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Master's Thesis of Byungkuk Ahn

Optimizing Internal Marketing Strategy

– Identifying Organizational Factors Leading to
Enhanced Job Satisfaction –

내부마케팅 전략의 최적화: 직무만족도를
강화시키는 조직 변수 분석

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Abstract

In order to optimize internal marketing strategy, the topic is about identifying factors that affects job satisfaction either negatively or positively with the tool of text mining and machine learning. It has been long discussed that job could also be treated as a product for employees or job seekers. Once company provide those people with satisfying value such as high salary or sufficient welfare, it is also possible to implement business strategy more efficiently effectively because employees would put their best effort in their role. However, values that employees expect from companies are not stable and continuously changing depending on generation or social environment. With NLP, hierarchical clustering, desirable or avoidable factors were revealed and how they interact with one another.

Keyword : Internal Marketing, Job Satisfaction, Approach–Avoidance Conflict Theory, Text Mining, Machine Learning, Network Analysis

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Chapter 1. Introduction

1.1. Introduction

These days, job satisfaction has been a popular topic in both practical field and academic researches. A number of companies are providing their employees appealing monetary benefits or welfare systems so that they could put their best effort in their job. Those efforts to satisfy their workers is getting diversifying as years are passing by because benefits that employees work are not that simple. For example, in South Korea, gender equality has been an serious issue in their society. In order to fulfill people's developing needs, many companies are trying to secure the parental leave for their employees not only just for mothers but also for fathers so that mother and father could have their own time with their family and at the same time could keep their careers improving. Lotte Shopping in retail industry was awarded for sufficiently granting parental leave for fathers. More than 2,000 male employees had used the parental leave for almost two years, and keep modifying the parental leave system to reflect workers' opinion (Kwangmin, 2019). In the case of LEGO company, the firm let their employees play in playground or visit museum during office hour. CEO of the company believe that their core power of business comes from creativity of their workers, so company should motivate their workers to be creative all the time (Vanessa López Romero, 2018).

In academic fields, many researchers have conducted lots of experiments, surveys and studies in order to find out whether what effect job satisfaction would have in work places. According to Edwin (1969). The definition of the term was that being one of attitudes which are related to work, it referred to a status of an individual's emotion based on experience or evaluation from one's work. The early studies conducted revealed that this satisfaction is not just simply from monetary benefits. One's satisfied emotion rather consisted of complex and multidimensional aspects. The beginning of studies about effects of employees attitude on work started from Hawthorne effect (Parsons, 1974). Researchers conducted an experiment in order to find out whether physical working condition such as intensity of light would influence worker's productivity or not. However, instead of such conditions, workers were more affected by the perception that they were the subject of external experiment. Since this finding was revealed to the world, other researchers tried to investigate what other factors could affect employee's attitude.

Having a long history in academic field, other researches have pointed out the possible factors that might affect individual's satisfaction or attitude toward their work. There were internal factors and external factors known to have an effect on job satisfaction. When it comes to internal factors, emotion, personality, interest on task, attainment of success, application of skills and involvement in one's job were pointed out to be important factors that could increase job satisfaction (Weiss, 1999; Brief and Weiss,

2002; Backam and Lawler, 1971; Gruneberg 1979). Regarding external factors, monetary reward, job security, safety of working environment, relationship with supervisors, relationship with colleagues and chance of promotion were proven factors that had significant impact on individual's satisfaction level (Dittrich, John E et al. 1979; Lloyd Reynolds, 1949; Fitzpatrick 1993).

However, these traditional works have a few limitations when explaining recent workers in modern companies. The main reason is that as time passes by, people's general opinion changes. Values that were once adored in the past would not matter that much in today's world, and people's expectation have dramatically changed. For example, In addition, safety of working environment was a general and critical factor when Reynolds and Shister (1949) conducted their research. This point made sense because at that time, manufacture was the major industry and many people worked in factory environment. However, in today's working environment, this is not the decisive job satisfaction variable, but rather a condition taken for granted. This is because main industry has changed into service or office job. A majority of people are working with computers, pencils or papers, not with heavy machines as in the late 1950. Consequently, what people value the most in their job has continuously changed.

Moreover, despite assuming that we are living in contemporary era, employee's expectation of their jobs would also vary by other conditions. This is because each culture or nation has their own standard of living in their community. For example, in late 2010,

hierarchical culture in work place has been a serious issue in Eastern culture. According to Kibum (2019), hierarchical culture was the main reason for entry level job seekers who do not want to be hired in minor companies. Among reasons written on this article, the main reasons was that such strict atmosphere would have the possibility of invading employee's private area or issues in communication. However, this strict or hierarchical culture has not been a social issue in western culture. Rather in U.S, health care system is a big issue in their society. Many employers in us provide various health insurance system to their employees to retain or attract capable workers within their organization(Sachi, 2019). This is powerful and appealing option for citizens in U.S because their general medical cost in hospitals are too expensive for an individual to handle by their own budget. However, in South Korea, health insurance has never been an attractive option for employees because national health insurance system ensures almost every citizens to use medical service with affordable price. The point is that even though people are living in same generation, it is highly possible that people would require different values from their work place depending on nation, culture, or social infrastructure. In conclusion, because of dynamic nature of people's needs, it is necessary to investigate employee's opinion about what they want from their work places.

In this paper, our focus is on how to find those values of employees in South Korea. With the tools of text mining and machine learning, it would be possible to suggest Korean companies

to introspect their business culture and suggest a goal that they should pursue. In addition, even though specific analysis results may not other countries or culture, the methodology in this paper would be still valid. Other researchers could apply methodologies and tools of this article to their own situation and come up with different analysis results. That distinctive result would give another useful insight customized for their culture or circumstances. Based on internal marketing, Approach–Avoidance theory, text mining, machine learning and NLP (Natural Language Processing),

The final goal is to transform general ideas into strongly structured research questions. General ideas from theoretical research is about identifying which factor is similar to another, and which one is the most important factor among others. With the tool of text mining and machine learning, it is possible to reframe these concepts into three research questions. First one is how to categorize approach and avoidance factors in terms of jobs by using frequency analysis tool, second is to find which factors are similar to one another with the hierarchical clustering research, and last question is to verify which factor has higher influence than others, using network analysis. Overall process is going to be handled in detail on following theoretical background and research design sections.

1.2. Theoretical Background

1.2.1 Internal Marketing

In the marketing context, not only does marketing for customers has been discussed but also the importance of marketing for employees, called internal marketing, has been emphasized in the business field. It is essential to define what exactly internal marketing is, what factors compose internal marketing, and why it is so important when it comes to implementing business strategies.

The idea of internal marketing first started in service marketing context that if company wants to increase customer's satisfaction, what they truly need is self-motivated and satisfied employees. This concept has been long discussed in marketing context as internal marketing(IM). According to Berry's definition(1981), its definition is viewing employees as internal customers, viewing jobs as internal products that satisfy the needs and wants of these internal customers while addressing the objectives the organization. Thus main idea of IM is that, to have satisfied customers, firms should possess satisfied employees(George, 1977).

Various studies have dealt with IM field, and their specific definition or academic concept was not aligned with consistent standard. Mohammed(2000) have published about thorough literature work of IM, in order to precisely define IM. In this paper, there were five essential elements of IM. First factor was employees motivation and satisfaction. Second element was

customer orientation and customer satisfaction. Third element was inter-functional co-ordination and integration. Fourth element was marketing-like approach to the above factors. Fifth element was implementation of specific corporate or functional strategies. Of course, not all IM papers deal with these five factors, but essentially include at least one of those factors. After this settlement of IM's notion, this academic concept became a strategy not only for service companies or stores but also for overall business norm whose purpose is to provide best quality of service or product toward customers.

The reason why IM is important is successful IM drove positive business or corporate outcome. For example, Shueh-Chin(2011) published a research what effect internal marketing would have in the context of education field. The author focused on the dynamic relationship among job involvement, job satisfaction, organizational commitment and internal marketing with SEM models. The model result revealed that IM had positive direct effect on those three other variables. This analysis result could also be found in other fields. Ching-Sheng(2007) had done a research in nurse job fields in terms of effects of IM. The researchers were curious that whether IM would have significant effect on nurse job, which was known for its high work intensity. With survey work and SEM modeling, they collected responses regarding internal marketing, job satisfaction and organizational commitment. In the paper, the IM had positive influence on both job satisfaction and organizational

commitment. In addition, job satisfaction partially mediated the relationship between IM and job satisfaction. This tendency was witnessed in other business fields such as non-insurance field or banking sector (Yung-Ming et al. 2009; Khalil et al., 2009). Thus, if a company wants to reinforce its performance in the market, optimal IM is not an optional strategy but an essential precedent.

1.2.2 Identifying Factors for Optimal Internal Marketing

The necessity of IM has been discussed above section. Next step is to find what employees want from their working environment. There would be various factors influencing job satisfaction or job attitude. Through literature research, it was possible to know that many authors have tried to identify what factors there could be. According to Dennis (2002), there were five elements that had direct impact on job satisfaction and pride; role clarity, evaluation of reward systems, work environment, evaluation of management and organization culture. However, there five factors are limited to include all the factors related to job satisfaction. In order to solve this problem, I have referred to the Irene's work(2006), in which researchers went through 24 papers that dealt with factors influencing job satisfaction. Variables were divided into two categories. One was increasing factors and the other was decreasing factor in terms of job satisfaction. Each paper went through evaluation process with five criteria. First standard was whether a random sample was taken in the experiment or

survey, second was if researchers mentioned the generalizability of results, third one was if non-responders analyzed in paper's model, fourth criterion was that validated list of questions was used and the last one was which statistical analysis was adapted. With these evaluation standards, the author was able to suggest statistically significant factors that could affect job satisfaction.

However, job satisfaction antecedents could change depending on other conditions such as country, gender, industries or generations. For example, factors that younger generation wants could be different from those that older generation needs. Thus, it is necessary to investigate which factors are the most important variables in current Korea labor market.

