A Study on the Perception of Corona19 Period Play Culture Based on Big Data Analysis

Seon-Jin Jung*

^{1}An outpatient professor, *College of liberal and convergence, Honam University, Korea*
icare79@naver.com

Abstract

In this study, we tried to explore the actual direction for the play culture by looking at the social perception of the change of play culture due to the Corona 19 using big data analysis. For this research, we used Textom, a website specializing in collecting big data, and collected 10,216 data using keywords of "Corona + Play," "Play Culture" and "Leisure" from January 19, 2020 to September 30, 2020, when the first confirmed case of Corona 19 occurred in Korea on various portal sites at home and abroad. The results of this paper showed that the social perception of the play culture in Corona 19 was 51.61%, not much different from the negative image of 48.15%. It is necessary to develop a play culture program that can identify people's various desires and emotions under the premise that situations similar to the current With Corona period and Corona19 can occur at any time, and find mental and physical stability and vitality in unstable situations. In addition, the results of this study can be used as basic data for the development of play culture policies or programs, with the significance that this study helped vitalize big data utilization research in the fields of play, leisure, and culture.

1. Introduction

All parts of our real lives are affected by the fandom situation caused by the craze of Corona 19 in Korea as well as around the world, and our lifestyles are also undergoing changes. South Korea is receiving positive reviews for its quarantine system due to its advanced ICT technology and ability to utilize big data efficiently. Big data refers to a huge set of data that cannot be handled by existing management and analysis systems.

In our daily lives changed by Corona 19, such as the appearance of a wise "Home-Cock" guide, our society's perception of this is also changing as we feel a change in our play and cultural life.

Since the nation's first confirmed coronavirus infection case was reported on January 20, 2020, the steady increase in confirmed cases has led to the rise in real-time search terms on news, Internet portal sites, etc., and safety guidance texts have become routine [1].

On March 11, 2020, the World Health Organization (WHO) declared the Pandemics, the highest grade of infectious diseases, after a number of corona 19 confirmed cases worldwide. The nation's defense of these pandemics is highly regarded worldwide. The development of ICT technology (big data utilization capacity), high smartphone penetration rate (world's No. 1), economic ability, well-established quarantine and medical

health services, and high civic participation are drawing attention as success factors [2].

Recently, more and more companies and government offices have used big data analysis on news. In addition, a large amount of data being used in various industries is being used and big data is being processed, with digitalization and stored is being processed into big data. The size and variety of such big data are also becoming more advanced and expanding in the wake of the rapid development of storage and memory semiconductor technologies. In addition, collection, storage, processing and analysis of big data in the medical, bio and energy sectors, as well as handling multimedia big data, which was previously easily accessed and utilized, such as images, video and audio, are becoming increasingly possible [3]. Initially, 3V was defined as volume, velocity, and variety, but due to recent advances in technology and data, it was defined as 5V, adding meaning of value and accuracy to value and veracity [4]. Today, the rapid growth of digital media such as smartphones and smart TVs and the proliferation of mobile Internet and social media have resulted in a huge amount of data, which has made a big difference in the production and distribution of data and the consumption system, leading to a big data era in which data can now become an economic asset [5]. The text of a digital media conversation or sentence, a vast amount of big data that can be such an economic asset, contains people's diverse desires, personalities and emotions. Having a grasp of people's in-depth thoughts and emotions in such text and being able to predict their moods will enable companies to develop a variety of content tailored to consumers' needs. The technology is called emotional analysis to grasp emotions based on the contents of text in these vast big data.

Emotional analysis is a natural language processing analysis method that identifies positive and negative opinions or attitudes and even the intensity of emotion in text data, which means a process of analysis in text mining. Analyzing the vast amount of data on social media, it not only detects the mood of the public, but also predicts stock prices or election results, but also enables in-depth social marketing.

Emotional analysis, called opinion mining, means categorizing consumer opinions into positive or negative polarities, just as topical modeling summarizes the content of documents. Recently, interest in emotional analysis has increased depending on the amount and value of online text [6]. Emotional analysis refers to the work of various categorizations of meanings contained in words, ranging from categories that are contradictory to those of "positive" and "negative" to those of different emotions [7].

