A big data study of language use and impact in radio broadcasting in China

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Ruihua Zhang[1,2], Jincheng Zhou[3], Tao Hai[3,4], Shixue Zhang[2,5*], Marvellous Iwendi[6], Mohd Asif Shah[7,8,9*] and Jude Osamor[10]

Abstract

Broadcasting more educating and language-reviving contents are ways radio stations can help revitalize the use of the English language in the Hunan province of China. The challenges faced in communicating in English in Chinese radio stations are majorly caused by the lack of language professionals and linguists in the broadcast stations. The absence of these professionals is a major constraint to the development of the community. The broadcast media can help manage multilingualism through the introduction of new words which would give little or no room for lexicon dearth but would expand the language lexicon. Using the English language during broadcast reduces language dearth, and helps reach a much larger audience, even those not in China. Programmes anchored in English in places where the language is barely spoken enhances the vocabulary, comprehension and language vitality of the listeners. This study examined the impact of the English language used in radio broadcasting using a descriptive Big Data survey research design. The study's population comprises of the inhabitants of the Hunan province in China, from which a sample of 50 broadcast staff and 150 regular inhabitants was drawn using a stratified random sampling technique. The instrument of data collection was a structured questionnaire with closed questions and a self-structured interview. The sample employed frequency distribution tables, percentages, and charts in the presentation and analysis of data. The results revealed that majority of the respondents in Hunan listened to radio broadcast indicating that the use of English language can have massive impact on the people. The study also found that majority of the respondents use their indigenous languages in their day-to-day activities as well as their schools with English being used majorly only in schools with only English-speaking students. The study recommends, amongst others, that the Broadcasting Corporation of China (BCC) review their policy on the allocated time of broadcast in English languages, and that more English language experts and linguists should be incorporated into the broadcast system.

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Introduction

Language is a form of communication which allows humans to share their thoughts, beliefs, ideas, experiences, etc., and are presumably known to the sender and receiver of such communication [1]. Language can determine and influence the thoughts of man and is needed for man's daily communication. It is used for domestic, religious, and commercial purposes. He [2] confirmed the usefulness of language, as it enables man to conceptualize, depict, and even portray the complexities and nature of his environment. The effectiveness of communication in a society is largely dependent on how well that society uses the language peculiar to their geographical area. Language serves as a major instrument of exchange through varied media such as electronic media, of which radio is one of the oldest electronic media of communication. The need for community radio stations, especially in communicating their messages to the society via the use of indigenous languages, cannot be overemphasized.

Over the past decades, radio has played a significant role. It has helped maintain peace, unity, and harmony among people all over world. It has always been used during any matter of national security or emergency. Radio as an electronic medium serves three major purposes—informing, educating, and entertaining. If some information is to be disseminated and the appropriate language is not used, the audience may not be able to comprehend such information. The language employed by a media-house goes a long way in determining the listenership strength and effectiveness of its services. Most of the electronic media operating in China are Mandarin-based. This is despite the fact that English language has grown all over the world as the predominant language at the expense of other languages. Using the English language to interact with the masses through the media, especially the radio, enhances their comprehension and vocabulary. Studies have shown that for the language least spoken; English in this case, radio broadcasting is a good channel of mass communication because it reaches more peripheral areas than other media, and helps the audience improve their English speaking skills [3]. Many scholars argue that the global spread and acceptance of English as a world lingua franca poses a serious threat to the existence of most indigenous languages in Africa and the world in general [4, 5]. Various scholars allege that due to their recognition as national languages, other languages are considered minor and remain on the fringes of the sociolinguistic milieu. The same can be said for China, a multiethnic society, with Mandarin as the official language of the country, and Cantonese, Tibetan, Mongolian, Uyghur, Zhuang, etc. as some of the indigenous languages. The numerous indigenous languages enjoys high prestige to the detriment of the English [6]. Indigenous language in electronic media carries over 80% of the whole period allotted to news, entertainment, and other programs in the station.