1.2.3 Categorizing Factors that Influence Jobs Satisfaction

In this paper's point of view, jobs are considered as a type of a product. Every product has its own pros and cons, and people have to decide for themselves which one to purchase and which one not to. In addition, choosing a job is more complicated just buying regular staple or buying a car. People have to put their tremendous amount of effort and time to find a job. For example, he or she would have to consider not only salary or welfare of companies but also think about other critical variables such as location, company's culture, or work-life balance. Unfortunately, it is almost impossible to find optimal firm that meets every standard of

particular employee. In the end, whether people like it or not, they have to settle to one available option.

In order to explain this complicated process, Approach–Avoidance Conflict Theory (Lewin, 1935) provides proper clue of how those decision process might work and how people make their final decision. In this theory, there are three conflicting situations which people face. First is approach–approach conflict. This category assumes a situation when people have to make their decision among positive factors. For example, it is hard to make a decision which ice cream to choose because that person had limited amount of money. Second category is avoidance–avoidance conflict. This situation is the opposite from first case. People have to choose one negative option in order to avoid the worst outcome. Third is approach–avoidance conflict situation. When products or services have both advantages and disadvantages, people tend to feel inner conflict (Glasser, 1998). Among those three types of conflicts, the last conflict type, approach–avoidance, is the best theory that could explain job market situation.

Further research of approach–avoidance case revealed how people make their decisions. Cacioppo (1997) argues that when individuals are in situations of approach–avoidance conflict, people were highly likely to rely on external information sources, forming their attitude toward one product or service. Their attitude could be reinforced either positively or negatively depending on the situation, object or initial attitude. If one external information supports of approaching factor of product, then one is likely to have final

positive attitude toward certain object. However, once one individual reads information that describes negative factors of a product, that reference might reinforce avoidance factor. Thus, it is essential to confirm how to divide factors with approach or avoidance standards.

To sum up the main content of this theory, if jobs are considered as products, dividing factors with approach and avoidance categories is necessary procedure in order to see how people choose their decision or form attitude and satisfaction toward such jobs.

Chapter 2. Research Design & Method

2.1. Research Question

To remind the main point of literature work, internal marketing has been the key issue when it comes to meeting both companies' purpose and employees' goals. However, detail wants of employees rapidly changes depending on various factors such as nation, generation, or personal background. Based on Lewin's theory (1935), first task is to categorize factors as approach or avoidance valences. In addition, in order to see clearly among those factors, I collected data from companies whose job satisfaction level is high and from firms whose job satisfaction level is low. By dividing two groups with high or low job satisfaction, it would be possible to see clear difference in approach and avoidance factors

of each group and to conclude which factors are more powerful for current Korean employees. In conclusion, research question would be as following sentences and figure 1.

Research Question1. When a job is viewed as a product, how factors could be categorized into approach factors or avoidance factors?

Research Question2. Are there any difference of approach-avoidance factors between high job satisfaction companies and low job satisfaction companies?

Research Question3. Are there any relationships among those factors? Which factor is more important than other factors?

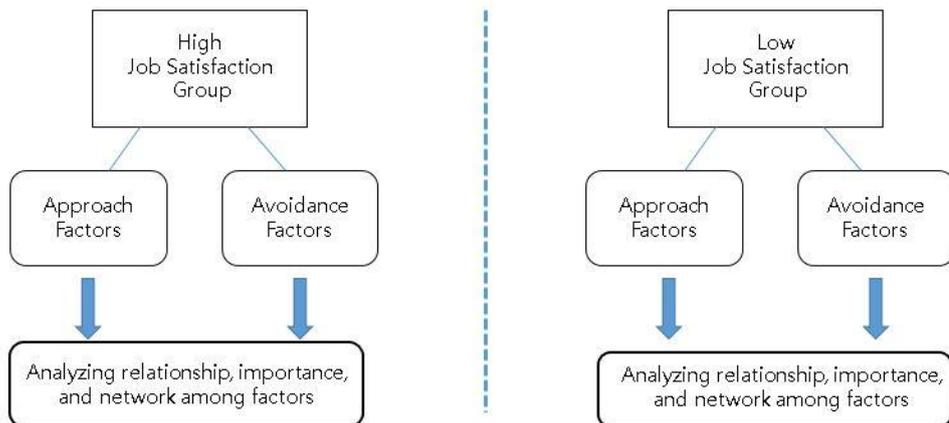


Figure 1 Visualizing Research Question

2.2. Data Collection

2.2.1 Source of Data and Method

In order to proceed above research questions, employee's honest thoughts, opinions and feeling toward companies is vital and essential. With traditional method, we could conduct survey, asking employee how they think about their firms in terms of job satisfaction. However, there are a few limitation of this method. First, it was not an efficient way to collect people's opinion since it requires tremendous amount of time and effort. Simply there are not enough time to conduct survey with limited amount of budget and human resources. Second, the most problematic one, is that there was a high possibility that people would not provide honest thoughts since they are concerned of the possibility of suffering from back fire.

However, there were several data sources that could resolve problems of survey method. Several websites that provide information about company information through reviews written by employees such as "Glassdoor" or "Job Planet." These websites provide useful text information related to job satisfaction. Employees could describe advantage, disadvantage, and feedback opinion of their current or former companies. Moreover, they also could rate companies with following five standards in 5 point scale; salary and welfare, possibility of promotion, work-life balance,

company culture and executives' performance. With this data source, approach and avoidance factors could be easily divided because there is clear explanation which is good or bad in the written text with separate field.

Text data or scale in Job Planet or Glassdoor has recently been a major data source in various researches. Yuan (2017) has published a paper analyzing relationship between corporate culture and financial reporting risk. In this paper, they also used text data in Job Planet. In addition, Yeonjae (2019) have tried to identify and analyze job satisfaction factors from job planet with topic modeling or sentiment analysis. These researches could be a strong supportive research that text data from Job Planet website is credible and have value for analysis.

2.2.2 Differentiating Point from Former Papers

Considering that there are already a number of research based on Job Planet, differentiating this research from former researches is crucial. In this paper, there are two fundamental unique points. First, the process of NLP (Natural Language Process) is different from former theses. Former thesis used morpheme as their basic unit of analysis. For example, single verb, noun or adjective was tokenized in data processing procedure and then those base tokens were applied to models such as LDA topic modeling or sentiment analysis. However, considering features of Korean language, separate morpheme could not provide useful

information about the sentence or paragraph. It is more meaningful to use phrase or syntactic as base analyzing unit than separate morphemes. By combining verb, adjective or noun as a keyword, it is possible to reflect functions of morphemes and full meaning of sentence at the same time (Yi-Gyu hwang, 2000). In other words, full phrases and sentence could be transformed as keyword or abbreviated phrases, which could sum up full text information.

To support this argument further, there are several text mining paper that used keyword or abbreviated phrases as base analysis unit. According to Ratner (2002), one sentence or phrase regarding one topic could be considered as single unit of text analysis. This could be a proper way of NLP when it comes to analyzing unstandardized data such as text. In addition, Jin-Myong Lee (2015) conducted a text mining research to explore consumer responses to the cross-border e-commerce. He also used keywords as models base analysis unit and found out more meaningful research outcomes with models.

Second different point from former researches is the applied models for text mining is different. I am not arguing that models in former papers are inferior and model in this paper is absolutely superior. The point is that with new modeling method, it might be possible to provide new insight toward the dataset which other models might have overlooked. Jin-Myong Lee (2015) used hierarchical clustering and network analysis in order to find out

what factors are approaching or avoidance factors for cross-border purchase in e-commerce market. Hierarchical clustering modeling could give clue to relationship among approach-avoidance factors, and network analysis might be able to show which factor possesses strongest influence power in their network eco-system.

2.3. Data Modeling

Text mining and machine learning model are in the core of the analysis of this paper. Based on NLP and big data, text mining is a technology that extracts meaningful information from text (Fan et al, 2006). There are typical and specific models that are frequently used in text mining such as classification, clustering, information extraction or network analysis. In this research, frequency analysis, clustering and network analysis is going to be applied as main model. This is because the main purpose of this study is to find relationship among keywords or clusters and to compare the importance of each keywords.

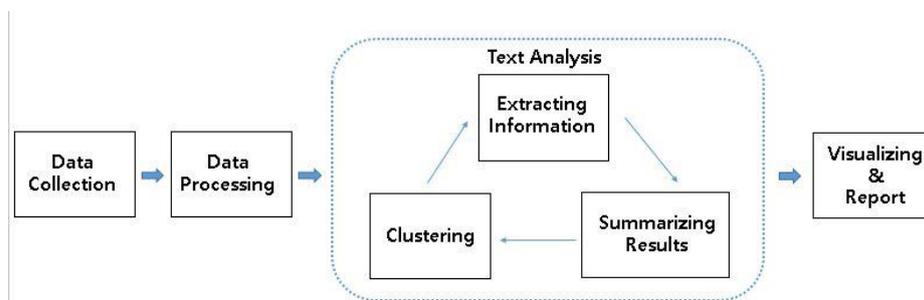


Figure 2 General Procedure of Text Mining(Keun-Yung Kim, et al., 2009)

2.3.1 Conducting Data Collection

In this paper, modeling process would follow five steps. First step is data collection. Data collection was conducted on Python 3.0 in Jupyter Notebook based on Selenium and BeautifulSoup packages. Information source was from Job Planet website. This website provides company information to web users, including find salary information, job opening, education opportunities, reviews and tips about interviews. Among various services they present, I have focused on company review page. There are five useful data on this sector; title of a review, advantageous part of a company, drawback of company, personal opinion of company, scores in terms of five criteria, and demographic information. Advantageous part and drawback part describes pros and cons of company writers experienced, and those words could be considered as approach or avoidance factors respectively. Personal opinion and review's title contains both approach and avoidance keywords, so these mixed contents is going to be divided in latter part of analysis. Other parts such as demographic information and score part was not included in final analysis, yet kept for further research. Specific data format is as following figure 3

