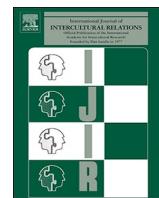




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The main factors affecting cultural exchange between Korea and China: A semantic network analysis based on the cultural governance perspective

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ABSTRACT

The cultural exchange paradigm evolved into cultural governance because of recent changes in the cultural exchange environment. This resulted in the diversification of cultural exchange subjects, the multi-channelization of methods, and diversification of contents; furthermore, cooperation between government and private sector has become particularly important in the cultural exchange process. This study examines influential factors in the cultural exchange between Korea and China from the perspective of cultural governance. To accomplish this, we collect text data on the cultural exchange between the two countries and conduct text mining. We then perform semantic network analysis and ego network analysis by selecting 80 major words included in the data collected from the digital portals of both countries. The results show that cultural exchange between Korea and China has transformed from government-led initiatives into private sector ones with information, communication, and technology-based platforms as important channels. For example, in the Korean channel, the “Korean Wave” played a central role in cultural exchange, whereas in the Chinese channel, the capacities of civilians and government agencies were the main factors. Moreover, cultural exchange between the two countries has been expanding, thus indicating the increasing importance of civilians and private platforms in cultural governance.

Introduction

Cultural exchange is a reciprocal process in which symbols, artifacts, genres, rituals, and/or technologies are exchanged between two cultures with symmetrical power (Rogers, 2006). Interacting with another culture also means absorbing the cultural strengths of the other country in order to enhance cultural development. The specific methods, principles, and contents of cultural exchange differ from one era to another. This indicates that the paradigm of cultural exchange has evolved with the changes in various cultural exchange environments (Boneta & Négrier, 2018). The paradigm shift requires a structural change, and the trend that results in such change is cultural governance. Since modern cultural exchange presupposes cultural diversity and equality among exchange actors, the cultural exchange should be approached from a cultural governance perspective, which emphasizes the power of various factors (i.e., the state, civil society, and the market) on cultural influence (Čopič & Srakar, 2012; Foucault, 1991).

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There is also cultural governance that emphasizes aspects of cultural policies (Schmitt, 2011), including those related to market efficiency and new public management (Lindqvist, 2012). Also, cultural rights, knowledge societies, and creative economies are important stakeholders in the political, economic, and societal arenas (Mercer, 2012; Weber, 2010). From the standpoint of good governance, cultural governance occurs when citizens, international organizations, and non-profit organizations participate in public issues (Portolés, Čopić, & Srakar, 2014). However, although there are numerous perspectives on cultural governance, commonalities can be found among the various factors of cultural exchange.

The purpose of this study is to identify the main factors influencing cultural exchanges between Korea and China from the viewpoint of cultural governance. The selection of these two countries was based on the following criteria: (1) homogeneous cultures; (2) geographical proximity; (3) high mutual economic dependence; (4) instability of diplomatic relations; and (5) different political systems. According to previous studies, the first three aspects are considered to be beneficial for cultural exchange (Park, 2016; Cho & Barak, 2008; Hofstede, Garibaldi de Hilal, Malvezzi, Tanure, & Vinken, 2010; Torre, 2008; Desrochers, 2001; Guiso, Paola, & Luigi, 2006), whereas the fourth and fifth aspects are factors that can interfere with cultural exchange (Cohen, 1987; Haacke, 2003; Morgan & Watson, 1991; Verba, 2015). Moreover, since the two countries have maintained a sophisticated cultural exchange process that includes both facilitating factors and impeding ones, understanding such factors will provide important information for sustaining cultural exchange and cooperation in the future.

In particular, the cultural aspects of Korea, which have been the main source of the “Korean Wave,” have played an important role in the cultural exchange between the two countries (Chuang & Lee, 2013; Ryoo, 2009). Meanwhile, China has become a cultural powerhouse through its strategic changes and developments (Xiang, 2013). As a result, the cultural exchange between the two countries has been balanced and robust. Nevertheless, empirical analyses of the relationship between Korea and China have mainly focused on economic perspectives (e.g., Chen, Chen, & Yao, 2012; Cheng, 2017; Geng, Tian, Sarkis, & Ulgiati, 2017; Lee, 2016; Tang, 2015; Yang & Greaney, 2017), due to the difficulty of quantifying cultural aspects.

Despite such difficulties, information, communication, and technology (ICT) development has greatly expanded, which has allowed researchers to incorporate unstructured textual data into empirical analyses. Social issues are expressed in the language and text of the public, and these textual data can be analyzed to make meaningful interpretations related to the research topic. Hence, we focus on the discourses that appear in the cultural exchange between Korea and China and conducts text mining and network analyses to examine the main factors that affect such an exchange between the two countries.

The remainder of this study is as follows. Section 2 explores the various theories surrounding cultural exchange and cultural governance, whereas Section 3 discusses the methodology used in the big data, text mining, semantic network, and ego network analyses. Finally, Section 4 summarizes the main findings, whereas Section 5 presents the conclusion.

Literature review

Cultural exchange

As stated earlier, cultural exchange is a reciprocal process in which symbols, artifacts, genres, rituals, and/or technologies are exchanged between two cultures with symmetrical power. Examples include the reciprocal borrowing of words and phrases, mutual influence on religious beliefs and practices, technological exchange, and two-way flows of music and visual arts. Such types of cultural exchange are generally voluntary, with the “choices” being individual and/or cultural. Previous studies on cultural exchange can generally be divided into three types: (1) those focusing on the exchange of cultural aspects in general (Herring, 1996; Higson & Maltby, 1999; Jongenburger & Aarssen, 2001; Kenner, Ruby, Jessel, Gregory, & Arju, 2008; Komlodi et al., 2007; Ongiri, 2002; Russo, 2011; Thyne, Lawson, & Todd, 2006; Wagnleitner, 2001); (2) those on cultural exchange at a multinational level (Bellina & Silapanth, 2006; Ferreira, 2012; Flint, 2008; Foltz, 1999; Liu & Shaffer, 2007; Lydon, 2009; Reiss, 2002; Williams, 1996); and (3) those on cultural exchange within a single country (Callemans, 2010; McIntyre-Tamwoy, 2004; Thyne et al., 2006).