Despite English language being the most spoken language in the world, the fact still remains that there are many out there who are yet to gain mastery of it. This is so because in a society, there exist the literate, semi-literate, and illiterate. People with different academic qualifications who have been privileged enough to be exposed to English language and culture would obviously be much better off than those who haven't had such opportunity. In a multilingual society such as China, we have the Mandarin dialect, the Cantonese dialect, the Kazakh dialect, and the Chinese Pidgin English. There is a widespread use of these dialects in the society in promoting their culture and tradition, a bigger platform for English language is still needed. The question is how well the radio media has contributed to the vitality of the English language in China and how they can help improve the vocabulary of the language.

This research was motivated by the lack of previous study on the impact of using a particular language in radio broadcasting on its listeners, and the communication breakdown a society is bound to have where the wrong language is used in primary media. In light of the above, Big Data approach is used to analyze the data gotten from the studies it contains large, hard-to-manage volumes of data, especially from new data sources. This study examines the communication breakdown a society— the Hunan province— is bound to face when the language used for vital information dissemination by the broadcast media is not the language that is truly understood by all. It also examined the impact English language used in radio broadcasting has on its listeners. The research contributions of this work include:

- Determining whether the language used in broadcast stations has an impact on the languages used in Hunan, China.

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- Identifying the role of broadcast media in the management of multilingualism in Hunan, China.
- Examining the internal and external factors that influence the democratic distribution of languages in the radio stations in Hunan, China.
- Identifying the challenges faced in communicating through English language in the radio stations in Hunan, China.
- Determining how radio stations can revitalize the use of English language through their broadcast in Hunan.

The rest of this paper is organized as such: Literature review section gives an overview of related literature. Methodology section discusses the methodology of the research work. Results section discusses the results of the research. Finally, Conclusion section concludes this paper.

Literature review

In [7], the author affirmed that radio is a very important medium of information dissemination, and its language should be the one most known to all. He created a theoretical framework of eight-stage typology of language shifts, as well a set of priorities for Reverse Language Shift programs. He found that language in radio is mostly formal, because the majority of radio stations are controlled by the government. He also noted that it is partially informal because it is spoken. He attempted to determine if radio language was informal or formal from their contrasting features: serious topics such as government and current affairs are formal, and programs and talk-shows are informal. He explained the idea of language shift, i.e., if the radio content becomes more governmental, the language most known to all and sundry (English) should be used for formal topics, especially for international matters, rather than the indigenous language. The authors in [8] examined the radio language using phenomenology as a theory. They carried out research on the majority of radio stations in the United States and found that radio language is a combination of written and spoken forms. They also discovered that the social variables that determine the speech styles in radio situations differ in other situations. This implies that they believe radio language is dynamic, not fixed. In [9], the authors researched the use of the West African Yorùbá language covering topics like technology, politics, football, economy, education, sports, law, etc. in radio stations in Nigeria. Orisun FM (89.5) in Osun State, Western Nigeria was used as a case study. The electronic media was the source of the data for this paper, and no particular theoretical framework was used. The researchers found that the electronic media and its personnel have contributed in the development of Yorùbá language and in information dissemination to the public. They concluded by opining that academia should endeavor to work hand-in-hand with the media in the formation of new words for the concepts being introduced to the society.

The authors in [10] researched and used Sinhala FM in Sri Lanka as their case study. Respondents were drawn from random FM radio listeners, language teachers, college undergraduates, and radio and television staff. The results of the data showed that more and more people are turning to the radio as a means of enlightenment, increasing radio listenership. The results also showed that there is an increased level of competition between FM (Frequency Modulation) channels, now that more listeners opt for the radio. In [11], the authors studied the case of the only Chinese state-owned radio, China Radio International (CRI) allowed to broadcast overseas. The aim was to expand and make the Chinese media, language and culture more visible internationally. They believed that broadcasting in the national languages (including and especially English) of different countries would allow CRI integrate the local features with the Chinese ones more smoothly, make for better comprehension, and also reach a larger audience. The authors in [12] studied the collaboration of the CRI with a local Chinese language media company in the United States which broadcasts its programs in Mandarin for Chinese diaspora. They surmised that the actions of CRI in domestically producing and broadcasting a dozen Chinese language programmes without tailoring them according to their location led to its failure to meet the needs of the listeners. They also noted that there was no effective system in place to collect feedback from their overseas audience. In [13], the authors discussed the importance of English Language Teaching (ELT) in Chinese Radio and Television Universities (RTVU), and its role in supporting autonomous language learning and the students' response to it.