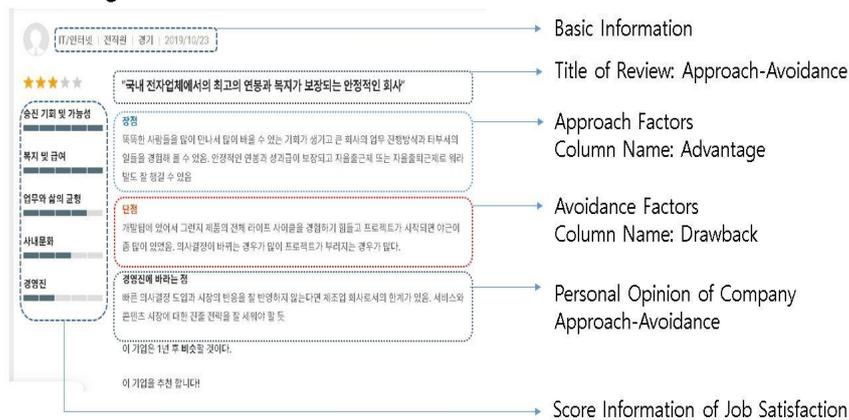


Figure 3 Job Planet’s Company Review Page and Information

In Job Planet website, company reviews were collected in total six companies, dividing them into two groups. One was low job satisfaction group whose overall satisfaction score was lower than 3.2 points. The other was high job satisfaction group whose overall satisfaction score was higher than 3.8 points. Each group consisted of three companies and their total text observation counts were 264 and 294 respectively. These observations were yet messy and not processed in this stage.

2.3.2 Data Preprocessing

In this stage, transforming text data into proper format for further analysis was the purpose. Some of collected text data had grammatical error and had to be corrected since those errors had a possibility of distorting analysis results. Grammatical error correction was done with HWP Office software. This software is

similar to MS Word specialized in Korean language. Other Korean government and institution adapted this software as their official report writing software. In addition, researchers have gone through all the texts in order to make sure that there were no grammatical error.

After the correction, each sentence was disassembled into morphemes such as preposition, nouns, adjective, adverb and so on. This process was completed with ‘Twitter’ package of KoNLPy. KoNLPy is a package of Python 3.0, whose main function is to analyze and decompose sentences in Korean language. There are five versions that KoNLPy contains; Hannanum, Kkma, Komoran, Mecab, and Twitter. The reason why Twitter is selected as final package in this research is that it shows excellent performance when it comes to dividing sentences into noun, adjective and adverb morphemes. Each of these morphemes would be included in frequency analysis in analysis part.

Final data preprocessing stage was to translate each sentence into keyword base information. As Yi-Gyu hwang (2000) argued that because of characteristic of Korean language, separate words or morphemes could not contain full meaning of sentence, so it is better to translate into keyword as base unit (Ratner, 2002). Keyword is made based on the combination of noun, verb, adverb and adjectives. For example, let’s assume that there a noun word ‘culture.’ When there is adjective such as ‘hierarchical’ or ‘strict,’ then whole phrase would be changed into ‘Hierarchical Culture.’ This ‘Hierarchical Culture’ has now become keyword. In addition,

there would be various ways to describe hierarchical culture. Someone might say ‘Our office has too strict rules and culture’ or others might explain, “Our company’s culture has strong command and obedience.” Actually, these sentences are explaining the same thing, so it is reasonable to standardize them into ‘Hierarchical Culture.’

There are total 62 keywords and they were categorized into approach or avoidance factors. The norm of dividing keywords into approach and avoidance was whether those words were from advantageous sector or drawback sector in raw data. For further research, they are stored in CSV file to serve as dictionary function in Python coding.

2.3.3 Frequency Analysis

In order to get insight about text data and tendency, two frequency analyses were done. First frequency analysis was based on morphemes. Purpose of frequency analysis on morpheme level is to catch clue of what words people used a lot in the review texts. From each group of job satisfaction, the number of nouns, adjectives and adverbs is going to be presented with top 20 frequency. However, explicit limitation of this analysis is that those word counts could not include whole meaning of sentences or phrases. In order to overcome this problem, second frequency analysis was conducted.

Second, keyword frequency analysis was done in each group

based approach–avoidance framework. Keywords has already been translated in data process, containing full meaning of sentences. Approach keywords are from advantageous parts in raw data and avoidance keywords are from drawback parts in the same data source. The goal for keyword frequency is to compare difference between approach and avoidance factors of each group. Eventually, it might be possible to identify what factors lead people to satisfy with their job, and what does not.

2.3.4 Hierarchical Clustering

In order to see the relationship among keywords, hierarchical clustering in machine learning was applied to keyword data. It is essential to understand what is hierarchical clustering, what benefits the model has, and how the parameters are prepared in the clustering. On the basis of this hierarchical clustering, it was possible to catch the similarity among approach or avoidance factors.

Hierarchical clustering is also called agglomerative clustering or bottom–up clustering. The idea is to separate all nodes and then combining each node with another node which is in the closest distance. By repeatedly conducting this combining process, all the procedures would be done when there is only one big clusters that contains all the nodes in the data. This is why agglomerative clustering is considered as bottom–up clustering (Johnson’s Hierarchical Clustering, 1967).

The benefit of using this clustering analysis is that it could provide meaningful insight about data structures. It is also often utilized in exploratory analysis when there is not enough information about data structure or investigating a new type of data. Of course, there are also obstacles in the method. For example, there is no rule how many clusters are the standard number. It is all on researchers' judgement that how many clusters would be the ideal for their dataset and what meanings they could find from the results. However, the advantage of the model remains strong and still. Once the distance type among nodes are defined, it could analyze any type of data even with no physical or actual distance such as text (Borgatti et al., 2002).

When it comes to modeling hierarchical clustering, several parameters and data should be prepared in advance; data format, defining distance and clustering method. Data format is based on counter-vectorizer matrix of keywords. In this research, there are four counter-vectorizer matrixes since two standards divide the whole data into four parts; approach factors of high job satisfaction, avoidance factors of high job satisfaction, approach factors of low job satisfaction, and avoidance of low job satisfaction. Each matrix is from each part of data, so it is going to be possible to focus on relationship among keywords only within their own groups.

Defining a distance among nodes, in this case among keyword, is necessary step of the analysis. There are a lot of distance type that the model could accept such as Euclidean, Jaccard distance, or cosine similarity distance. Cosine similarity

distance measure was chosen in this research. Considering the definition and former research examples, adopting this distance would be understandable. Cosine similarity computes inner product of two vectors and this result reflects angle between the two vectors, not physical distance or magnitude like Euclidean distance. Since this method could be applied to multiple dimension vectors, it is often applied in text mining or information searching (Singhal, 2001).

Next step is to choose a method of clustering. In other words, researchers have to define the nearness between clusters. There are a variety of ways to define the nearness such as diameter of the merged cluster, density based approach or average distance approach. In this research, average distance between all pairs (WTD) was selected because of following reasons. This clustering method includes every single node in the model, so there would no information losses. Because of this feature, this is also the most frequently used hierarchical clustering (Newman, 2004).

2.3.5 Network Analysis

Hierarchical clustering would be useful to identify which keywords is similar with one another. However, it does not tell us about which specific factor is more powerful than others and how they affect one another. Network analysis is an effective and efficient way to solve this problem. By calculating centrality, tie

strength and visualization, researchers would be able to tell which keyword is powerful than others and how they influence each other. All of the analysis and visualization is done with Python 3.0 Networkx package and Netdraw2 software.

When it comes to centrality, degree centrality and betweenness centrality were taken into account. Degree centrality metrics count the number of connections (edges) a user (vertex) has in the network (Derek et al., 2020). Given this definition of centrality, it is possible to calculate which node has the highest number of edges. This figure stands for how powerful a node or keyword is. The higher degree centrality figure is, the more dominating power a node has in the network (Leigh, 2016). Unlike degree centrality, betweenness centrality is calculated based on different definition. The term betweenness means that certain node is connecting various networks. If this centrality measure is high, then it is highly possible that if that node is deleted, then there would be no connection between certain two or more networks (Freeman, 1977). A node with high betweenness centrality is similar to an only road that connects two villages as to put a metaphor. In this research, this measure would give a clue that which approach or avoidance factors connects clusters or networks.

Next step in network analysis is to see tie strength among keywords. Tie strength generally means how strong the relationship is between nodes. However, there are many specific definitions when it comes to tie strength since network theory has focused on explaining relationship among actual people or in social

media. The key question is how we could define ‘closeness’ between nodes. For example, tie strength could be defined as intimacy, voluntary investment in the tie, time period of relationship or reciprocity (Blumstein et al., 1988; Marsden and Campbell, 1984). Tie strength of approach–avoidance keywords, however, could not be defined by such definition since it does not show same or similar behavioral pattern as human beings. So different type of measurement was necessary. According to (Benassi et al., 1999), tie strength could be defined and measured with frequency. For example, the number of time people meet, or at the same place could be considered as a signal that two people are in strong relationship. This concept could also be applied to approach–avoidance keywords context. Co–occurrence matrix contains information how frequently keywords are mentioned at the same time and this can be regarded as tie strength.

By just looking at centrality measures and tie strength, it might difficult to understand overall ecosystem of keywords. With the netdraw2 software, visualization of each four networks is presented so that readers could easily find out the whole relationship of network. With the visualization and specific figure report, readers could easily catch the overall structure of network and specific and important keywords in a group.

Chapter 3. Analysis Report

3.1. Frequency Analysis of Words

In order to find out how employees think about their job, two different text frequency analyses were conducted; one was morpheme base frequency analysis and the other was keyword base frequency analysis. Regarding the former one, it is hard to apply approach–avoidance frame directly to morpheme itself. Instead, the focus was on counting words of nouns or of adjectives and adverbs. In addition, this process was implemented on high job satisfaction group and low job satisfaction group respectively because the purpose of this goal is to catch a difference in the two groups. Most frequently mentioned 15 words were listed as in table 1.