Figure 1 shows the process of emotional analysis. Collect articles posted on the Internet in real time, such as portal sites, SNS, and news, to match the positivity-negativeness of vocabulary.
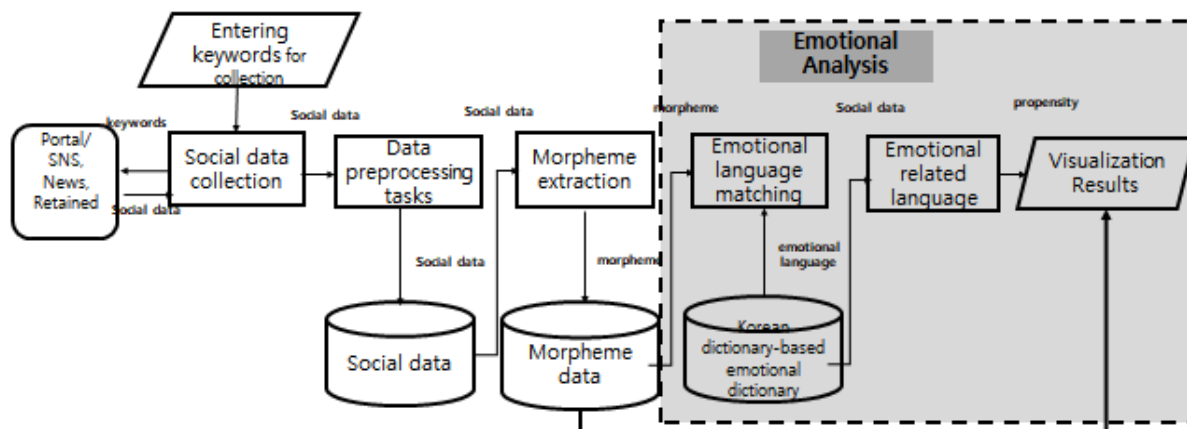

Figure 1. Big data collection and emotional analysis process

Play is an instinct that humans fundamentally pursue, which implies fun and pleasure. Based on these characteristics of humans, humans are described as 'playing humans,' or Homorudens. Playing is one of the most important instincts for human beings after the basic needs associated with survival, so it has a huge impact on human life, regardless of age [8].

Playing is the daily life of children and is an activity that leads and supports development. Play is a double-sided word that can be perceived as a fictitious and unproductive insignificant action, depending on the play situation, as defined by the user. Due to these characteristics, the definition of play was diverse and scientific research was not easy. Through the play process, children learn to express themselves and communicate with others, experience and socialize the world [9].

In this paper, using big data analysis, we used Textom, a site specializing in big data collection, to explore the actual direction for play culture by examining the social consciousness of the change of play culture due to Corona19. The data collection period used the keywords "corona+play," "play culture" and "leisure" from January 19, 2020 to September 30, 2020, when the first confirmed person of Corona 19 occurred in Korea on each portal site at home and abroad, and the keywords of the detailed emotions used were analyzed into nine emotions, including favor, joy, interest, anger, anger, rejection, fear, and pain.

2. Research Method

2.1 Data Collection

The data collection targets of this study were collected online from each portal site at home and abroad using the site of Textom. For data collection, "corona + play", "play culture" and "leisure" were entered in the search bar on the Textom keyword search page to collect all the text data mentioned simultaneously when keywords were mentioned online.

In this study, "corona + play" was set in the keywords that must be included, "leisure" and "play culture" were collected by entering play culture as keywords, and a total of three search words were used to find out how play culture of the Corona19 period was carried out, and related social perceptions were analyzed. Daum's web documents, blogs, cafes, news, Google's web documents, news, Facebook, Twitter and YouTube were selected, and the collection period was set from January 19, 2020 to September 30, 2020, when the first confirmed Corona 19 person occurred in Korea.

The data collected for this study are shown in Table 1. Looking at each amount of data, the total amount of data is 3.66MB and the frequency of the data is 10.216, with 1.05MB of "corona + play," 1.38MB of play culture, and 1.23MB of leisure.

Table 1. Collection target data

Keyword	Data Frequency (case)	Amount of data (MB)	Ratio(%)
Corona + Play	3,656	1.3	15
Play culture	8,712	3.51	43
Leisure	9,840	3.48	42
Total	22,208	8.29	100%

2.2 Data Processing

Data cleaning was performed to help clarify and understand the data collected in this study. Text mining was performed on the basis of analysis of parts such as nouns, adjectives, verbs, and foreign languages. After that, keywords consisting of one syllable or Chinese characters were deleted and keywords separated by spacing were modified into one keyword.

After the first refining process, the modified data was uploaded to Textom to perform nouns, adjectives, verbs, and foreign languages. In the second refining, synonyms and synonyms were converted into representative keywords, and keywords that were not suitable for spacing were modified into one keyword.

A study data was created to conduct an emotional classification analysis. "Learning data" is the data that is the basis for classifying the entire data, and the quality of the classification can vary depending on how accurately the learning data is made. In order to create learning data, we downloaded the collected original data Excel form, and created a learning tester for emotional analysis by directly inserting the polarity (positive/neutral/negative) of the text as shown in Figure 2 using the top 170 texts.