In a study of the 1968 American presidential election, the authors in [14] proposed the Agenda-setting theory. This theory proposes that while the media may not always be successful in telling us what to think, they are quite successful in telling us what to think about, implying the media's large influence on their audience [15] believed that the media is responsible for the 'pictures in our head'. The authors in [16] stated that agenda-setting theory by the media proposes that the public agenda or the topics people discuss, think and worry about is largely influenced, directed and

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shaped by media publicity. In [17], the author stated that the use of English language in the media can kindle its use, especially in places where it is endangered. He stated that English language is an essential language as far as development is concerned in order to obtain the maximum benefit from the opportunities in every area for national development. This notion is reasonable as it gives a voice to the neglected language in a particular society by setting an agenda that would pave the way for the standardization and documentation of these languages.

The theory is relevant to the study because the media can be used to set the agenda for the use of English language in radio broadcasting [18] propounded the Use and Gratification theory which advocates that people use certain media based on the gratification derived from it, implying that power is placed directly in the hands of the users. The authors in [19] further explained that this theory is based on two principal questions, i.e., why people are attracted to certain media and the kind of satisfaction this media provides the people. They stated that the answers to the questions would determine the negative and positive outcomes of using specific media. The theory stresses how and why the audience uses the media. It also explains more on the theory in [20]. The theory proposes that there are distinct benefits consumers of social media messages need, get or anticipate getting from the media, otherwise, they may desert the channel and look for alternative ones to satisfy their needs. However, the gratification theory holds that people are responsible for choosing a particular media to meet their needs in terms of the language they understand [18]. The use and gratification theory is pertinent to this study as it will help explain the extent of impact the radio stations in China can have on the listening audience through its use of English language. The proponents of the Grounded Theory Method (GTM) [21] explained it as the 'discovery of theory from data systematically obtained from social research', and allows the researcher to explore and unfold the core issues of interest first from the perspective of the key participants involved. In [22], the authors proposed a novel catalysis function for altered training of neural networks which makes it more flexible to big data. The authors in [23] provided a detailed survey on blockchain for big data, paying special attention to state-of-the-art opportunities, approaches and future directions, as well as the integration of big data and blockchain. We believe the theoretical framework adopted for this study will help gather the required data and information necessary for a proper research.

Summary of the literature review

S/N	Author(s)	Description
7	Kaufmann, Göz	This paper proposed a theoretical framework of eight-stage typology of language shifts, as well a set of priorities for Reverse Language Shift programs.
8	Valentine, K.D., Kopcha, T.J., & Vagle, M. D	This paper examined the radio language using phenomenology as a theory and carried out research on the majority of radio stations in the United States.
9	Akanbi, T. & Aladesanmi, O	This paper researched the use of the West African Yorùbá language covering topics like technology, politics, football, economy, education, sports, law, etc. in radio stations in Nigeria.
10	Ranasuriya D	This paper researched and used Sinhala FM in Sri Lanka as their case study to determine if there was an increase in radio listenership.
11	Chen, C.C. & Colapinto, Cinzia & Luo, Q	This paper studied the case of the only Chinese state-owned radio, China Radio International (CRI) allowed to broadcast overseas.
12	Zou, S	This paper studied the collaboration of the CRI with a local Chinese language media company in the United States which broadcasts its programs in Mandarin for Chinese diaspora.
13	Xiao, Frank	This paper discussed the importance of English Language Teaching (ELT) in Chinese Radio and Television Universities (RTVU), and its role in supporting autonomous language learning and the students' response to it.
14	McCombs, M. & Shaw, D.L. (	This paper proposed the Agenda-setting theory which says that while the media may not always be successful in telling us what to think, they are quite successful in telling us what to think about, implying the media's large influence on their audience.
15	Lippmann, W	This paper also discussed the Agenda-setting theory and theorized that the media is responsible for the 'pictures in our head'.