High Job Satisfaction Group				Low Job Satisfaction Group			
Noun		Adjective, Verb		Noun		Adjective, Verb	
회사	232	하는	139	회사	274	하는	129
복지	166	좋은	131	사람	178	없음	90
일	143	많음	59	일	167	좋은	71
업무	134	많은	52	업무	127	많음	63
기업	133	높은	48	직원	111	없는	46
문화	116	없음	47	연봉	99	많은	43
사람	116	좋은	38	복지	99	좋은	41

분위기	108	있고	33	함	95	하기	32
직	101	자유로운	31	분위기	94	하면	32
연봉	99	하면	30	연차	84	없음	32
대기업	90	딱히	28	야근	75	자유로운	29
계약	85	해야	27	기업	72	젊은	29
근무	85	있습니다	26	문화	64	다양한	27
환경	83	없는	26	생각	56	많다	24
생각	72	좋고	26	팀	52	되는	24

Table 1 Frequency Analysis Based on Morphemes

Comparing the counts of noun, adjective and verb words between high and low group, there is not much difference in morphemes. For example, top five frequent noun words in high job satisfaction group were Company(회사), Welfare(복지), Work(일), Task(업무), and Corporate(기업), which could also be found in low job satisfaction group in high noun counts. Unique words in high job satisfaction group were Major Company(대기업), Contract(계약), and Environment(환경), while low job satisfaction group's noun counts showed Vacation(연차), Overnight Work(야근), and Team(팀). It might be possible to guess that job satisfaction difference between the two groups could be stemmed from these cultural points. Regarding verb and adjective, all the words in both groups were similar to each other. So there was no analysis points to focus on.

Even though this analysis might reveal small clue about where difference of job satisfaction between the groups might have started, it does not guarantee what cultural factors exists in companies and which were more powerful or not. In order to solve this limitation, frequency analysis based keywords are done.

In keyword frequency analysis, standard of approach-avoidance theory was applied to find out factors affecting job satisfaction. Especially by comparing approach factors between high and low job satisfaction group, it might possible to catch specific reasons for positive attitude toward their jobs. In the other hand, comparing avoidance factors between the two groups would reveal why people could have negative thoughts or behaviors of their jobs. Analysis result is as follows in table 2.

High Job Satisfaction Group				Low Job Satisfaction Group			
Approach		Avoidance		Approach		Avoidance	
만족스러운 복지	127	임직원 의사 소통 문제	647	의견 없음	95	임직원 의사 소통 문제	542
만족스러운 연봉	95	비체계적인 업무	86	자유로운 연차 사용	76	비합리적 대우	120
수평적인 문화	65	수직적 문화	61	만족스러운 복지	66	비체계적 업무	115
자유로운 출퇴근	49	의견 없음	56	수평적인 문화	41	의견 없음	87
의견 없음	48	추가 투자 필요	52	일과 삶의 균형	33	불만족스러운 연봉	80
자유로운 연차 사용	48	변화 필요	43	다양한 업무 체험	32	과도한 업무량	78
기업 자부심	43	과도한 업무량	41	입지의 편리성	32	비합리적 성과평가	53
다양한 인재	41	불안정적 회사 전망	39	다양한 인재	18	고지식한 상사	39
좋은 근무 환경	39	문화 혁신 필요	37	합리적 성과평가	18	수직적 문화	39
일과 삶의 균형	33	비합리적인 대우	30	개인 커리어 성장	14	사내정치	38
개인 커리어 성장	32	경영진 불만	30	만족스러운 문화	13	불안정적 회사 전망	31
전반적 만족	25	계약직 차별	29	개인의 역량 발휘	12	인재의 유출	31
적정한 업무량	20	불만족스러운 연봉	29	자유로운 출퇴근	11	불만족스러운 복지	31
개인주의	18	불공평한 업무량 분배	22	좋은 근무 환경	9	경영진 불만	29
안정적 회사 전망	17	단조로운 업무	22	적정한 업무량	8	일과 삶의 불균형	27

Table 2 Frequency Analysis Based on Keywords

Comparing keyword counts on table2 provided more information than morpheme counts as in table1. To focus on approach factor, top five frequent keywords in high group were ‘Satisfying Salary’(만족스러운 복지), ‘Satisfying Welfare’(만족스러운

연봉), ‘Adhocracies Culture’(수평적인 문화), ‘Flexible Worktime’(자유로운 출퇴근), and ‘No Opinion’(의견 없음). However, when it comes to low group’s approach factor, it showed different pattern. Top five words were ‘No Opinion’(의견 없음), ‘Flexible Vacation’(자유로운 연차 사용), ‘Satisfying Welfare’(만족스러운 복지), ‘Adhocracies Culture’(수평적인 문화) and ‘Work–Life Balance’(일과 삶의 균형). The most interesting points was that the most frequent word in low group was ‘No Opinion,’ and there was no keyword ‘Satisfying Salary,’ which was in the top side of high group. ‘No Opinion’ could be interpreted that employees was not able to or willing to find any strong approach factors in their group. In addition, considering that satisfying salary could be effective factor for enhanced satisfaction toward their work, lack of this particular factor could put a company into trouble.

Moving on to comparing avoidance factor, there are common keywords but at the same time contrasting points. The common observation was that both groups showed ‘Executive Communication Problem’(임직원 간 의사소통 문제) as their top avoidance factor. In addition, ‘Unsystematic Task’(비체계적인 업무) also worked as aggravating variable. This result implies that effective communication and systematic task should be on the foundation of company’s culture in order to maintain employee’s positive attitude toward their job.

Still there are contrasting avoidance keywords in the groups. There were three keywords which were absent or in low position of high group but in high rank of low group; ‘Improper Treatment’(비합

리적인 대우), ‘Unsatisfying Salary’(불만족스러운 연봉), ‘Unsatisfying Welfare’(불만족스러운 복지). Improper treatment and unsatisfying salary keywords were ranked as tenth and thirteenth in high group respectively, and unsatisfying welfare was not recorded. However, improper treatment was in second rank, unsatisfying salary was in fifth, and unsatisfying welfare was in thirteen rank. This contradicting point might imply that these three factors could significantly lead workers to be disappointed of their jobs.

With frequency analysis, it was possible to learn clues about reason why people would start to like or be disappointed with their jobs. However, simple counts of words do not tell us which factor is similar to one another and what relationship they have within their network. In order to answer these questions, it is time to move onto clustering analysis.

3.2. Hierarchical Clustering Analysis

With frequency analysis, identifying several important keywords and catching a few differences between the groups were possible. However, it did not tell us anything about relationships among keywords. For example, there might be cultural factors which are similar to each other, or could be a network that dominates overall structure. Hierarchical clustering gives us hint about how keywords or approach–avoidance factors could be grouped based on cosine similarity distance. Four clustering analyses were conducted because norm of approach–avoidance and

of high and low job satisfaction made four parts in total data.

For each part, dendrogram is plotted, viewing with lines dividing clusters based on the distance. Then in order to calculate a power of each cluster in the model, average proportion of distance each cluster compared to total cosine similarity distance in data. Some of clusters are separated into smaller sub-clusters when one cluster contained too many keywords or high proportion of total distance so that we could interpret meaningful implications from each clusters. Goodness of fit figure would also be suggested with a measure of cophenetic correlation coefficient (Sokal, 1962). Usually clustering models with values above 0.75 are considered as highly acceptable models. With these information, we would be possible to discover relationship among keywords or approach-avoidance factors. The sequence of clustering report would be as follows; approach factors in high group, avoidance factors in high group, approach factors in low group, and avoidance factors in low group.

3.2.1 Approach Factors in High Job Satisfaction Group

In approach factors in high jobs satisfaction group, there were four clusters on the basis of 1.45 distance. The goodness of fit was 0.515, which is not significant level compared 0.75. However, by looking at group average distance, it is possible to see which cluster has largest proportion in clustering result. Proportion of each group's average could give us a clue about a power of each cluster. Dendrogram was drawn as in figure 4.

Four clusters had their component with following keywords. First cluster had five keywords; ‘Nice Teamwork’(좋은 팀워크), ‘Stable Job Security’(고용 안정성), ‘Long Term Service

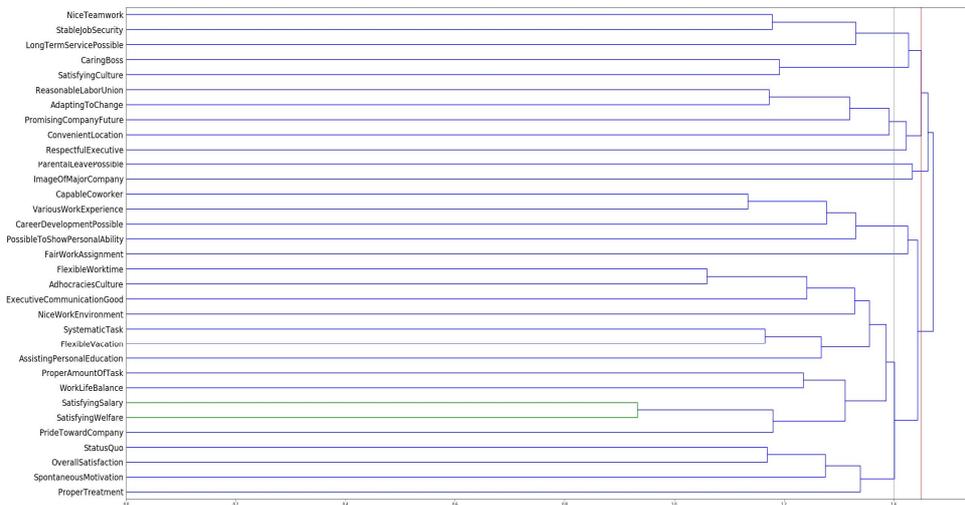


Figure 4 Dendrogram of Approach Factors in High Job Satisfaction Group

Possible’(장기 근속 가능), ‘Caring Boss’(유연한 상사), and ‘Satisfying Culture’(만족스러운 문화). Second cluster had also five keywords; ‘Reasonable Labor Union’(합리적인 노조), ‘Adapting to Change’(변화 수용 태도), ‘Promising Company Future’(안정적인 회사

전망), ‘Convenient Location’(입지의 편리성) and ‘Respectful Executive’(만족스러운 경영진).