Regarding the first type, cultural aspects mainly include language, media, music, tourism, and education. From the perspective of language tools, the characteristics of cultural exchange differ depending on the social relations, the multi-ethnic environment (Jongenburger & Aarssen, 2001; Russo, 2011), and the digital environment (Herring, 1996; Kenner et al., 2008). Regarding media, a film or drama promotes the cultural exchange of a homogeneous culture (Higson & Maltby, 1999), whereas the enthusiasm for the main character(s) fosters the spread of a heterogeneous culture (Ongiri, 2002). In the field of tourism, Thyne et al. (2006) found that visitors' national culture, age, and type of travel are important factors that influence cultural exchange in the host country. Moreover, Wagnleitner (2001) noted that the “cry for freedom” during the Cold War not only influenced American music, but it also spread the music around the world through cultural exchange. These and other related cultural exchange studies show that such exchange greatly depends on the type of culture involved.

As for the second aspect, cultural exchange at a multinational level refers to an exchange between two or more countries, including the propagation of a culture from one country to another and the cultural fusion between the countries involved (Bellina & Silapanth, 2006; Ferreira, 2012; Liu & Shaffer, 2007; Williams, 1996). This also includes a cultural exchange between countries with both heterogeneous and homogeneous cultures. Previous studies have also shown that the role of the intermediary is important for the success of cultural exchange (Ellwood et al., 1994; Goodey & Low, 1998; Pires, 2000). Conversely, cultural exchange between homogeneous cultures has the advantage of being relatively swift, but it is not completely independent from mutual political and economic influences (Manguin et al., 2011; Stokes & Maltby, 2004).

Regarding the third aspect, cultural exchange within a single country refers to the exchange caused by diverse races, vast land areas, various age groups, and other issues such as language, customs, food, and values (McIntyre-Tamwoy, 2004). Cultural exchange

within a single country is, in general, more homogeneous. Thus, it is easier to exchange and diffuse the cultural aspects, compared with such an exchange between two countries (Jongenburger & Aarssen, 2001).

Cultural exchange and governance

Cultural governance is a new paradigm in which the government, businesses, and citizens are equally involved in policy formation, enforcement, and evaluation of cultural activities. This approach strays away from government-led administration and increases the roles/functions of corporate and community organizations (Fligstein, 1998). In this context, the cultural services provided by the private sector and non-profit organizations have become essential factors in the development of cultural governance. Since the role of the private sector is essential for cultural governance, it is necessary for the public and private sectors to actively establish a relationship with the government sector. Regarding the existing cultural governance system, Lee (2007) explained that its framework includes policy formation, enforcement, and evaluation, through the intermediation of cultural exchange between the public and private sector, cultural foundations, and international organizations. Cultural governance not only diversifies the subjects and objects that provide and propagate culture, but it also takes a diversified cultural distribution route (Lee, 2015). This paradigm shift is also seen in cultural exchanges between countries. It is developing as a horizontal cultural exchange based on mutual respect, autonomous cultural enjoyment, and empathy from the past vertical cultural exchange (Wang, 2014). In addition, such previous type of cultural exchanges was specifically goal-oriented and forms of instrumental diplomacy between countries. However, the stage of promoting cooperative international cultural exchanges has been introduced, in which various actors interact with “private sector” as a core of cultural exchange (Belton, 2012), and cultural communication transcends geographical and temporal boundaries. The development of technology has quickly established a horizontal network structure in which political, economic, and social systems have become important cornerstones for the transformation of the cultural exchange paradigm. As a result, the government-led international cultural exchange, in terms of forms, fields, subjects, and content, has evolved into cultural governance in which government and the private sector cooperate. The changes in the cultural exchange paradigm between countries are shown in Fig. 1.

This also implies a bottom-up governance system in which cultural exchange by the government is promoted beyond the local arena, thereby expanding such an exchange around the world. Meanwhile, the establishment of different forms of international cultural governance at the local level will promote cultural exchange between various countries in the future (Rachael, 2016).

However, current trends are moving away from the previous framework, which indicates that the production/consumption of an existing culture is aiming to find a system of governance through the virtuous cycle of creation, mediation and transmission, consumer enjoyment, and reflection. Hence, in the field of cultural exchange, not only the roles of intermediaries, but those of producers are essential. In other words, although cultural administration initially used the services of cultural experts, opportunities for the general public to participate in cultural activities are now being provided. Such opportunities include producing various forms of cultural products (e.g., films, art, concerts, and music) and creating a medium for cultural exchange (e.g., the “Korean Wave”) at a multinational level. In this sense, cultural governance has been realized by creating various forms of cultural exchange and encouraging the participation of various groups. More importantly, even in the process of changing the cultural exchange frame, there is still an individuality in the cultural exchanges between countries. Thus, the political, economic, social, and historical characteristics of each country can cause governance differences. Furthermore, each government generally adjusts the pace of cultural exchange between countries according to their cultural maturity. In addition, governments identify and cultivate factors leading to cultural exchange within a cultural governance system and regulate them within an institutional framework. Understanding country-specific cultural governance factors is important for promoting mutual understanding among countries engaged in cultural exchanges and developing cultural exchanges in a collaborative and constructive manner.

