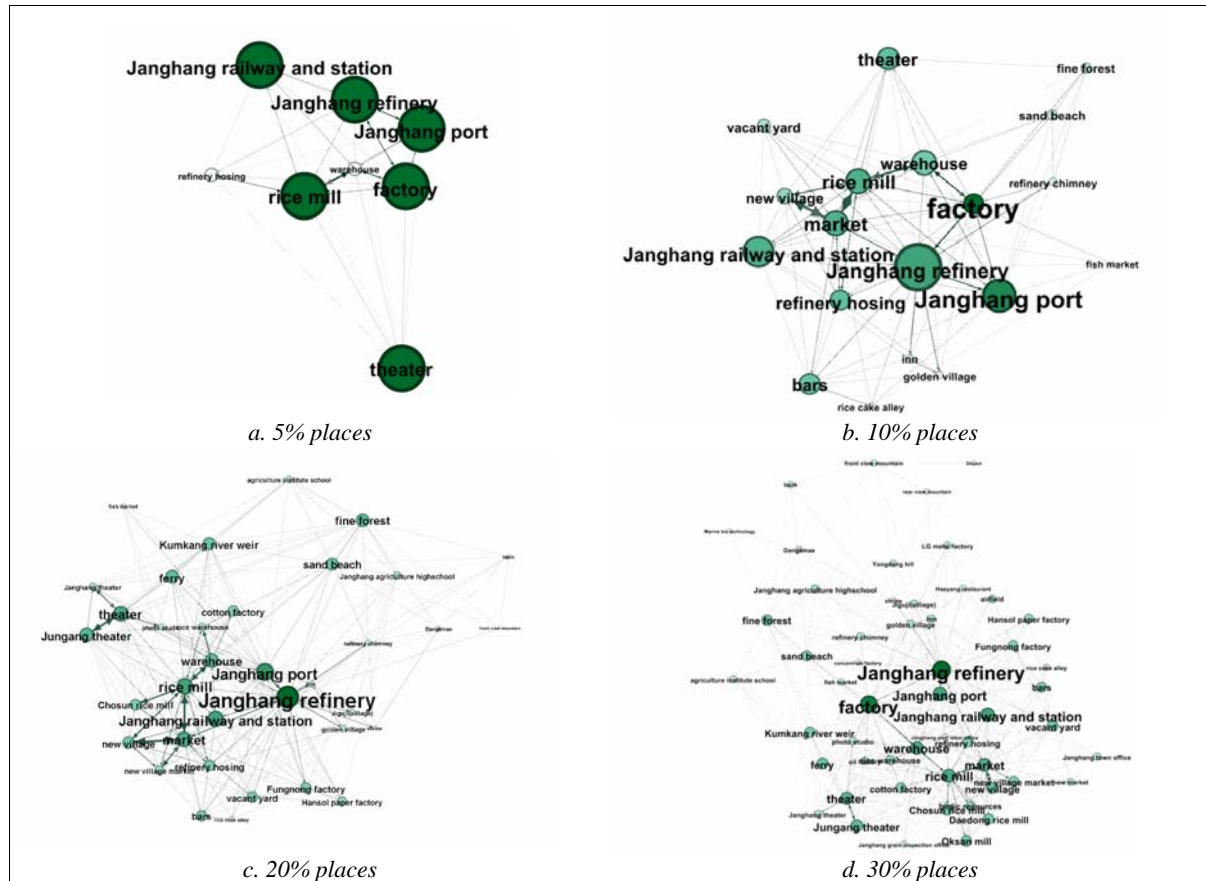


Figure 11. Semantic network of places in Janghang

And then, we use the modulation to understand about the grouping of place. Janghang region is divided into 5 groups; Groups which are related with the refinery, rice, culture and commercial in daily life and Fine forest. Through place memory, local people explain Janghang to the five place groups during 1920 to 1980's. Janghang refinery is the most dominant group in there. And the relation of rice industries which are rice mill, warehouse, railway and station are followed. Rice was exported to Japan in 1920-1940's and imported to Korea in 1960-80's. Lots of local people remember about traces. Culture and commercial group are explained about daily life in Janghang. Janghang has two theaters which are very important place for local people about the life of culture. And New market and New village are also meaningful places for local people. Actually, New market and New village are located in the main region in Janghang at present, which are named 1920~30's and are exchanged the main function to the market and village.