Third cluster had two components; ‘Parental Leave Possible’(육아휴직 가능), and ‘Image of Major Company’(대기업 이미지). Fourth cluster had twenty one keywords. Considering distance proportion following table 3, however, fourth clusters had much more importance than others. Therefore, fourth cluster was again divided into four sub-clusters with 1.4 distance norm. With these detail clusters, it is possible to find meaning and similar keywords within this particular group.

Cluster	Proportion	Sub-cluster	Proportion
Cluster 1	0.02	Cluster 4 - 1	0.058
Cluster 2	0.04	Cluster 4 - 2	0.00
Cluster 3	0.01	Cluster 4 - 3	0.39
Cluster 4	0.93	Cluster 4 - 4	0.04

Table 3 Distance Proportion of Each Cluster high Group Regarding

Proportions of sub-cluster one and four took up the largest part, compared to all clusters, about 0.058 and 0.39 respectively. By looking at its components, we could develop some insight what set of keywords are similar to each other. In addition, this is from approach factors of high job satisfaction group, those keywords would have positive impact on job satisfaction. Cluster 4-1's components are as follows; 'Capable Coworker'(다양한 인재), 'Various Work Experience'(다양한 업무의 체험), 'Career Development Possible'(개인의 커리어 성장 가능), and 'Possible to Show Personal Ability'(개인의 역량 발휘 가능). Cluster 4-3 has following keyword lists; 'Flexible Work Time'(자유로운 출퇴근), 'Adhocracies Culture'(수평적 문화), 'Executive Communication Good'(임직원 간 원활한 의사소통), 'Nice Work Environment'(좋은 근무 환경), 'Systematic Task'(체계적 업무), 'Flexible Vacation'(자유로운 연차 사용), 'Assisting Personal Education'(개인의 교육 지원), 'Proper Amount of Task'(적정한 업무량), 'Work Life Balance'(일과 삶의 균형), 'Satisfying Salary'(만족스러운 연봉), 'Satisfying Welfare'(만족스러운 복지), and 'Pride toward Company'(기업 자부심). Importance of cluster 4-3 should be stressed more than cluster 4-1 based on their proportion differences. As a result, approach keywords in cluster 4-3 might be the essential element of employees' reinforced job satisfaction

To sum up the report result, when it comes to approach factors of high job satisfaction, one group of keywords had high possibility of increasing job satisfaction. Interesting point was that apart from sound salary and welfare, which seem to be obvious

factors, there were other cultural factors that company could enhance employees' attitude or satisfaction. For example, communication between executives and employees were very important point from the frequency analysis part. In addition, flexible worktime and vacation could also be strong positive cultural for employees. In addition, considering that 'pride toward company' was in the same cluster, factors in cluster 4-3 might lead to By adopting those cultures or systems, employees would be more satisfied with their jobs.

3.2.2 Avoidance Factors in High Job Satisfaction Group

Moving onto clustering analysis of avoidance factors in high job satisfaction group, procedure is going to be same as former analysis report. Goodness of fit was 0.44, which also was not high enough to be considered as significant model. However, by looking deeper into what clusters there were, it might be possible to identify avoidance factors that negatively affect job satisfaction group.

Figure 5 is a dendrogram of avoidance factors in high jobs satisfaction group. Based on 1.5 distance norm, there were seven clusters. However, certain clusters had too less proportion distance while other clusters had too much portion. These clusters had to be separated and divided into sub-clusters in order to extract meaningful interpretation.

Other than third and fourth clusters, other clusters included few keywords and distance portions. To report these components these clusters, cluster1 had 9 keywords with 0.087 distance proportion; ‘Customer Communication Problem’(고객 의사소통 문제), ‘Career Development Impossible’(개인의 커리어 성장 불가능),

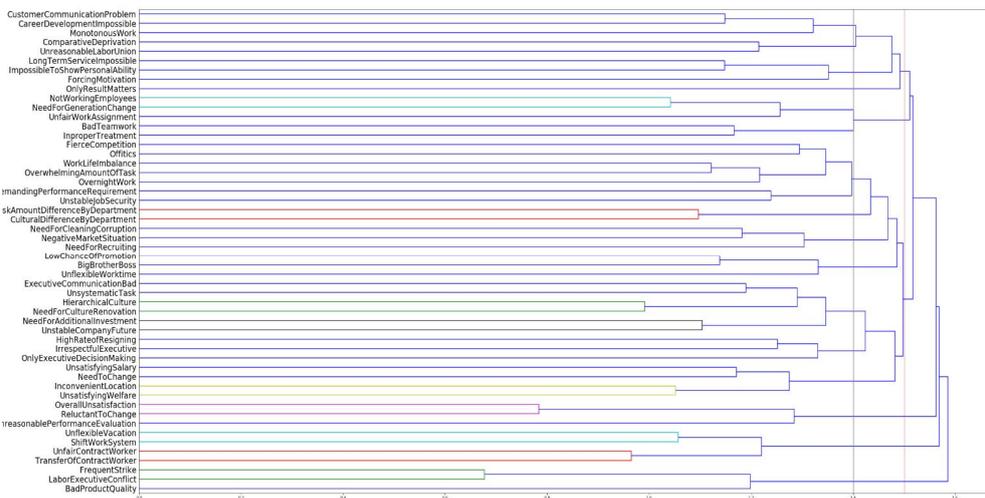


Figure 5 Dendrogram of Avoidance Factors in High Job Satisfaction Group
‘Monotonous Work’(단조로운 업무), ‘Comparative Deprivation’(상대 적 박탈감), ‘Unreasonable Labor Union’(비합리적인 노조), ‘Long Term Service Impossible’(장기 근속 불가능), ‘Impossible to Show

Personal Ability’(개인의 역량 발휘 불가능), ‘Forcing Motivation’(강요하는 동기부여), and ‘Only Result Matters Culture’(결과 지상주의). Second cluster included five keywords with 0.068 portion; ‘Not Working Employees’(일하지 않는 종업원들), ‘Need for Generation Change’(세대 교체 필요), ‘Unfair Work Assignment’(불공평한 업무량 분배), ‘Bad Teamwork’(좋은 팀워크), and ‘Improper Treatment’(비합리적 대우). Fifth cluster consisted of 3 keywords with 0.03 ratio; ‘Overall Dissatisfaction’(전반적인 불만족), ‘Reluctant to Change’(변화를 수용하지 못함), and ‘Unreasonable Performance Evaluation’(비합리적인 성과평가). Sixth cluster had four keywords with 0.06 distance portion; ‘Inflexible Vacation’(자유롭지 못한 연차 사용), ‘Shift Work System’(교대 근무), ‘Unfair Contract Worker’(계약직에 대한 차별), and ‘Need for Transfer of Contract Worker’(계약직 전환 필요). Seventh Cluster was composed of 3 keywords with 0.04 proportion; ‘Frequent Strike’(빈번한 파업), ‘Labor Executive Conflict’(노사갈등), and ‘Bad Product Quality’(안 좋은 제품 품질). However, these clusters did not take up large part in whole dataset.

Unlike these clusters, third cluster and fourth cluster had more influence in terms of distance ratio. Third cluster included fifteen keywords with 0.254 proportion. It had to be more separated into four sub-clusters. Fourth cluster also contained thirteen keywords with the highest distance proportion 0.457, which had to be divided into three sub-clusters. Referring to table 4, it is easy to compare the importance of each clusters and sub-clusters.

Cluster	Proportion	Sub-cluster	Proportion
Cluster 1	0.087	Cluster 3 – 1	0.101
Cluster 2	0.068	Cluster 3 – 2	0.011
Cluster 3	0.254	Cluster3 – 3	0.019
Cluster 4	0.447	Cluster3 – 4	0.019
Cluster 5	0.03	Cluster4 – 1	0.157
Cluster 6	0.06	Cluster4 – 2	0.016
Cluster 7	0.04	Cluster4 – 3	0.055

Table 4 Distance Proportion of Each Cluster in high Group Regarding Avoidance Factor

Cluster3-1 and cluster 4-1 had the most powerful influence than other ones. Cluster3-1 consisted of only three clusters yet occupied large proportion 0.101; ‘Fierce Competition’(지나친 경쟁), ‘Offitics’(사내 정치), and ‘Work Life Imbalance’(일과 삶의 불균형). These components implied significant point that people could get stressed because of overwhelming workload or too much competition, which might lead to broken relationship within employees. Those work load and competition might the source of ‘Offitics.’ When it comes to cluster 4-1, its components were ‘Bad Communication between Executives and employees’(임직원 간 의사 소통 문제), ‘Unsystematic Task’(비체계적인 업무), ‘Hierarchical Culture’(수직적인 문화), ‘Need for Culture Renovation’(문화 혁신의 필요성), ‘Need for Additional Investment’(추가 투자 필요성), and

‘Unstable Company Future’(불안정적인 회사 전망). These members of the cluster might mean that cultural factors could also aggravate employees’ satisfaction. Factors such as bad communication, need for cultural innovation or hierarchical culture could be a major source of workers’ stress.

In conclusion, people could get stressed from their work because of task sources as well as cultural sources. It is companies’ duty to ensure those elements to be decreased or, if possible, eliminated from their working environment.

3.2.3 Approach Factors in Low Job Satisfaction Group

Next step is to report hierarchical clustering analysis of approach factors in low job satisfaction group. All the procedures would be the same as former reports. Goodness of fit for this approach factors was 0.67 and there were five clusters based on 1.45 distance. No further sub-clusters were identified because it was not necessary. In figure 6, cluster information is visualized with dendrogram.