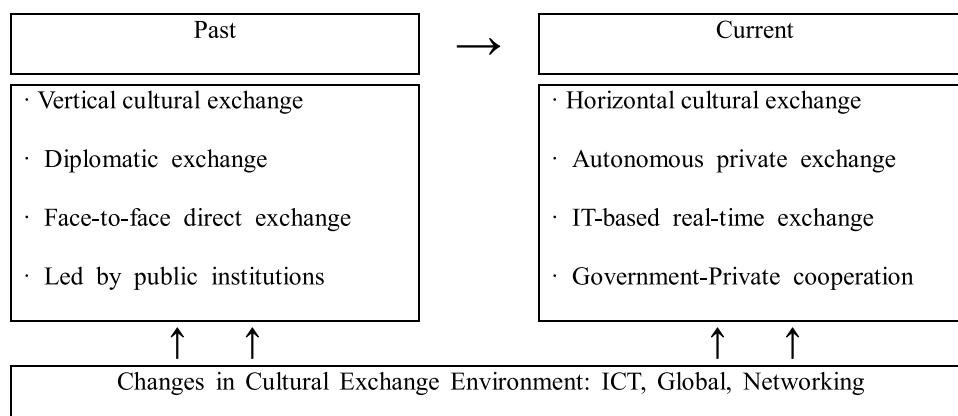


Fig. 1. Changes in the paradigm of cultural exchange between countries.

Cultural exchange between Korea and China

Since the establishment of diplomatic relations between Korea and China in 1992, the two countries have made significant economic and cultural progress. In regard to cultural exchange between Korea and China, it can be broadly categorized into government-led political factors and private-led economic factors.

As for the government-led political factors, they include carrying out cultural exchange based on concrete cultural agreements between the two countries. One of the most important achievements has been the establishment of a cultural center in both countries. Each cultural center has dramatically contributed to the promotion of cultural exchange by developing various activities (e.g., language education and exhibitions) in numerous fields (e.g., arts, education, and sports). With the growth of the role of culture in national development, cultural exchange has gradually shifted from simply promoting cultural aspects to promoting national interests. Thus, it is expected that, through the exchange of cultural aspects, there will be more cooperation between the two countries (Qu & Leung, 2006).

Regarding the private-led economic factors, cultural exchange has broadened mutual understanding and increased business opportunities in both countries. Especially after the opening of the Chinese economy, the two countries have actively promoted cooperation in the cultural industry as part of their economic exchange (Li, Hwang, & Lee, 2015). As a result, they have co-produced in various fields, including music, film, language, and ICT development, which, in turn, has contributed to the economic development of both countries. Moreover, the simultaneous spread of the “Korean Wave” and the “Chinese Wave” has expanded the cultural contents between the two countries and helped create civilian cultural events, exhibitions, and festivals. This also indicates that the center of cultural exchange has shifted from the government to the private sector.

By the characteristics of cultural exchange between Korea and China, This study collects and analyzes text data related to cultural exchanges between the two countries as big data. Through the cleaning of text data and network analysis, it is possible to determine the factors and main keywords of sustainable development and cultural exchange between the two countries as well as establish future-oriented issues and policies. The research framework in this study is presented in Fig. 2.

Data and methods

Cultural exchanges draw a variety of views, actors and complex networks (Severo, 2017). Actors' positions on issues are sharply divided and conflict-prone; when the process of solving them becomes prolonged and complicated, they incur considerable social costs. Therefore, it is necessary to identify the content of the issues, the alternative options, and the actors' positions on these options through accurate analyses. In this regard, the main contents of actors' activities and alternative options are recorded and have been examined in the literature (reports, papers, press articles, white papers, surveys, interviews, etc.) (Pennebaker & King, 1990). Based on this information, it is possible to organize an actor-network of cooperation/conflict relations or derive a network of keywords

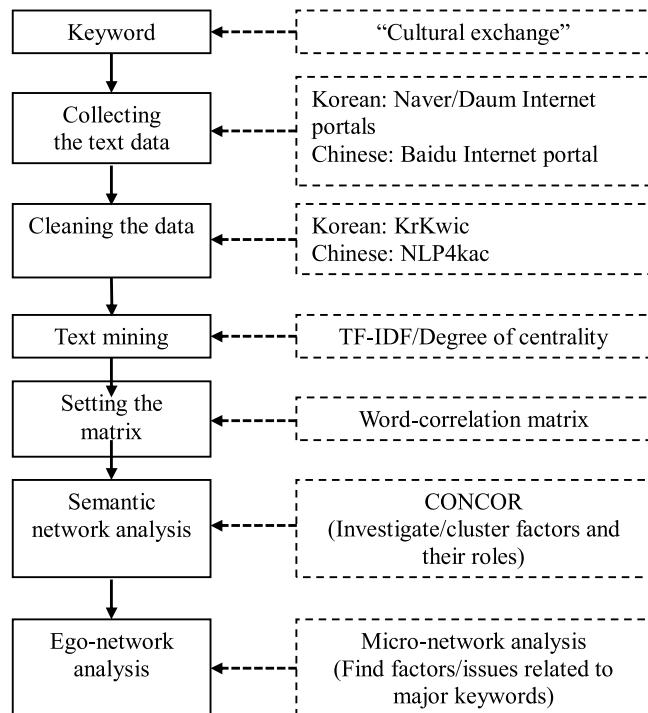


Fig. 2. Research Framework.

regarding various issues. Moreover, by selecting certain keywords related major issues, such as opinions, attitudes, feelings, and tone, various interpretations can be made according to the semantic relationship between keywords (Bobed & Mena, 2016; Diesner & Carley, 2011; Duari & Bhatnagar, 2019).

Therefore, this study collects textual data on the main arguments and alternatives that inevitably occur during the cultural exchange process between Korea and China and conducts a network analysis on said data by examining the relationship between keywords beyond a simple frequency analysis.

Data

In semantic network analysis, an individual's structured and organized semantic system influences his or her message generation (Collins & Quillian, 1972; Monge & Eisenberg, 1987). These messages appear as words, which are language texts, and combine to represent the subject of the text. Thus, the subject consists of words in the text. There are various methods for analyzing the actors or influence factors related to the subject based on the words included in the text.