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S/N	Author(s)	Description
16	Wimmer, D. & Dominick, J.R	This paper stated that agenda-setting theory by the media proposes that the public agenda or the topics people discuss, think and worry about is largely influenced, directed and shaped by media publicity.
17	Owolabi, Dare	This paper discussed how the use of English language in the media can kindle its use, especially in places where it is endangered.
18	Katz, E., Blumler, J.G., & Gurevitch, M	This paper propounded the Use and Gratification theory which advocates that people use certain media based on the gratification derived from it, implying that power is placed directly in the hands of the users.
19	Mehrad, Jafar & Tajer, Pegah	This paper further explained that the Use and Gratification theory is based on two principal questions, i.e., why people are attracted to certain media and the kind of satisfaction this media provides the people.
20	McQuail, D	This paper, also on the Use and Gratification theory, also explained that there are distinct benefits consumers of social media messages need, get or anticipate getting from the media, otherwise, they may desert the channel and look for alternative ones to satisfy their needs.
21	Glaser, B., & Strauss A	This paper proposed the Grounded Theory Method (GTM) which says that it is the 'discovery of theory from data systematically obtained from social research', and allows the researcher to explore and unfold the core issues of interest first from the perspective of the key participants involved.
22	Sarkar, Sagnik & Agrawal, Shaashwat & Baker, Thar & Reddy, Praveen & Gadekallu, Thippa	This paper proposes a novel catalysis function for altered training of neural networks which makes it more flexible to big data.
23	Deepa, N. & Pham, Quoc-Viet & C. Nguyen, Dinh & Bhattacharya, Sweta & B, Prabadevi & Gadekallu, Thippa & Reddy, Praveen & Fang, Fang & Pathirana, Pubudu	This paper provided a detailed survey on blockchain for big data, emphasizing on state-of-the-art opportunities, approaches and future directions, as well as the integration of big data and blockchain.

Methodology

This section analyzes data collected from the sample population: 50 broadcast staff and 150 regular inhabitants of the Hunan Province in China, and makes an appropriate interpretation of the analysis using a Big Data approach with a view of ensuring that the objectives of this research work are achieved. The study adopted a descriptive Big Data survey research design in analyzing the quantitative and qualitative data from the two questionnaire surveys and the interview conducted. A total of 200 questionnaires were administered. To get a clearer picture of the classes of responses, the quantitative data was modeled on a four-point rating scale [24] with a response mode of Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree = 1. The interview responses were arranged to form themes around the research questions and all results were discussed in line with the impact of language use in radio broadcasting in Hunan. All questionnaires and interviews served as a basis for the presentation for the analysis and interpretation of data.

Socio-demographic data

Table 1 and Fig. 1 reveal that 44% of the respondents are male, while 56% are female (Table 2, Fig. 2).

The above results show that 27% of the respondents interviewed are between the ages of 18–30 years, 48% are between 31–40 years, 11.5% are in the age bracket of 41–50 years, while the remaining 13.5% are 51 years and above. Those within the ages of 31–40 years have the highest frequency of 96, which implies that majority of the employees in the radio broadcasting stations in the Hunan Province are within the productive years of their life.

Table 3 and Fig. 3 show that 44.5% of the respondents are single, 39% are married, 9% are divorced, and 7.5% are widowed. This result shows that the majority of the respondents are single (Fig. 4).

The information above shows that 26% have a Benke certificate of graduation, 29% are Zhuanke certificate holders, 26.5% are Bachelor degrees holders and 18.5% are Master's degree holders. This result shows that the majority of the respondents are Zhuanke and Bachelor degree holders (Table 4).