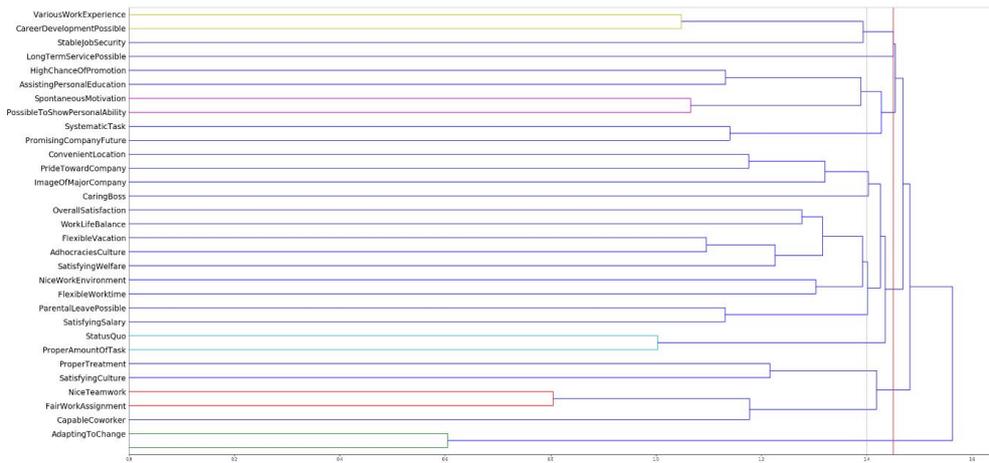


Figure 6 Dendrogram of Approach Factors in Low Job Satisfaction Group

Each cluster members and its power as follows. Cluster1 had four keywords with 0.04 proportion; ‘Various Work Experience’(다양한 업무의 체험), ‘Career Development Possible’(개인의 커리어 성장 가능), ‘Stable Job Security’(고용 안정성), and ‘Long Term Service Possible’(장기 근속 가능). Cluster2 included six keywords with 0.133 proportion; ‘High Chance of Promotion’(높은 승진의 기회), ‘Assisting Personal Education’(개인의 교육 지원), ‘Spontaneous Motivation’(자발적인 동기부여), ‘Possible to Show Personal Ability’(개인의 역량 발휘 가능), ‘Systematic Task’(체계적인 업무), ‘Promising Company Future’(안정적인 회사 전망). Cluster3 had the highest distance proportion as 0.617 with 15 elements; ‘Convenient Location’(입지의 편리성), ‘Pride toward Company’(기업 자부심), ‘Image of Major Company’(대기업 이미지), ‘Caring Boss’(유연한 상사), ‘Overall Satisfaction’(전반적인 만족), ‘Work Life

Balance’(일과 삶의 균형), ‘Flexible Vacation’(자유로운 연차 사용), ‘Adhocracies Culture’ (수평적인 문화), ‘Satisfying Welfare’(만족스러운 복지), ‘Nice Work Environment’(좋은 근무 환경), ‘Flexible Worktime’(자유로운 출퇴근), ‘Parental Leave Possible’(육아휴직 가능), ‘Satisfying Salary’(만족스러운 연봉), ‘Status Quo’(현상유지), and ‘Proper Amount of Task’(적정한 업무량). Cluster4 was composed of 5 keywords with 0.148 distance ratio; ‘Proper Treatment’(합리적인 대우), ‘Satisfying Culture’(만족스러운 문화), ‘Nice Teamwork’(좋은 팀워크), ‘Fair Work Assignment’(공평한 업무량 분배), and ‘Capable Coworker’(유능한 인재). Cluster 5 had only two keywords but relatively high distance portion as 0.06; ‘Adapting to Change’(변화를 수용), and ‘No opinion’(의견 없음). Importance of each clusters could be checked in table 5.

Cluster	Proportion	Element Information
Cluster 1	0.04	4 keywords
Cluster 2	0.133	6 keywords
Cluster 3	0.615	15 keywords
Cluster 4	0.148	5 keywords
Cluster 5	0.06	2 keywords

Table 5 Distance Proportion of Each Cluster in Low Group Regarding Approach Factor

However, given that these approach factors are from low job satisfaction group, it is possible to infer that avoidance factors were more powerful in terms of attitude or satisfaction than above

approach factors. In addition, the most frequently mentioned keyword in approach factors of low group was ‘No Opinion’ in table 2, which implied that employees might have been influenced by negative factors than positive factors. It is essential to investigate avoidance factors in low group in order to find exactly what clusters have such powerful negative effects.

3.2.4 Approach Factors in Low Job Satisfaction Group

When it comes to hierarchical clustering of avoidance factors in low job satisfaction group, all procedures followed as the same with other cluster analyses. Goodness of fit of the model was 0.58 and produced six clusters in total based on 1.5 distance standard. However, certain cluster had too much more importance than others, it had to be separated into sub-clusters. Analysis result could be visualized with following dendrogram in figure 7.

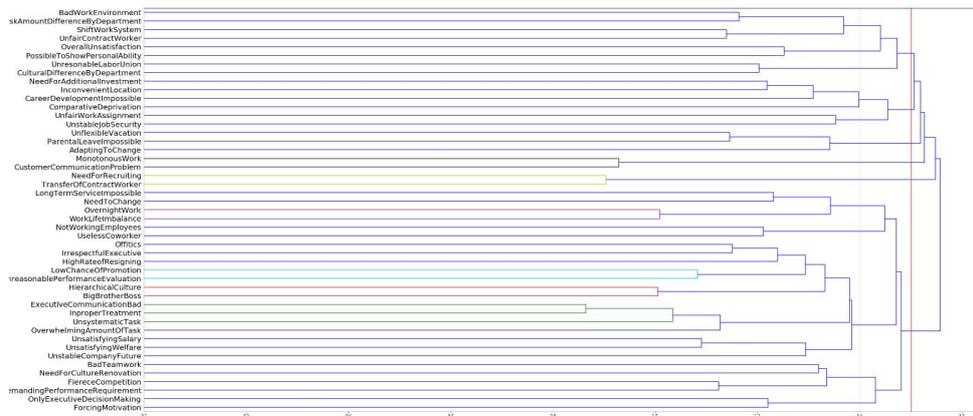


Figure 7 Dendrogram of Avoidance Factors in Low Job Satisfaction Group

Cluster1 contained 8 keywords with 0.031 distance proportion; ‘Bad Work Environment’ (좋지 않은 근무 환경), ‘Task Amount Difference by Department’ (부서별 업무량 차이), ‘Shift Work System’ (교대 근무), ‘Unfair Treatment of Contract Worker’ (계약직에 대한 차별), ‘Overall Dissatisfaction’ (전반적인 불만족), ‘Impossible to Show Personal Ability’ (개인의 역량 발휘 불가능), ‘Unreasonable Labor Union’ (비합리적인 노조), and ‘Cultural Difference by Department’ (부서별 문화 차이). Cluster 2 included six keywords with 0.026 distance portion; ‘Need for Additional Investment’ (추가적인 투자 필요), ‘Inconvenient Location’ (입지의 불편함), ‘Career Development Impossible’ (개인의 커리어 성장 불가능), ‘Comparative Deprivation’ (상대적 박탈감), ‘Unfair Work Assignment’ (불공평한 업무량 분배), and ‘Unstable Job Security’ (고용 불안정성). In cluster3, there were three keywords with 0.012 distance proportion; ‘Inflexible Vacation’ (자유롭지 못한 연차 사용), ‘육아휴직 불가능’ (Parental Leave Impossible), ‘Reluctant to Change’ (변화 수용하지 못 함). Cluster 4 and cluster5 consisted of two keywords each with 0.008 and 0.011; ‘Monotonous Work’ (단조로운 업무) and ‘Customer Communication Problem’ (고객 의사소통 문제) for cluster 4, and ‘Need for Recruiting’ (인력 충원 필요) and ‘Need for Transferring Contract Workers’ (계약직 전환 필요) for cluster5. Cluster 6 had the highest distance portion, 0.911, composed of 25 keywords. Since most of importance was concentrated on last cluster, it had to be divided into sub-clusters on the basis of 1.4. Importance of each cluster could be check in table 6.

Cluster	Proportion	Sub-cluster	Proportion
Cluster 1	0.031	Cluster 6 - 1	0.017
Cluster 2	0.026	Cluster 6 - 2	0.003
Cluster 3	0.012	Cluster6 - 3	0.278
Cluster 4	0.008	Cluster6 - 4	0.011
Cluster 5	0.011	Cluster6 - 5	0.011
Cluster 6	0.911	-	-

Table 6istance Proportion of Each Cluster in high Group Regarding Avoidance Factor

Referring to table 6, cluster 6 could be rearranged into six sub clusters. Detail of these sub-clusters as follows. Cluster 6-1 was composed of 4 keywords with 0.017 distance ratio; ‘Long Term Service Impossible’ (장기 근속 불가능), ‘Need to Change’ (변화 필요), ‘Overnight Work’ (잡은 야근), and ‘Work Life Imbalance’ (일과 삶의 불균형). Cluster 6-2 had two keywords and 0.003 distance proportion; ‘Not Working Employees’ (월급루팡) and ‘Useless Coworker’ (무능한 인력). Cluster 6-3 contained thirteen keywords with 0.278 distance portion; ‘Disrespectful Executive’ (경영진에 대한 불만족), ‘High Rate of Resigning’ (높은 인재 회전율), ‘Low Chance of Promotion’ (낮은 승진의 가능성), ‘Unreasonable Performance Evaluation’ (불합리한 성과 평가), ‘Hierarchical Culture’ (수직적인 문화), ‘Big Brother Boss’ (고지식한 상사), ‘Executive Communication Bad’ (임직원 간 의사소통 문제), ‘Improper

Treatment’ (부적절한 대우), ‘Unsystematic Task’ (비체계적인 업무), ‘Overwhelming Amount of Task’ (과도한 업무량), ‘Unsatisfying Salary’ (불만족스러운 연봉), ‘Unsatisfying Welfare’ (불만족스러운 복지), and ‘Unstable Company Future’ (불안정적인 회사 전망). Cluster 6-4 consisted of four keywords with 0.011 distance ratio; ‘Bad Teamwork’ (좋지 않은 팀워크), ‘Need for Culture Renovation’ (문화 혁신의 필요성), ‘Fierce Competition’ (지나친 경쟁), and ‘Demanding Performance Requirement’ (실적에 대한 부담). Cluster 6-5 had two keyword elements with 0.011 distance portion; ‘Only Executive Decision Making’ (이사진 중심의 의사결정), and ‘Forcing Motivation’ (강요하는 동기부여).