First, the process of extracting words is required, followed by using tools such as word-subject dictionaries to assign topics or words grouping (words clustering or topic modeling) based on similarities between words. In order to apply this analysis procedure, this study first collected and analyzed the textual data about cultural exchange between Korea and China by utilizing the Naver and Daum Internet portals, and the Baidu Internet portal, respectively. These channels represent more than 90% of the Internet portal services in each country. Next, the collection period was designated as 20 years (i.e., 1998–2017), since this was the period in which the two countries conducted various cultural exchanges in the political, economic, and societal arenas. As a result, approximately 942,000 documents were collected from the Korean Internet portals, and about 1.29 million documents were collected from the Chinese Internet portal.

Data cleaning consisted of removing unnecessary words such as verbs. During this process, morphological analysis was performed by using the KrKwic program in Korean (www.leyedesdorff.net/krkwic) (Biddix, Chung, & Park, 2015; Park & Leyedesdorff, 2004) and the NLP4kacalgorithm in Chinese (R package from GitHub; www.github.com/NamyounKim/NLP4kec). Both morpheme techniques first divided the documents into tokens (i.e., small semantic units such as words or phrases), after which stemming and part-of-speech tagging (POS) was performed by using a morpheme dictionary and a POS dictionary. The latter process aimed to collect irregular data and process it into regular data. Overall, a total of 80,649 words (9423 from China and 71,226 from Korea) was obtained, after which the text mining and network analysis were based on these words.

Text mining: TF-IDF and degree of centrality

The term frequency-inverse document frequency (TF-IDF) technique was applied to supplement the disadvantages of analyzing the importance of words based on their frequency. In this case, the higher the frequency of a word in a particular document and the lower the number of documents containing the word, the higher the TF-IDF value. According to Salton and Buckley (1988), the TF-IDF value can be used to filter out common words in documents and to measure the importance of certain words. The present study also used the classical formula of TF-IDF analysis, as shown in the following equation:

$$\text{TF-IDF} = \text{TF} \times \text{IDF} = tf_{x,y} \times \log\left(\frac{N}{df_x}\right) \quad (1)$$

where $tf_{x,y}$ denotes the frequency of x in y , df_x denotes the number of documents containing x , and N indicates the total number of documents.

In general, centrality refers to the degree to which a particular node is centered within a network. Depending on the attributes of the relationship, centrality can be interpreted in various ways (e.g., degree, closeness, and betweenness) (Borgatti, Everett, & Freeman, 2002; Zhang et al., 2011). In the present study, the degree of centrality is measured by quantifying the degree to which a node is centered and by how much it is related to the other nodes. In this case, centrality is expressed as follows (Freeman, 1979):

$$C_D(N_i) = \frac{C_D(N_i)}{g - 1} \quad (2)$$

where $C_D(N_i)$ denotes the degree of centrality of node i , in which the value of $C_D(N_i)$ depends on the size of the network. $C_D(N_i)$, in this case, denotes the degree of centrality of node, calculated by $\sum_{j=1}^g x_{ij}$, $i \neq j$. Here, $\sum_{j=1}^g x_{ij}$ is the number of connections that node i has with the other nodes, g is the number of nodes, and x_{ij} denotes whether there is a connection between node i and the other nodes. Moreover, $g - 1 : x_{ij} = 1$ when a connection exists; otherwise, $x_{ij} = 0$.

Semantic network analysis: CONCOR and Ego network analyses

Semantic network analysis is a research technique that treats a word as a node in a network and determines whether there is a co-occurrence between certain words (Jung & Park, 2015; Jung, No, & Kim, 2014). CONCOR analysis, a representative methodology of semantic network analysis, primarily analyzes the correlation metrics of words derived from text mining and presents information about network type, density, hub node, and cluster group. CONCOR analysis is useful for grouping factors/issues with similar positions and describing the relationships between the groups (Lafosse & Berge, 2006). The equation for constructing the correlation

matrix used in this analysis is expressed as follows (Kwahk, 2014):

$$r_{ij} = \frac{\sum_{r=1}^{2R} \sum_{k=1}^g (x_{ikr} - \bar{x}_{i.})(x_{jkr} - \bar{x}_{j.})}{\sqrt{\sum_{r=1}^{2R} \sum_{k=1}^g (x_{ikr} - \bar{x}_{i.})^2} \sqrt{\sum_{r=1}^{2R} \sum_{k=1}^g (x_{jkr} - \bar{x}_{j.})^2}}, \quad i \neq j \neq k \quad (3)$$

where r_{ij} , R , g , and $x_{..r}$ represent the correlation coefficient between factors i and j , the number of relationship types, the number of nodes, and the relationship strength in relation type r , respectively. Finally, ego network analysis focuses on individual factor dimensions. Through this approach, it is possible to interpret the relationship between a main factor and other keywords associated with this factor (Barash & Golder, 2011).

Results

In this study, we collected the words related to the research topic and analyzed their TF-IDF values and degree of centrality. Based on the power-law distribution, which is a characteristic of big data, some upper words that influenced the research topic were used. From the Korean Internet portals, approximately 876,000 words were collected, after which 71,226 word combinations were obtained after data cleaning. Through text mining, the top 80 TF-IDF values were selected for analysis. From the Chinese Internet portal, about 1.37 million documents related to cultural exchange were gathered, after which 9423 combinations of two simultaneous occurrences were obtained. Applying the same rule, the top 80 TF-IDF values were used for analysis.¹ Then, the meaningful words were extracted by applying their TF-IDF rankings and degree of centrality, as shown in Table 1.

First, some cultural exchange channels (i.e., *Chinese film festival*, *Art*, *Contest*, *Tourism*, *Movie*, and *Carnival*) showed high importance (high frequency), but relatively low centrality. Second, *Confucius Academy*, *Model*, and *Honorary Ambassador* showed low centrality, compared with their importance. Third, the rankings of other cultural exchange channels (i.e., *Interchange of Chinese language*, *Photograph*, *Education*, *Exhibition*, *Broadcast*, and *Concert*) were relatively low, but their degree of centrality was relatively high. Fourth, six factors (i.e., *Student*, *Professor*, *Chinese people*, *Journalist*, *Educational Institute*, and *Korean Cultural Center*) had a high degree of centrality, compared with their importance, whereas *Andong* and *Incheon* had high importance and a high degree of centrality.

