

Analysis on a Social Phenomenon of Senior Dance based on News Articles

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This study aims to comprehend social phenomenon of senior dance. For this study, the BIGkinds News Big Data Analysis Service of the Korea Press Foundation was used. Nearly 30,000,000 news articles, written by 54 press companies, including daily newspapers, local daily newspapers and broadcasting companies from January 2000 to December 2019 were collected. To filter unnecessary contents(words) from the collected data, a search algorithm extracting noun equivalents through morphological analysis was employed. After that, the Structured Support Vector Machine(SVM) was applied to noun equivalents extracted afterwards for analysis. The study results are as follows. First, there were a total of 29,146 news big data regarding senior dance. Among them, the region topic occupied the largest number of news articles at 17,808(43.6%), and it was followed by the culture topic at 13,693(33.5%). In relation to the press types, local daily newspapers wrote the largest number of news articles at 21,521(73.8%). Second, starting 2008, there was a rapid increase in senior dance-related keywords, but as of 2012, they decreased. Third, when analyzing the correlation among the named entities(people, places, institutions and keywords) extracted from 100 news articles with the highest accuracy of senior dance keywords, places were most frequently found in 18 news articles, and programs and attendees had the highest correlation with senior dance-related keywords. In conclusion, these results imply that although there has been a big change depending on social interests, a considerable amount of senior dance-related data have been produced in Korean society. This study has significance by analyzing a macroscopic social phenomenon of senior dance using news data. Researching social perceptions of the elderly, activities and behaviors based on these results will help in finding ways of increasing seniors' participation in dance and understanding their needs.

Key words: senior dance, newspaper and broadcasting data, social phenomenon

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Introduction

With the advancement in medical technology, the proportion of the aged in the whole population has been rapidly growing in Korea and consequently, the concern and need for wellness among the aged are rising too. But when there is no full preparation for the aging society, the rapid social change is leading to side effects, including the world's highest elderly poverty and suicide rate.

Therefore, the country is putting efforts into improving life quality of the elderly, satisfying the need for wellness and settling diverse issues in the aging society by devising policies and institutions for the elderly, but realistically, there are limits to national efforts and efforts for pan-national concern and settlement are required.

So far, the field of dance has constantly made a contribution to wellness and improvement in life quality of the elderly. Various dance programs for meeting different social-psychological needs and solving health issues of the elderly have been run via facilities, such as culture centers, seniors' community centers and seniors' welfare centers operated by public and private institutions in each city, and elderly people participating in programs are gradually increasing(Chonghee Kim, Eunjoo Cha, 2019).

At the same time, there is an increase in research activities of the academic circles on analysis of physical, mental and social effects of seniors' dance participation, policy proposal for expansion of seniors' dance participation and the need of training senior dance as well. Recently, continued research for an increase of seniors' participation in dance programs has been required since the therapeutic effect of dance for the elderly with dementia was proven. In other words, while studies with experimental research, statistical data and surveys targeting the elderly joining dance for the elderly have been conducted many times, there is still a shortage of efforts to consider the recognition structure of the society regarding dance-related activities through a real social phenomenon.

The increase in aging population will be accelerated in future. In this regard, there will be a need to answer fundamental questions about how our society looks at seniors' dance activities, in order to support higher life quality and wellness of the elderly.

In modern knowledge society, with the development in information technology, information of news big data is in use to understand and forecast phenomena of the society at large.(Chanmin Park, 2021; Jiyoung Yeo, 2021; Lund, Liu, & Leggieri, 2020; Pentzold, Brantner, & Foelsche, 2019). News texts contain rich facts and views on social issues, including politics, economy, society and culture, and for maximizing the value of news data, a process of extracting diverse named entities and sentences like a person, an institute, a place, a number, a title and a product name from main texts of news articles, multi-classifying and ranking, namely, Natural Language Processing(NLP) is needed.

<News Source Beta> developed by Advanced Institute of Convergence Technology in 2013, <News

Explorer> launched by IBM Watson in 2015 and <BIGkinds> unveiled by Korea Press Foundation belong to these news big data analysis systems(Daemin Park, Se-Uk Oh, 2016).

Thus, this study aims to look into a social phenomenon of senior dance in our society by analyzing the trends of articles regarding senior dance extracted from massive data(big data) of news articles, which represent social phenomena the most. For this study, news text data of BIGkinds provided by Korea Press Foundation were used. After selecting 'senior dance'-related key words, the types of recognition of 'senior 'dance' in our society and the changes were analyzed, based on the data searched via the BiGkinds news analysis system.