To interpret the results of clustering analysis, among various avoidance factors, there was a certain cluster that mainly exacerbated job satisfaction or attitude. Normal people could expect that salary and welfare issues might cause people’s major stress in ones’ workplace. However, the cluster revealed that there might be factors simply just more than money problem. In the most powerful avoidance cluster, relationship among employees and executives mattered. For example, ‘Improper Treatment toward Employees’, ‘Hierarchical Culture,’ ‘Big Brother Boss’ or ‘Bad Communication with Executives’ were pointed out as major problem. In addition, there were also negative factors related to workload or time schedule. For example, ‘Unsystematic Task’ or ‘Overwhelming Amount of Task’ were mentioned in the same cluster. These findings are not points to neglect because the same cluster also

included 'High Rate of Resigning.' Loss of capable human resource is a critical disadvantage for any companies must avoid.

In conclusion, the main findings in hierarchical clustering analysis, two messages are clear. First, it might be possible that approach factors in high job satisfaction group have surpassed the avoidance factors in the same group. Among a number of approach variables, flexible and high quality of work system factors were especially more important such as 'Flexible Worktime', 'Flexible Vacation' or 'Systematic Task.' When it comes to low job satisfaction group, it could be considered that avoidance factors had more influence than approach factors. Among a variety of negative variables, there was certain cluster of factors that were critical to employee's attitude. Human relationship variables such as 'Bad Communication with Executive,' 'Hierarchical Culture,' or 'Big Brother Boss' were main reasons of low job satisfaction. In addition, troubles regarding task was also a major source. For instance, 'Unsystematic Task' and 'Overwhelming Amount of Task' were stressing culture for employees. These overall factors might have led employees to leave their work.

Even though hierarchical clustering suggested possible source of satisfaction and dissatisfaction, it did not guaranteed there would be certain relationship among those keywords. What it showed us was that certain type of keywords could be categorized into one cluster on the basis of their similarity. Further study

should focus on dynamics among keywords that could identify whether there would be any relationship or not.

3.3. Network Analysis

Network analysis was conducted in order to get a clue which factors would affect or in the center of network. With centrality measure, tie strength and visualization, relationships of keywords are presented with meaningful findings. Network analysis were independently conducted in each four parts of dataset same as hierarchical clustering procedures; approach factors in high job satisfaction group, avoidance factors in high job satisfaction group, approach factors in low job satisfaction group, and avoidance factors in low job satisfaction group.

3.3.1 Approach Factors in High Job Satisfaction Group

To report approach factors in high job satisfaction group, important implications could be found in network visualization. The bigger a size of a node, the higher degree centrality the node has. In addition, thickness of each tie reflected the tie strength in co-occurrence matrix.

Based on degree centrality, ‘Satisfying Welfare’ and ‘Satisfying Salary’ were the most powerful nodes in the network. This tendency were same when nodes were ordered on the basis of betweenness centrality. Network analysis was conducted in order to find out the specific relationship among keywords. By examining tie strength on co-occurrence matrix, we were able to identify keywords that had strong relationship with satisfying salary and welfare. Regarding satisfying salary, ‘Satisfying welfare’ (47), ‘Pride toward Company’ (17), ‘Work Life Balance’ (14) were closely related factors. Moving on to satisfying welfare keyword, ‘Satisfying Salary’ (47), ‘Adhocracies Culture’ (23), ‘Flexible Vacation’ (23), and ‘Flexible Worktime’ (20) were most frequently mentioned keywords. This result have some important implications. First of all, satisfying salary had close relationship with pride toward company, meaning that salary level could be influential factor when it comes to loyalty of employees. In addition, we could get idea of what elements employees consider as good welfare. Adhocracies culture, flexible vacation and worktime could influential factors for employees that could strengthen job satisfaction.

Moreover, it is necessary to take a deeper look into capable coworker keyword in the table 7. Approach factors such as welfare, salary, worktime and others were mentioned simultaneously, capable coworker factor was independent from those factors. This point might involve a message that qualified colleagues could have its unique network. Referring to co-occurrence matrix, ‘Satisfying

Welfare' (13), 'Adhocracies culture' (9), 'Possible to Develop One's Career' (9) and 'Flexible Worktime' (8) were presented as highly correlated factors. This finding could mean that capable colleagues were the source of employee's career improvement and thus they tried to make adhocracies culture within their network. So companies should focus on keeping qualified employees in their society and on building culture that they could respect and learn from each other.

3.3.2 Avoidance Factors in High Job Satisfaction Group

Moving onto next network analysis part, avoidance factors in high job satisfaction group, the procedure followed as the same with former report section. With visualization of network, centrality measurement, and tie strength, there were crucial finding for companies. Following figure 9 and table 8 contains related information.

order to find out detail relationship among keywords, tie strength of each keyword was taken into account. When it comes to bad communication with executive factor, most commonly mentioned keywords were 'Unsystematic Task' (187), 'Hierarchical Culture' (144), 'Need for Additional Investment' (121) and 'Unstable Company Future' (92). In addition, keywords that had high correlation with hierarchical keywords were similar with bad communication with executives. The lists were 'Bad Communication with Executives' (144), 'Need for Cultural Renovation' (19), 'Unsystematic Task' (13) and 'Disrespectful Executives' (10).

Next crucial keywords were 'Need for Investment', 'Unsystematic Task' and 'Need to Change'. However, these factors were already dealt with in the communication and hierarchical culture factors in the above paragraph. Therefore, it is reasonable to interpret the results all together as a group. This result includes a message that hierarchical culture and bad communication with executives might lead to negative effects not only on cultural factors but also on efficiency of overall task system. When the communications are not good and at the same time executives just delivers duties toward their employees, this might cause ineffective and inefficient performance of business.

3.3.3 Approach Factors in Low Job Satisfaction Group

When it comes to approach factors in low job satisfaction

Adhocracies Culture	0.483	Adhocracies Culture	0.101
Capable Coworker	0.483	Showing Personal Ability	0.080
Satisfying Culture	0.419	Satisfying Welfare	0.058
Flexible Worktime	0.387	Various Work Experience	0.048
Showing Personal Ability	0.354	Satisfying Culture	0.035

Table 9 Lists of Nodes Ordered by Degree and Betweenness Centrality

According to table 9, there were some nodes that occupied high rank on both degree and betweenness centrality. The nodes were flexible vacation, work life balance, convenient location, and adhocracies culture. By looking at the tie strength of each node, it would be possible to find meaningful network relationship. In terms of ‘Flexible Vacation’, there were four keywords that had strong relationship; ‘Satisfying Welfare’ (19), ‘Adhocracies Culture’ (15), ‘Work Life Balance’ (8) and ‘Convenient Location’ (7). It would be reasonable to infer that flexible vacation had strong connection especially with welfare and cultural aspect of companies. Regarding work life balance, there were a few keywords of relatively strong connection, but the tie strength was too weak to be considered as a strong network. There were ‘Flexible Vacation’ (8), ‘Satisfying Welfare’ (5), ‘Assisting Personal Education’ (2) and ‘Adhocracies Culture’ (2). Their tie strength on co-occurrence matrix was below than 10, meaning that they are not mentioned together frequently. So it might be impatient decision to insist that work life balance had a strong relationship with other nodes. Similar issue was spotted in

the other nodes. Convenient location had only strong relationship with 'Satisfying Welfare' (10) and other nodes' connection strength was below eight. Adhocracies culture also had strong relationship with flexible vacation, other nodes' tie strength was below 6.

To sum up the findings in part 3-3, it was hard to find strong relationship among keywords due to their weak tie strength. Only flexible vacation, satisfying welfare and adhocracies culture had strong relationship when compared to other networks. There might be a few possible reasons for this issue. First of all, even though there are approach factors in these companies, avoidance factors were more critical than other positive features. On the other hand, it might be possible that approach factors themselves were essential, but their strengths were not powerful enough to offset other negative characters in their companies.

3.3.4 Avoidance Factors in Low Job Satisfaction Group

In part 3-4, we should focus on this part when it comes to analyzing low job satisfaction group. Given that there were no strong network relationship in part3-3, the reason might be lying on avoidance factors of low job satisfaction group. All the network analysis report procedure would be same as other network reports. Following figure 11 and table 10 would show critical information about network visualization and centrality measurement.