Regarding the main results of the Chinese Internet portal, *Paintings and calligraphy*, *Academic*, *Food culture*, and *Calligraphy* were viewed as cultural exchange channels with low priority, compared with their importance. Conversely, *Culture project*, *History*, *Opening ceremony*, *Evening party*, and *Music* had a higher degree of centrality than their importance. Next, the *State Administration of Radio and Television*, *Director*, *Research Institute*, *Group*, and *Korean Cultural Center* had high importance, but a relatively low degree of centrality, whereas the channels with a higher degree of centrality than their importance were *Korea*, *Chairman*, *Both countries*, *Young people*, *Country*, *Citizen*, *Private*, and *Government*.

The results showed that words related to actors and contents in cultural exchanges were located at the center of text in the Korean portal. From the viewpoint of cultural governance, communication and cooperation among various participants help promote cultural exchange, and the results of text mining analysis satisfy this view by highlighting the following keywords: *education*, *media*, *market*, *human capital*, and *governmental agencies*. Cultural governance also regards diversification of cultural contents as important; *language*, *art*, and *exhibition* are the main areas of cultural exchange. It is important to note that content composition is shifting from emphasizing the end product to the process' progress. The results of the Chinese portal, as with those of the Korean portal, include many actors and content-related words that drive cultural exchanges. The main actors had numerous words related to public characteristics, whereas the contents had more eventful macroscopic words rather than specific classifications. From the perspective of cultural governance, since government-civil communication and cooperation is still in its nascent stage, it is important to focus on short-term projects and cultural events rather than self-directed, long-term cultural exchange projects.

After text mining, semantic network analysis was conducted by using the matrix of the top 80 words. Through this process, it was possible to investigate the structure of the semantic network and the matrix clusters. The results of the CONCOR analysis are presented in Table 2.

In the Korean Internet portals, a total of six clusters were found. The average degree (71.825) refers to the average value of the sum of the in-degree and out-degree of the nodes as well as serves as a measure for determining the connectivity between certain words. Meanwhile, the average clustering coefficient was 53.747, which implies a closeness with neighboring nodes. In the entire network, nine hub nodes were found: *Cultural exchange*, *China*, *Korea*, *Korean Wave*, *Event*, *Representative*, *Performance*, *Exchange*, and *Performance*, of which four (*Korean Wave*, *Cultural exchange*, *Event*, and *Performance*) occupied key positions in the clusters.

As for the Chinese Internet portal, the number of clusters was seven, which is one more than that of the Korean Internet portals. Also, the average degree (35.612) and the average clustering coefficient (11.092) were lower than those for Korea. Overall, the clusters in the Chinese network had a lower density and connectivity than those in the Korean network. In the entire network, 10 hub nodes were found: (*Activity*, *Art*, *Research Institute*, *Paintings and calligraphy*, *Director*, *Beijing*, *State Administration of Radio and Television*, *Korea*, *Korean Cultural Center*, and *International*, with three terms (*International*, *Korean Cultural Center* and *Beijing*) occupying significant positions in the clusters.

¹ In this study, the authors confirmed that the words with TF-IDF rankings of over 80 did not have a significant correlation with cultural exchange. The authors also empirically confirmed that the number of appropriate words in the visualization process was 50–120 (Park, 2018; Sung & Park, 2018). Therefore, the threshold of 80 words was important for analyzing the level of cultural exchange between the two countries.

Table 1

The text mining results on cultural exchange between Korea and China.

Subject		Cultural Exchange between Korea and China/China and Korea	
Collecting Channel		Korean Portals	Chinese Portal
Significant Words Words (① > ②)	Chinese film festival (7/38); Art (15/27); Contest (16/26); Introduce (23/35); Tourism (24/39); Subject (26/60); Confucius Academy (30/58); Movie (31/46); Carnival (38/62); Model (41/74); Urban (42/57); Section (46/79); Honorary Ambassador (51/76); Foundation (55/80); and Andong (63/78).	State Administration of Radio and Television (2/66); Director (4/48); Paintings and calligraphy (17/67); Research Institute (18/74); Chengdu (30/42); Yantai (31/53); Academic (37/49); Food culture (40/78); Group (43/75); Calligraphy (44/54); Korean Cultural Center (50/68); The South Sea (54/79); and Grand (55/70).	
	Progress (28/14); Interchange of Chinese language (32/15); Photograph (40/20); Education (47/34); Market (53/43); Student (58/29); Professor (59/30); Chinese people (60/40); Journalist (61/22); Incheon (69/59); Educational Institute (75/45); Exhibition (76/51); Broadcast (77/65); Concert (78/52); and Korean Cultural Center (80/56).		Korea (16/4); Chairman (29/18); Xian (34/23); Both countries (35/25); Ceremoniously (36/21); Young people (39/26); Culture project (42/28); School (46/33); Country (47/37); Urban (52/34); Korean Wave (56/36); Citizen (57/27); Channel (62/17); History (63/45); Opening ceremony (64/51); Section (65/52); Evening party (67/46); Private (70/59); Contents (71/56); Special (72/57); Liberal arts (73/60); Music (75/35); and Government (78/47).

Note: ① and ② refer to the TF-IDF rankings and the degree of centrality rankings, respectively.

Table 2

The results of the CONCOR analysis.

Subject		Cultural Exchange between Korea and China/China and Korea	
Collecting channel	Korean Portals	Chinese Portal	
Number of clusters	6	7	
Average degree	71.825	35.612	
Average clustering coefficient	53.741	11.092	
Major hub nodes	Cultural exchange; China; Korea; Korean Wave; Event; Representative; Performance; Exchange; Performance.	Activity; Art; Research Institute; Paintings and calligraphy; Director; Beijing; State Administration of Radio and Television; Korea; Korean Cultural Center; International.	
Significant keywords in the major clusters	Korean Wave; Festival; Cultural exchange; Event; Performance.	International; Forum; Channel; Korean Cultural Center; Beijing; Educational Institute; University; Work of art.	