Methods

Analysis Data

This study employed the BIGkinds news big data analysis serviced provided by Korea Press Foundation to investigate a social phenomenon of senior dance. This study targeted nearly 30,000,000 news databases from 54 press companies, including national daily newspapers, local newspapers, broadcasting companies and technical magazines from January 2000 to December 2019.

Analysis Procedure

For big data analysis, key words about 'senior dance' were selected and the following research procedure was performed. First, focusing on the elderly, seniors and elders, key words related to seniors like dance, community dance, yoga, Pilates, belly dance, line dance, aerobics, Zumba dance, dance sports, modern dance, ballet, Korean traditional dance, Korean dance, traditional dance, folk dance were selected and relevant data were collected. Also, words to be excluded from searches(obituary, death, uselessness, etc.) were set, and crime, incident, accident and disaster categories were excluded from analysis. As a result, a total of 29,146 news big data regarding senior dance were obtained.

These data were used for relational analysis, key word trend analysis and associated word analysis(Word Cloud). For relational analysis, the links among persons, places, institutes, key words extracted from 100 news with the highest level of accuracy were visualized in the form of networks. For key word trend analysis, the number of news articles containing key words searched was expressed using an annual program. Also, Word Cloud visualizing senior dance-related key words that were highly related to the news analyzed(weight, key word frequency) was designed.

In addition, analysis of press reports about senior dance followed the following analysis types.

To filter unnecessary contents(words) out of collected data, a search algorithm extracting noun equivalents through morpheme analysis was adopted, and the scope of search words included titles and main texts. After that, Structured SVM(Support Vector Machine) was applied to noun equivalents extracted to extract named entities. This time, weights were given in the light of the number of articles related to named entities.

Results

The Present Status of News Reports about Senior Dance in Individual Press Companies

The news coverage of individual topics, including regions, culture, society, economy, politics, and IT_science in a total of 29,146 news big data with senior dance-related key words is as follows(Figure 1). First, the topic of regions had the biggest number of senior dance-related news articles at 17,808(43.6%), and it was followed by culture at 13,693(33.5%) and society at 7,262(17.8%). The number of news articles with the topic of economy, IT_science and politics was 525(1.3%), 503(1.2%) and 455(1.3%) respectively. It was revealed that the topic of regions and culture intensively focused senior dance-related news.

The senior dance news coverage by individual press companies is as follows. Press companies were divided into 11 metropolitan newspapers, 8 economic newspapers, 5 major broadcasting companies, 2 technical magazines and 28 local newspapers. Here, local newspapers occupied the highest proportion of the entire news coverage at 21,521(73.8%), and it was followed by metropolitan newspapers at 4,711(16.2%), economic newspapers at 2,526(8.7%), broadcasting companies at 287(1.0%) and technical magazines at 101(0.3%). Local newspapers reported the senior dance news the most. To put it concretely, Joongdo Ilbo posted the biggest number of senior dance-related articles at 1,686, and it was followed by Chungcheong Today, Chungbuk Ilbo at 1,434, Joong-Bu Maeil at 1,407, Kang Won Domin Ilbo at 1,312, Busan Ilbo at 1,140, Kang Won Domin Ilbo at 1,103 and Kookje Daily News at 1,093.

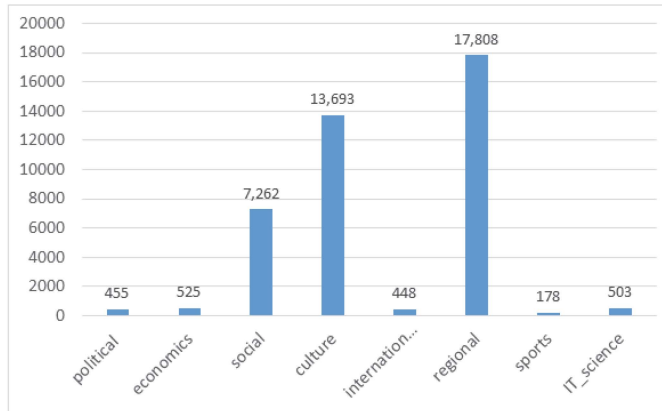


Figure 1. Senior Dance News Coverage Depending on Topic Classification of Press Companies

Among metropolitan newspapers, Dong-A Daily News created the largest amount of data at 653, and it was followed by Kyunghyang Shinmun at 578 and JoongAng Ilbo at 542. On the contrary, Chosun Ilbo reported a relatively smaller number of articles than other press companies at 25. Among economy newspapers, Maeil Business Newspaper produced 570 news articles, and it was followed by Asia Economy at 519, Herald Business at 344, Financial News at 278 and Korea Economic Daily at 260. Among broadcasting companies, MBC, SBS and YTN produced 104, 75 and 67 news articles respectively.