However, even though Janghang refinery chimney and pine forest, sand beach are not belong to the same group, those three are mapped close to each other. Actually Janghang refinery chimney is viewed at the sand beach as a important visual landscape point.

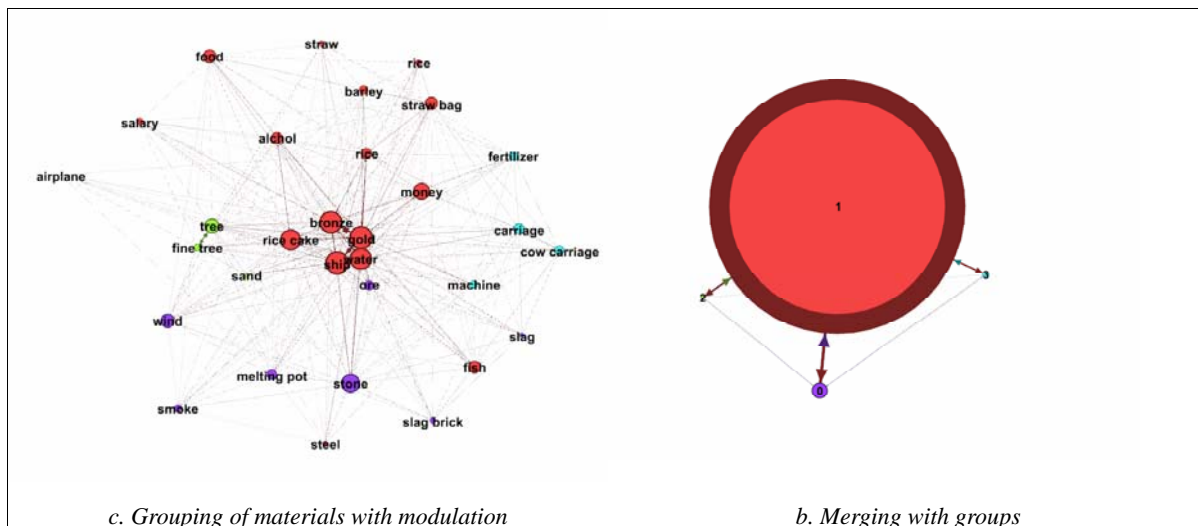


Figure 13. Semantic network of material in Janghang

And it is exercised the modulation for the grouping. Materials are divided into 4 groups; They are related with the refinery, rice, culture and commercial in daily life and Fine forest. However, the related with places of the refinery are the most dominant group. When Janghang refinery was operated, local people earned money from it, bought rice (for food) and enjoy alcohol. That is related with rice industry. They imported and exported rice and ore for food and manufactured it as the packing, making the straw package and carrying.

As a result, the divisions of materials are similar with the group of places. However, the semantic network explanation of materials is the higher than places.

4. CONCLUSION

Local people, who have produced and consumed of the landscape in place, accumulate landscape information on long term memory. In this article, we extract landscape information from place memory with semi-standardized interview and carry out Janghang industrial site with frequency analysis and semantic network.

Exercising the frequency analysis with interview recordings, we certified the important places and figure out the order of priority places to conserve in Janghang. The part of this study and Park (2007) who has studied Janghang with literature and field survey get similar results. It means that Place memory can assist the existing methods which are literature review and field trip.

With semantic network analyzing, we can recognize that the places of Janghang are consisted of 4 major industrial facility and the other places are followed its outside in the relative space. Semantic network can represent to visual map. In the part of place and landscape research, it is difficult to represent to the visual map. Lynch (1960), Nasar (1998) and the other researchers tried to mapping and show us the cognitive map. However it is criticized because of the subjective by the expert. Using the place memory of local people, we accomplish the objective and visual map. In addition, Place memory include not only places and the other materials but also immaterial. Thus we can understand and interpret more comprehensive the place and landscape.

This article has a value when we revitalize Janghang with industrial heritages. First, the meaningful and historical places are selected for the conserving in the order of priority. Second, we can understand the relative relation of place with visual map. Third, this study is found not only places but also the other materials and immaterial. So it gave us fluent contents in planning and design. For example, gold and rice are the most important materials in Janghang and that have lots of stories and traces, and it connects with Janghang refinery, port, railway and mill warehouses.

Previous discussion about the conserving of Janghang industrial site, they only focused on the reconstruction fact of Janghang refinery chimney in 1979. This study show, however, that industrial site have not only the physical buildings but also material and invisible relations. Maybe, it is the more important to conserving the relations in the industrial site

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