Figure 2. Creating learning data

2.3 Data Analysis

The process of emotional classification analysis is shown in Figure 3. Emotional classification analysis provides the emotional analysis function of machine learning technique through Bayesian classifier. Emotional classification analysis was performed in which the content of a sentence could be divided into positive/neutral/negative through Bayesian classifier, which was created through the final refined data. In addition, data on positives/neutral/negative was performed once again using additional analysis functions to conduct a slightly more advanced analysis by positive/neutral/negative.
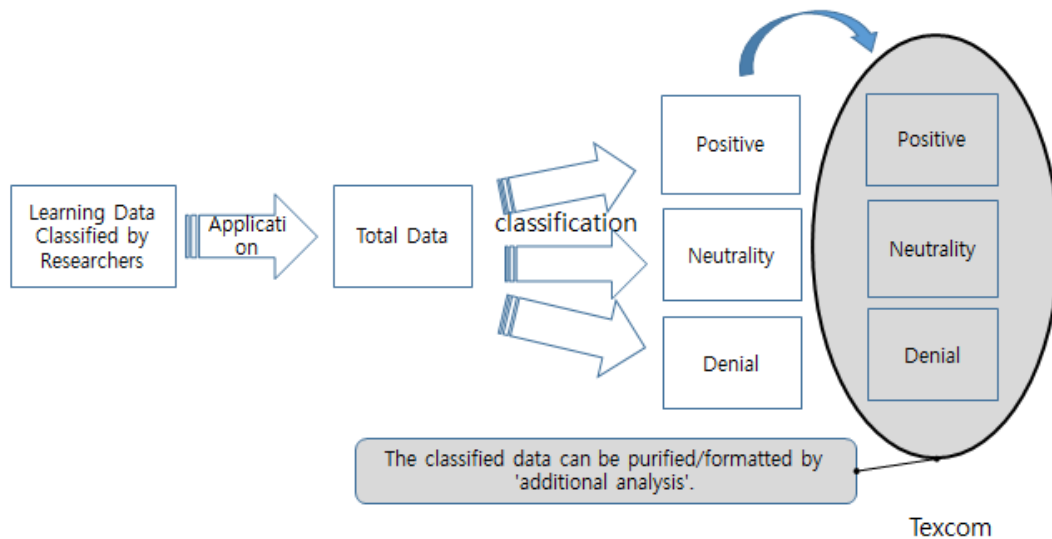

Figure 3. Emotional classification analysis process

The process of analyzing emotional word frequency is shown in Figure 4. Emotional word frequency analysis was also conducted to find out how many emotional keywords were included in the original text data and to show the frequency of the emotional words. Emotional word frequency analysis is a function that shows frequency by finding words related to emotion among original text data. Emotional words are classified using the emotional vocabulary dictionary produced by Textom. Textom's self-produced emotional vocabulary dictionary has six words in the category of positivity/negative, three words of interest/liability/pleasure, and six words of negation: pain/sorrow/anger/fear/surprise/disapproval [10].
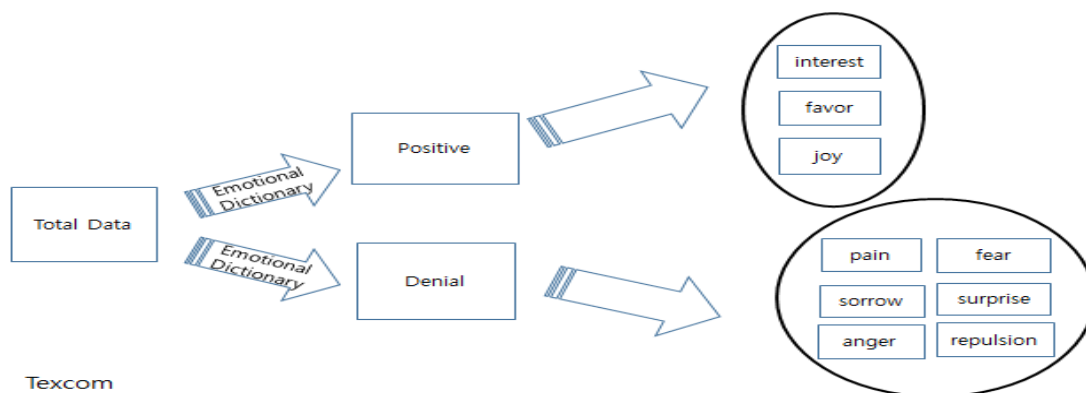
Figure 4. Process of frequency analysis of emotional words

3. Results of a Study

3.1 Emotional classification analysis (document-based)

Emotional classification analysis was conducted after the refining process of 'corona' + 'play', 'play culture' and 'leisure' data collected through big data, and 51.6% of positive and 48.15% of negative data are as shown in Table 2.