The By-Year Change of News Data with the Key Word of Senior Dance

In order to investigate the change of senior dance-related key words by year, key word trend analysis was carried out. To be concrete, the senior dance news coverage rose starting 2000 and there was a rapid increase in 2008. It reached the peak in 2009 and gradually decreased starting 2012(Figure 2).

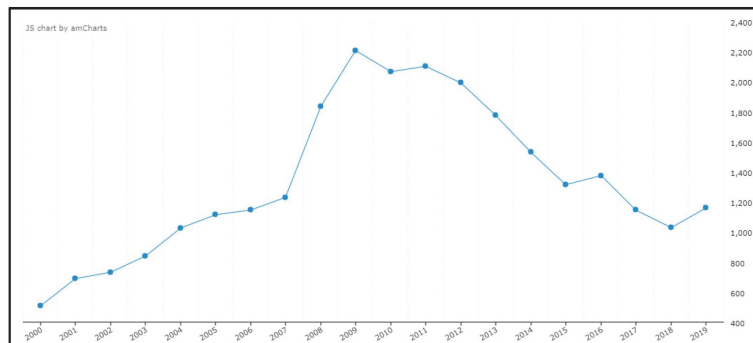


Figure 2. The Change of Data about Senior Dance Key Words by Year

Analysis of Senior Dance-Related Key Word Networks in News Articles

Among total 29,146 news big data with the key word of senior dance, the links among named entities(persons, places, institutes, key words) extracted from 100 news articles with the highest level of accuracy were visualized in the form of networks(Figure 3). It was revealed that 1 person category, 18 place categories, 3 institute categories and 11 key word categories showed more than 3 to 22 links with senior dance key words.

In the below figure, the red circles indicate the ‘key words’ related to senior dance. Here, program, participant, instructor, infinite challenge(Muhandojeon), Daragwon, Pilates, chairman, party for the elderly, the number of programs and senior member are connected to the key word. The green circles indicate the ‘places’ related to senior dance and Japan, China, Chugju City and Chuncheon City belong here. The blue circles indicate the ‘institutes’ related to senior dance and The Ministry of Health and Welfare, World Vision and The Korean Senior Citizens Association belong here. ‘Sin Jeong-ae’ was the only person key word related to senior dance.

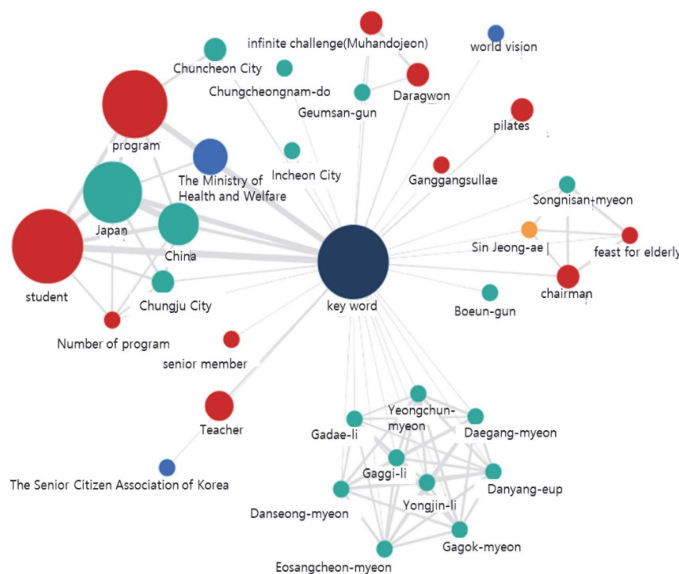


Figure 3. Senior Dance Key Words and Key Words Extracted from 100 News Articles with the Highest Level of Accuracy

Word Cloud Analysis of Senior Dance-Related News Articles

Word Cloud visualizing the senior dance key words with high links to the news analyzed(weight, key word frequency) is as follows(Figure 4). Among the elements referring to a connection, weight

is given in order of key words with the highest semantic similarity in the news analyzed and is based on the topic rank algorithm. Here, singing class had the highest connection to the news, and it was followed by lifelong education program, health exercise, life exercise, seniors, ocarina, event of the day, Bājíquán, lectures, fields, Pansori, Jeungpyeong-gun health center, long-lived wellbeing class, presentation, after-school child instructor, folk song class, Gwangju Metropolitan City Council of Sports for All, hobby and leisure class, NANTA circle, Ukulele and laugh class.