On the basis of the findings, in the Korean network, the government and private sectors have created diverse cultural exchange channels. In terms of cultural governance, government-private cooperation is made at a certain level in cultural exchanges with China. It also shows that cultural content, where production and consumption of culture go hand in hand, is drawing attention. So, in the network, the cultural exchange with China occurred through events, tourism, performances, and language. Another characteristic of cultural governance is that “culturalization,” in which the cultural exchange subject changes from the national level to the regional level, is strongly emerging. Therefore, the results of the network show that the cities of Gwangju and Incheon in Korea and Beijing in China played a crucial role in cultural cooperation. A characteristic of cultural exchange that can be seen in the Korean network is “Korean Wave,” and it has been influential in Asia as well as in the world. In addition, international festivals have been essential channels for promoting cultural exchange (see Fig. 3).

However, by analyzing the words that make up the top three clusters in the Chinese network, China has continued to use a government-led (*Country*, *Government*, and *Association*) approach in its cultural exchange with Korea. At the cultural governance level, China’s cultural exchanges are still not decentralized. This can be seen particularly because many cultural exchange organizations or non-governmental organizations in China are financially dependent on the government. Regarding the network details, first, the expansion of cultural exchange in various industries and projects has been linked to economic development. Second, the city of Beijing has been the most active regarding cultural exchange. Third, the Korean Cultural Center has been an important platform for introducing and exchanging culture in small- and medium-sized cities (e.g., *Chengdu*, *Xian*, and *Yantai*) in China (see Fig. 4).

In order to analyze the ego network, we selected three significant words in each country based on the text mining and CONCOR results: *Association*, *Korean Wave*, and *Chairman* in the Korean network and *Government*, *Cultural project*, and *Korean Cultural Center* in the Chinese network. The three words of the former represent a core cultural exchange, a private-sector actor, and modern Korean culture, respectively. The latter three words reflect Chinese specialty with government-led cultural exchange characteristics. Ego network analyses of these specific keywords can highlight more detailed connections between words and also consider the strength of the influencing factors. The ego network analyses of these factors and related words are shown in Fig. 5.

It is evident that all three words of Korean portals are strongly connected to *China* and *cultural exchange*. Moreover, *Association* is simultaneously linked to various cultural contents and to expending friendly and commercial visits between the two countries. *Chairman*, a civilian-level representative, can be seen as deeply involved in various cultural content fields that can form a business. Such commercial activity is also an important factor in expanding the private sector in terms of cultural governance and encouraging cultural exchange and diffusion.

Furthermore, various factors were the primary promoters of cultural exchange between the two countries (*Event*, *Visiting*, *Tourism*,

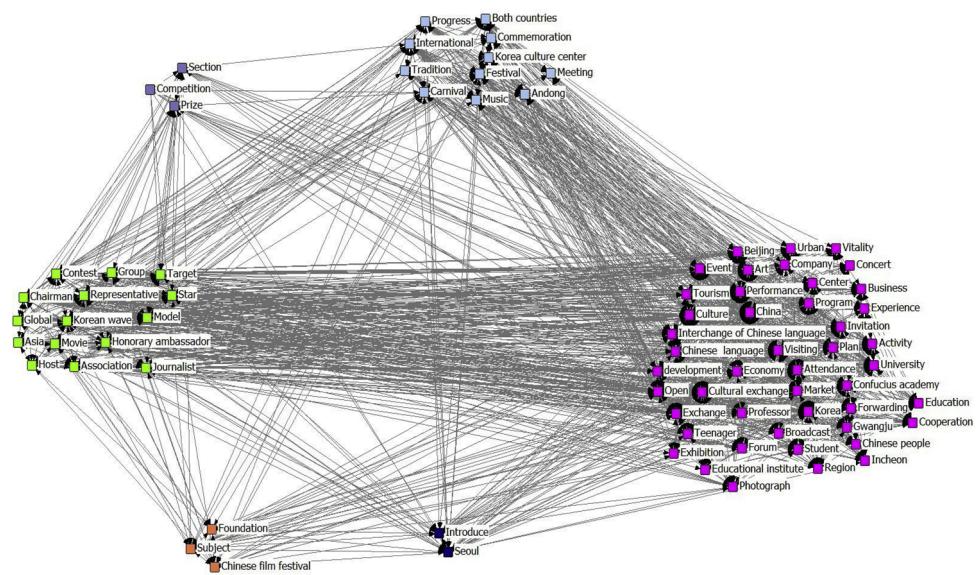


Fig. 3. The results of the CONCOR analysis of the Korean internet portals.

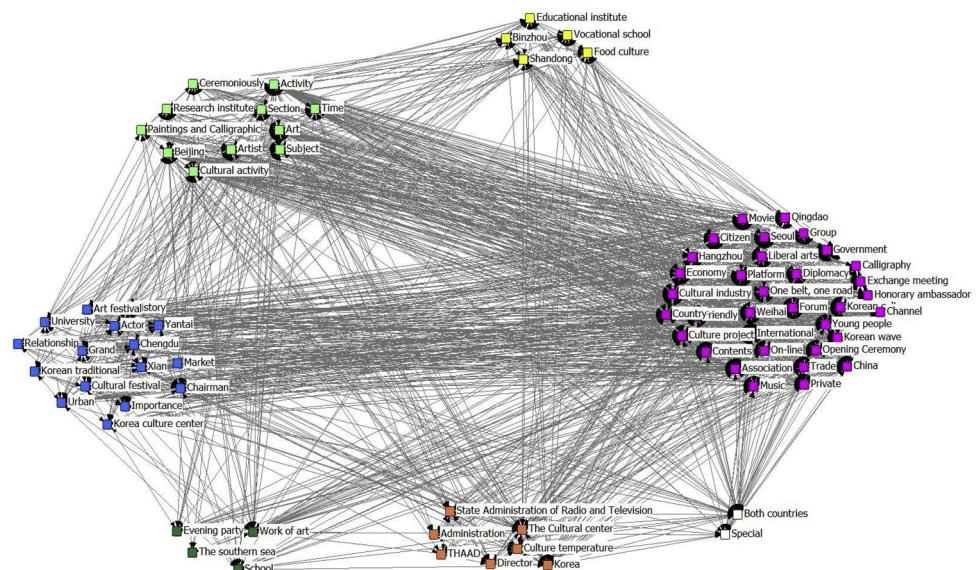


Fig. 4. The results of the CONCOR analysis of the Chinese internet portal.