Table 2. Emotional classification analysis results

Sortation	Frequency (case)	Ratio (%)
Positive	3,910	51.61
Neutrality	18	0.24
Denial	3647	48.15
Total	7575	100

Using additional analysis function to extract detailed emotional related words, the top 20 keywords were extracted as a result of conducting data of positivity/neutral/negative again. The results are as shown in Table 3.

Table 3. Emotional languages keywords

	Keyword	Frequency number
1	traditional	1391
2	good	493
3	cry	330
4	joy	302
5	new	260
6	happy	235

7	recommendation	232
8	difficult	195
9	want	179
10	natural	179
11	be sound	177
12	have fun	165
13	lovely	118
14	detest	113
15	It's hard	105
16	innovative	98
17	excited	90
18	to laugh	88
19	modern	82
20	look forward to	81

Using the additional analysis function to extract detailed emotional related words, the top 20 keywords were extracted as a result of the data of positivity/neutral/negative again, and the results of visualizing the 20 selected topics with the watt-cloud are as shown in Figure 5.

Figure 5. Word cloud visualization of emotional associate

3.2 Emotional word Frequency Analysis

According to the analysis of emotional word frequency with morphemes of "corona + play culture" and "leisure" data collected by big data, the positive emotional strength ratio was 74.69 and the negative emotional strength ratio was 25.31, indicating that there were many positive keywords. As Figure 4 shows, the keywords for detailed emotions were 52.87% for favor, 11.99% for joy, 9.83% for interest, 11.38% for sadness, 2.19% for anger, 7.41% for repulsion, 3.63% for fear, 0.53% for surprise and 0.17% for pain.
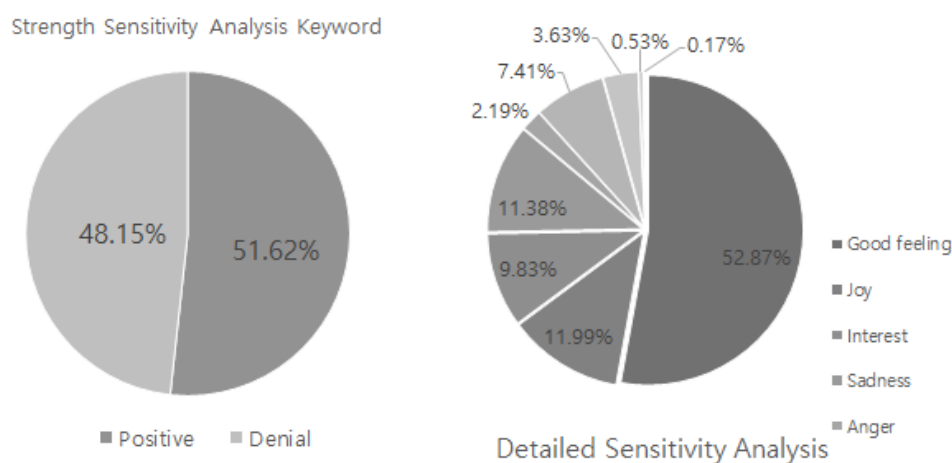
Figure 4. "Corona + Play", "Play Culture", "Leisure" Emotional word Frequency analysis

4. Conclusion

The purpose of this paper is to examine the social perception of play culture changed by Corona19 by utilizing emotional analysis method based on text mining. To this end, from January 19, 2020 to September 30, 2020, when the first confirmed coroner of Corona19 was found in Korea, online data on "Corona" + "Play," "Play Culture" and "Leisure" were collected and emotional analysis was conducted.

The Corona period play culture had positive images overall, including positive images (51.62%), neutral images (0.24%), and negative images (48.15%). Emotional relative language Topic 3 keywords showed 'traditional', 'good' and 'crying'. The results of these studies show that the social perception of play culture is still positive in the Corona19th, but the negative image is 48.15%, indicating that there is not much difference from the positive perception. Therefore, it is necessary to develop a new play culture program with new content that can grasp their emotions in various needs and receive positive reviews, assuming that the time of With Corona and other similar situations can occur.

This study looked at the overall perception of play culture through big data analysis in the fields of play, leisure and culture. Based on this, it is hoped that various continuous research using big data suitable for the present era will be conducted for play and leisure culture. It is also hoped that the data of this study can be used as basic data for the development of play culture policies or programs.

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