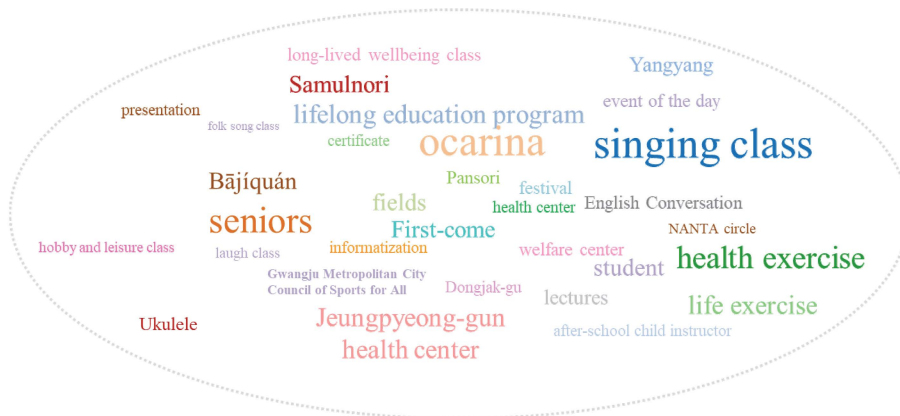


Figure 4. Word Cloud Based on the Topic Rank Algorithm about Senior Dance News (1000 Key Words)

Discussion

This study analyzed the present state and trends of ‘senior dance’-related key words using new big data analysis techniques, for improving life quality of the elderly, which is a recent social issue. The analysis result displayed that the amount of data regarding ‘senior dance’ varied depending on each press report topic. Senior dance was mostly reported by local newspapers, as a cultural and social activity of a region. Besides, the change by year indicated that the rapid increase in senior dance-related news reports led to an increasing social interest in senior dance participation.

This social phenomenon aroused the need for development of national dementia response systems to provide against aging and social response systems for elderly dementia were developed by the medium of general welfare plans for the elderly for globalization of life quality suggested by the Ministry of Health and Welfare suggested in 1996, the 5th revision of the elderly welfare law in 1997, Long-Term Care Insurance for the Aged in 2008, dementia management measures in 2008 and the enactment of the dementia control act in 2011(Jung Don Kwon, 2018). It is thought that starting with these policies and institutions, the amount of news data rose, since programs for promoting seniors’

participation in diverse activities were developed to satisfy the needs for elderly welfare and a social interest grew too, at the same time.

This is well shown in key word network analysis and a participant, a program, an instructor, a chairman and an elderly member are representative key words. This means that the relationship as a participant and instructors play an important role in promoting seniors' dance program participation. Eun Joo Cha, Ji Young Kim(2019) suggested a dance program in Multisensory Environments for prevention of elderly dementia. As the importance and necessity of training instructors for senior dance education is rising(Ji Eun Yun, 2020), a systematic setup of professional senior dance instructor training will be required in future.

According to Word Cloud analysis of senior dance-related news big data, senior dance-related news big data were related to musical and physical activities of diverse leisure activities, such as signing class, lifelong education program, health exercise and Samulnori that the elderly join. The study analyzing big data of elderly images demonstrated that in our society, the elderly was to be respected, not to be merely protected(Sun-Bo Han, Hyun Sim Lee, 2016). In a similar context, Word Cloud analysis in this study also contains the key word, elders.

Although many different elderly policies have been established by the country and local governments for elderly welfare thus far(Hyeong-sang Jeon, 2017), it is required to make an attempt at development of diverse and efficient dance programs, which are applicable to the actual field. This attempt will help in increasing participation in dance-related activities for elderly wellness.

Furthermore, the recent field of elderly welfare is discussing welfare policy making plans through news big data too(Jiyoung Yeo, 2021). Studying social perceptions of the changing elderly, their activities and behavioral expressions through a multilateral use of atypical data and new big data about senior dance in the society may bring unexpected, new results.

Conclusion

Based on these findings, the following conclusion was produced. Since there is a rising concern about the elderly, with the advent of the aging society, the interest in dance for the elderly and professionalism need to be improved. The interest in senior dance participation has mostly concentrated on local news reports and the social interest decreased again after its increase. There is a need to understand what the elderly wants and needs in reality to enlarge participation in senior dance.

When it comes to solving diverse issues in recent times, big data are used to predict behaviors or responses of people. Therefore, further research may need to seek practical plans for enhancing diversity and satisfaction using big data to scale participation in senior dance up. This study has

significance by analyzing a macroscopic social phenomenon of senior dance using big data and follow-up research for enlarging participation in dance-related activities of the elderly is demanded, based on the meaning and interpretation of these study results.

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