Exhibitions, Contest, Education, Languages, Art, etc.), whereas various members, such as professors, model company representatives, and popular public figures, contributed to the development of cultural governance. The “Korean Wave” also played an important role in creating a diverse cultural exchange channel (*Event, Carnival, Concert, Festival, Program, Performance, Contest, Films, Forums, etc.*), in addition to its influence on Asia and the rest of the world. *Chairman*, one of the representatives of the private sector, helped spread the Chinese culture based on various targets and themes.

Meanwhile, the Chinese government played a leading role in cultural exchange, as shown in the network structures related to various national projects (e.g., *One Belt and One Road, Culture project, and Cultural industry*) and diplomatic issues (e.g., *THAAD*). Cultural projects were also strongly linked to the “Korean Wave” and the economy of both countries, with young people as the main axis. Finally, the establishment of cultural centers in the two countries has helped form an effective network connecting various programs and organizations. Notable is the strong link between the relevant government agencies in China (e.g., *Director*), thus suggesting that the government is still affecting cultural exchange in the country.

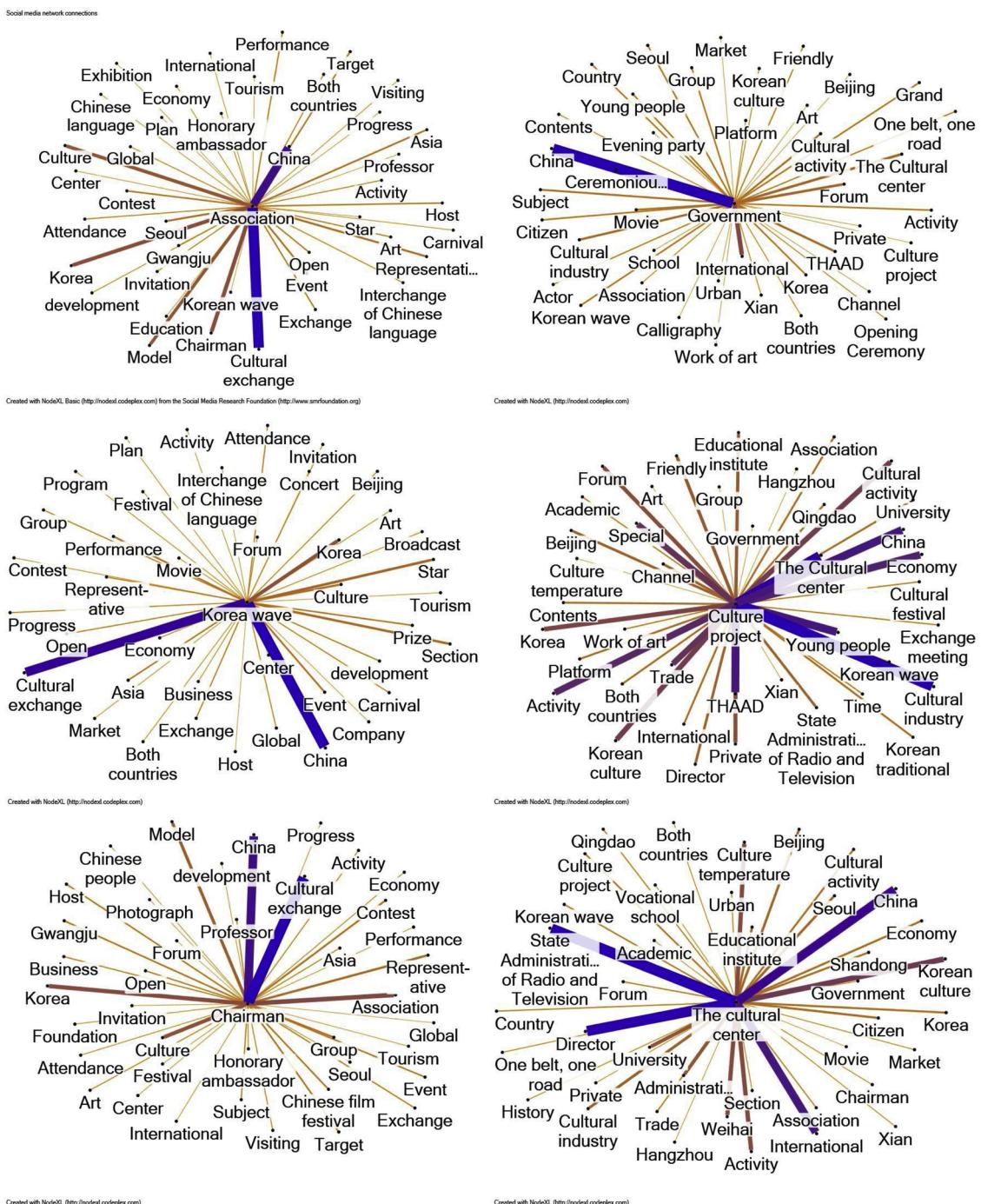


Fig. 5. The results of the Ego network analyses.