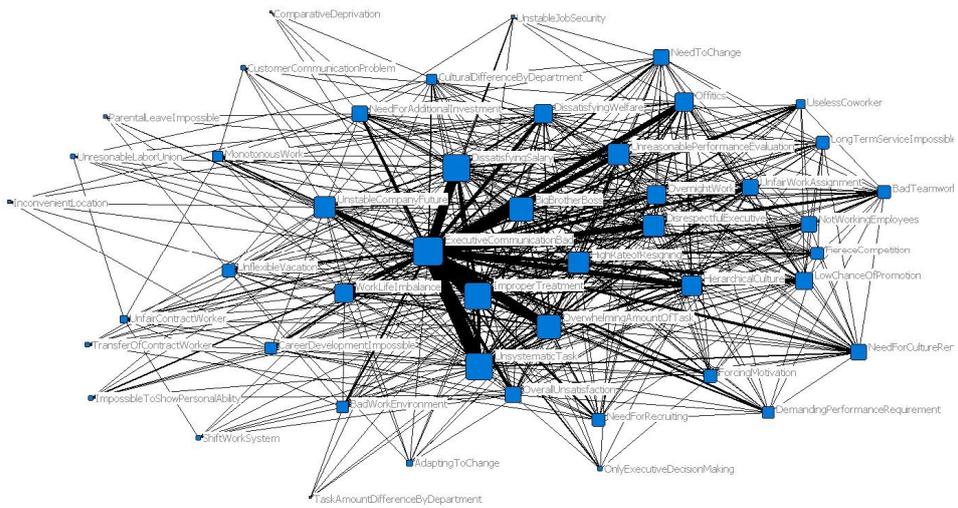


Figure 11 Network Visualization of Avoidance Factors in Low Job Satisfaction Group

Node	Degree Centrality	Node	Between Centrality
Bad Executive Communication	1.043	Bad Executive Communication	0.100
Improper Treatment	0.956	Improper Treatment	0.056
Unsystematic Task	0.934	Unsatisfying Salary	0.053
Unsatisfying Salary	0.934	Unsystematic Task	0.052
Overwhelming Task	0.869	Unstable Company Future	0.034
Big Brother Boss	0.847	Overwhelming Task	0.031
Unstable Company Future	0.782	Big Brother Boss	0.023
High Rate of Resigning	0.782	Unreasonable Performance Evaluation	0.023
Disrespectful Executive	0.782	Need for Additional Investment	0.019

Table 10 Lists of Nodes Ordered by Degree and Betweenness Centrality

Bad communication with executives and improper treatment of employees had the highest score in both centrality measure and occupied the center area of overall network. Following group of keywords which had high rank was unsystematic task, unsatisfying salary overwhelming amount of task and big brother boss. By referring to tie strength of these nodes, the relationship among keywords could be revealed. There are seven keywords that had strong connection with 'Bad Communication with Executives'; 'Improper Treatment' (262), 'Unsystematic Task' (243), 'Unsatisfying Salary' (168), 'Overwhelming Amount of Task' (165), 'Unreasonable Performance Evaluation' (101), 'Hierarchical Culture' (87) and 'Offitics' (85). Interesting point was that improper treatment showed similar network structure with bad executive communication. It had solid connection with following avoidance factors; 'Unsystematic Task' (50), 'Overwhelming Amount of Task' (40), 'Unsatisfying Salary' (36), 'Unreasonable Performance Evaluation' (19), 'Big Brother Boss' (17), and 'Offitics' (15). These keywords are also found in other keywords such as unsystematic task's or unsatisfying salary's network structure. Therefore, there is a high possibility that following keywords are in the core of avoidance factors' network; 'Bad Communication with Executives', 'Improper Treatment', 'Unsystematic Task', 'Unsatisfying Salary', 'Overwhelming Amount of Task', and 'Hierarchical Culture.'

Moreover, high rate of resigning was in the eighth rank in

degree centrality. This keyword could be particularly intriguing since it might give some hint about what factors might lead employees to leave their work. Tie strength analysis provided five related avoidance factors; ‘Bad Communication with Executives’, ‘Improper Treatment’, ‘Unsatisfying Salary’, ‘Overwhelming Amount of Task’ and ‘Unsystematic Work.’ This finding contains a message that treating employees just as working machine rather than proper human being, people would leave those places. In addition, the source of those working environments or cultures might have started from executives’ attitude. Since the beginning of part 3–4, ‘Bad Communication with Executives’ appeared in every keyword network structure. This point is a strong sign that communication issue might have cause various problems not only in task related systems but also company’s overall culture, leading to the loss of capable human resource within their organization.

Chapter 4. Implication & Further Research

The purpose of this research was to optimize internal marketing by specifying positive and negative factors within companies. Since attributes which people want in their jobs changes with various conditions such as generation or culture, it was necessary to reexamine what current Korean people require in their work places so that companies could fully satisfy their employees.

Based on the Approach–Avoidance Conflict theory (Lewin, 1935), factors are categorized into approach factors and avoidance factors. In addition, companies are divided into high job satisfaction group and low job satisfaction group so that it would be possible to compare two groups' difference with frequency analysis, hierarchical clustering, and network analysis tools. Consequently, there were four major findings in the overall analysis.

First of all, we were able to get strong clues about where people feel satisfaction on their jobs by analyzing approach factors in high job satisfaction group. Clustering analysis revealed that there was an evident cluster that included similar positive keywords. Those keywords could be classified into three categories; benefit, task and culture category. Benefit category had satisfying salary and welfare keywords as component. In task category, there were systematic task and nice working environment factors. In terms of culture category, it consisted of good communication with executives, adhocracies culture and work life balance. People thought that these factors are similar to each other. In the network analysis, effects of each import node was suggested. Satisfying salary influenced pride of one's company. When it comes to welfare, employees would appreciate firm's welfare system once there are flexible work time or vacation with adhocracies culture.

Second analysis finding was from avoidance factors in high job satisfaction group. Every company has their own pros and cons. Once they notice their problem in terms of internal marketing, corporates could find a way to solve those problems and optimize

their internal marketing strategy. On the basis of hierarchical clustering modeling, there were two critical clusters. One cluster contained fierce competition, offitcs and work life imbalance. The other cluster's elements were bad communication with executives, hierarchical culture, and unsystematic tasks. These two clusters might be giving a sign that fierce competition and bad communication might have caused side effects such as offitcs or hierarchical culture. In network analysis, this insight gained more support. It turned out that communication issue and hierarchical culture were in the core of avoidance network structure, leading to unsystematic task and negative evaluation of executives. In conclusion, even though one company has positive evaluation from employees, communication problems or human relationship troubles within their society might be a time bomb that might be critical for their internal marketing in the long run. It is essential to deal with these type of problems on a regular basis in order to maintain or to improve employee's loyalty.

Third point was from the analysis result of approach factors in low job satisfaction group. Considering that the most frequently mentioned keyword was 'No Opinion,' this was a sign that there would be no essential or strong approach factors. In hierarchical clustering modeling and network analysis, this insight was proven to be true. Even though there was one strong cluster, too many factors were mixed, making it hard to interpret what factor was dominant. I have tried to search for strong advantageous factor through network analysis, their tie strength was too low to be considered as

powerful network. As a result, positive keywords in this group such as convenient location or flexible vacations could be thought of as subsidiary positive traits that could not overcome major disadvantageous traits in company.

Fourth finding was that there were the critical negative traits in companies. Avoidance factors in low job satisfaction group suggested a few avoidance factors that company should not possess in their organizations. In the clustering analysis, one cluster had two categories of avoidance factors. One category was about cultural factors. There were hierarchical cluster, big brother boss, communication issues with executive and improper treatment as similar keywords. The other category was task related issues such as overwhelming amount of task, unsystematic task, unreasonable performance evaluation, unsatisfying welfare and unsatisfying salary. Network analysis gave a hint about the dynamics in these keywords. Most of the problems might have been from communication problem with executives and other cultural avoidance factors. Hierarchical culture and communication troubles were at the center of network structure related to other problems, for instance, unsystematic task, offitics or even high rate of resigning. As a result, executives attitude toward their employees might the most crucial point when it comes to internal marketing, even more important than simple high salary or sound welfare.

Practical implications of this research could be that firms could use the research method or results in their organization for optimizing internal marketing. Measuring job satisfaction level

within their company by themselves might have serious problems. For example, employees might not provide honest answers because they would be afraid of side effect for whistle blowers. However, data source from Job Planet secures anonymity of responders. Based on this qualified data source, companies could apply research method to their own review so that they could exactly find what problem or strength point there are in their institution. In addition, the results could be a reference or a guide for any companies whose mission is to renovate organization's culture. Such companies could easily earn clues about which approach factors to maintain or develop and which avoidance factors they must remove in their societies.

With these findings there are several further researches that could be conducted in the future. Of course, hierarchical clustering and network analysis provided some information about correlation among keywords, it did not guarantee any of causal effect relationship among those factors. If one could find out which specific factor affect job satisfaction in detail categories such as work life balance, company culture or overall score, then it would reveal the real power of each keywords. In other case, developing scales could be another meaningful research. Running these analyses might not be possible to all companies with their own because of budget problem or lack of technology. Once simple survey scale is developed, it is going to be a lot easier for normal companies to conduct research about internal marketing strategies in their organization.

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Abstract in Korean

내부마케팅 전략의 최적화: 직무만족도를 강화시키는 조직 변수 분석

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내부 마케팅 최적화를 진행하기 위해서는 직무만족도에 긍정적인 영향을 주는 요인과 부정적인 영향을 주는 요인이 무엇인지 파악하여야 한다. 마케팅 분야에서 직업은 종업원들 혹은 구직자들에게 있어서 하나의 상품처럼 여겨질 수 있다고 오랫동안 논의되었다. 이 주제가 중요한 이유는 회사가 종업원과 구직자들에게 높은 수준의 연봉과 만족스러운 복지를 제공한다면, 종업원들에게 있어서 강력한 동기부여 요소가 될 것이고 결국에는 회사의 전략을 수행하는데 있어서 효과적이기 때문이다. 하지만 종업원들이 원하는 가치는 문화, 나라, 세대 등 다양한 요소에 의해 영향을 받기 때문에 지속적으로 변하는 성질이 있다. 따라서 현대 한국 종업원들은 어떠한 기업 요소에 만족을 느끼고 불만족을 느끼는지 파악할 필요가 있다. 텍스트 마이닝과 머신러닝의 기법 중 자연어처리, 위계 군집 분석, 그리고 네트워크 분석을 사용하여 이를 분석하고자 한다. 분석 결과를 통해 어떠한 기업 요소들이 종업원들의 직무만족도에 영향을 주고, 그 중에서 가장 영향력이 있는 요소는 무엇이며, 그리고 기업 요소들 간의 상호관계를 파악할 수 있을 것이다.

Keyword: 내부 마케팅, 직무만족도, 접근-회피 갈등이론, 텍스트 마이닝, 머신러닝, 네트워크 분석

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