Discussion and conclusion

The purpose of this study was to examine the main factors affecting cultural exchange between Korea and China. Through the semantic network analysis of the data gathered from the Korean and Chinese Internet portals, crucial factors for promoting cultural exchange between the two countries were identified. More specifically, the factors aimed at promoting cultural exchange between the government and the private sectors as well as fostering political and economic interests. This indicates that cultural exchanges between the two countries take the form of cultural governance. The diversification of exchange subjects, the transformation of the exchange center area, and the richness of the exchange contents illustrate these results.

First, this study identified the issues and interests related to cultural exchange between Korea and China, based on word importance and the degree of centrality. In the Korean Internet portals, future-oriented words for cultural exchange between the two countries appeared the most, whereas in the Chinese Internet portal, region-related words had a high degree of centrality, which means that cultural exchanges were actively carried out at the local level. Also, cultural exchange between the two countries was developed not only by the government but also by various members in both countries. The cultural exchanges that have been attempting to establish universality through unilateral propagation of their own cultures, such as imperialist cultural exchanges in the past, now featured characteristics of cultural governance that seeks to spread and exchange superior and valuable cultures based on specific regions.

Second, the results of the semantic network analysis found that the primary motivators of cultural exchange between the two countries were the diversity of cultural exchange channels, the development of ICT platforms, and the promotion of cultural exchange at the local level. From the perspective of cultural governance, the cultural exchanges between neighboring countries in the past have been based on political interests; however the results show that cultural consensus is formed based on mutual understanding and cultural respect. This indicates that the cultural exchange between Korea and China has evolved, developed, and diversified. In addition, the use of ICT was found to be an important factor in promoting cultural governance by providing a basis for cultural exchange between the two countries, which transcends national boundaries and geographical boundaries, enabling effective real-time communication and interchange between both cultures.

In China, the role of the government in cultural exchange has been essential, along with political and economic issues. Thus, although cultural exchanges led by the private sector have been more active in recent years, the Chinese government still plays an important role. China's cultural exchange is closely related to the socialist political system (Yu, 1991), and can be perceived as promoting gradual cultural propagation. This perception results in the implementation of policy to limit political instability caused by radical cultural exchange. However, the shift in the governance paradigm of cultural exchange is a global trend that goes beyond the central government's regulatory or institutional framework. Thus, cultural exchange in China shows an early form of cultural governance in which private autonomy and cooperation are achieved under government regulation. Nonetheless, the development of ICT, smart devices, and communication technologies will be important initiatives in rapidly moving from government-led cultural exchanges. Conversely, in Korea, various civic-oriented events and cooperation have contributed to cultural exchange. The unique cultures of the locals in both countries have also expanded, because of the diversification of media contents and ICT platforms.

It is important to note that cultural exchanges between the two countries are changing from focusing on finished products, such as performances, exhibitions, cultural assets, and art works, to on-going processes. The current trend favors a project-based process from planning to production until distribution, which strongly reflects the characteristics of cultural governance. In other words, the cultural exchange paradigm is not a one-way propagation or promotion of culture, but a process in which communication and cooperation are based on mutual respect and understanding. Therefore current cultural exchange is becoming more active in process-oriented exchanges on the assumption that various actors participate in the planning stage or participate in the production process. However, there is still a need to diversify content composition for such exchanges between the two countries in the future.

Third, by the ego network analyses, this study found that the "Korean Wave" has been important for promoting global cultural propagation while creating added economic value. For example, idol groups, which are extremely popular in the Asian market, originally consisted of Koreans. However, such groups have become increasingly multinational. In fact, it is believed that these groups have become "civilian ambassadors" in the global network. The results of the Chinese ego network analysis have also confirmed the significant blueprint for developing and promoting cultural exchange in connection with global projects promoted by the Chinese government. For instance, the "One Belt, One Road" initiative is an important project that realizes China's economic and cultural revival in the 21st century by simultaneously promoting cultural exchange and propagation. Hence, neighboring countries should carefully decide whether to take advantage of China's economic and cultural revival.

Thus, cultural exchanges between the two countries are implementing policy measures justified and made necessary by current events in line with the cultural governance framework. This is because such exchanges are becoming more complicated because of the new paradigm and the increased cultural importance of standards for enhancing national competitiveness. Nevertheless, we must take the lead in cultural governance trends by constantly asking for the right direction in the change of cultural exchange paradigm. In this sense, the two countries must be aware that cultural exchanges are not aiming for an excessive commercialism that is too well-integrated into the framework of changing times. It should be kept in mind that cultural exchanges are based on mutual understanding and established cultural relations and aim to encourage cultural acceptance, convergence, development, and evolution.

The influence of culture should therefore be a positive influence that motivates cultural development of other countries at a global level. In addition, the power of cultural exchange should lead the economy with the power of the cultural industry, and the power of culture should become an important force that enhances the knowledge of the people. Various cultural contents of both countries should be exchanged in order to motivate current and future cultural development from an individual to a societal level.

Overall, the academic approach in this study includes several implications: (1) it revealed the characteristics of cultural exchange in terms of governance; (2) it analyzed the discourses in the private sector that reflect the subject of cultural exchange and its change from government-led to private-led initiatives; (3) it focused on the characteristics of cultural exchange between Korea and China through big data collection, data mining, and network analyses. However, it is important to note that the strategic application of cultural exchange policies is an integrated process that involves analyzing social networks and gathering public discourse data. Thus, in order to efficiently carry out the process, smart and sustainable cultural-exchange governance platforms should be mutually established through openness and cooperation.

Finally, this study includes two limitations that should be noted. First, the amount of information gathered from the Internet portals in both countries was not equal, which may have affected the outcome. Hence, future studies should use additional Internet

portals or documents in order to equalize the results. Second, this study only identified the issues discussed among the public. Therefore, future research should focus on not only public discourses but also the opinions of cultural experts. This can be important for policymakers since they must consider both the opinions of experts as well as those of the general public when making long-term decisions.

Declarations of interest

None.

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