Table 5 and Fig. 5 show that 24.5% of the respondents have been working for 0–4 years, 38.5% of them have

Table 1 Gender of the respondents

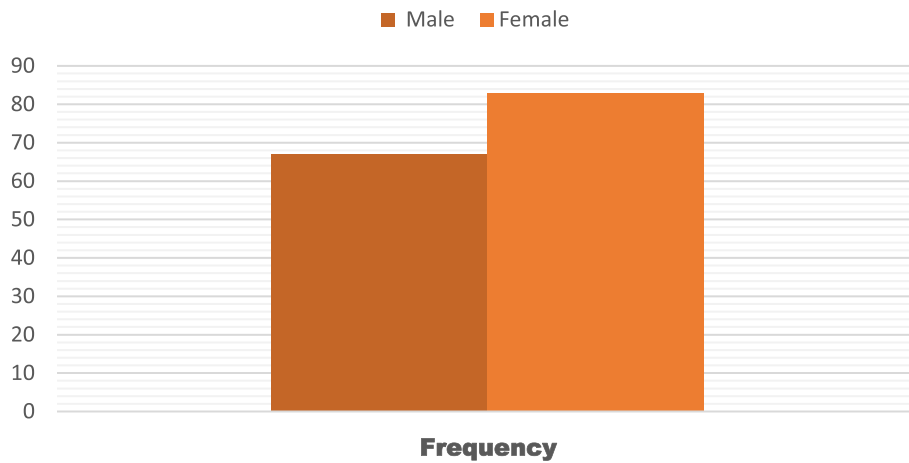| Description	Frequency	Percent	Valid Percent	Cumulative Percent
Male	88	44	44	44
Female	112	56	56	100.0
Total	200	100.0	100	

Fig. 1 Gender of the respondents

been working for 5–9 years, 18% have been working for 10–14 years, 12% have been working for 15–19 years and 7% have been working for 20 years and above.

Table 6 and Fig. 6 show that 24.5% of the respondents are Xiang natives, 28% are Southwestern Mandarin, 29% are Xong and 18.5% are Tujia natives. This result shows that the majority of the respondents are natives of Xong speaking communities (Tables 7, 8, 9 and 10, Fig. 7).

The above shows that 16% of the respondents have been in Hunan Province for 11 months and below, 18% for 1–3 years, 30.7% for 4–7 years, and 35.3% for 8 years and above.

Data presentation and analysis
This section analyzes the data gotten from the respondents according to the research questions for this study (Figs. 8, 9 and 10).

1. Research Q1: Does English language have any impact on the listening audience of radio stations in Hunan?

The above results show that 64% of the respondents listen to radio broadcast, while 36% do not.

The above figures show that 62.6% of the respondents listen to Hunan News Radio, 58% listen to Hunan Economic Radio, 72% and 63.3% listen to Hunan Traffic and Hunan Travel Radio respectively, whilst 92.7% listen to

Table 2 Age distribution of the respondents

Description	Frequency	Percent	Valid Percent	Cumulative Percent
18 – 30 years	54	27	27	27
31–40 years	96	48	48	75
41 – 50 years	23	11.5	11.5	86.5
51 years and above	27	13.5	13.5	100.0
Total	200	100.0	100.0	

Fig. 2 Age distribution of the respondents

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Table 3 Marital status of the respondents

Description	Frequency	Percent	Valid Percent	Cumulative Percent
Single	89	44.5	44.5	44.5
Married	78	39	39	83.5
Divorced	18	9	9	92.5
Widowed	15	7.5	7.5	100
Total	200	100.0	100.0	

Golden Eagle. The result revealed that majority of the respondents in Hunan listen to radio broadcasts.

The above shows that at home, majority of the respondents (31%) use Southwestern Mandarin, 20.5% use English, 24.5% use Tujia, and 24% use Xong. At work, 16.5% use English, 36.5% use Southwestern Mandarin, 22.5% use Xong and 24.5% use Tujia.

In school, 12.5% use English, 40% use Southwestern Mandarin. 20% use Xong and 27.5% use Tujia. When interacting with friends, 23.5% use English, 34.5% use Southwestern Mandarin, 24.5% use Xong, and 17.5% use Tujia. In their place of worship, 16.5% use English, 17.5% use Southwestern Mandarin, 42.5% use Xong and 23.5% use Tujia.

2. Research Q2: What are the roles of the broadcast media in the management of multilingualism in the radio stations in Hunan?

Table 11 and Fig. 11 reveal that majority of the respondents (32%) and 44.6% are undecided and 23.4% disagree that radio stations in Hunan help expand the language lexicon. 21.3% strongly agree, and 10.7% agree. It was affirmed by the supportive claim of 22% and 43.3% of the respondents who strongly agreed
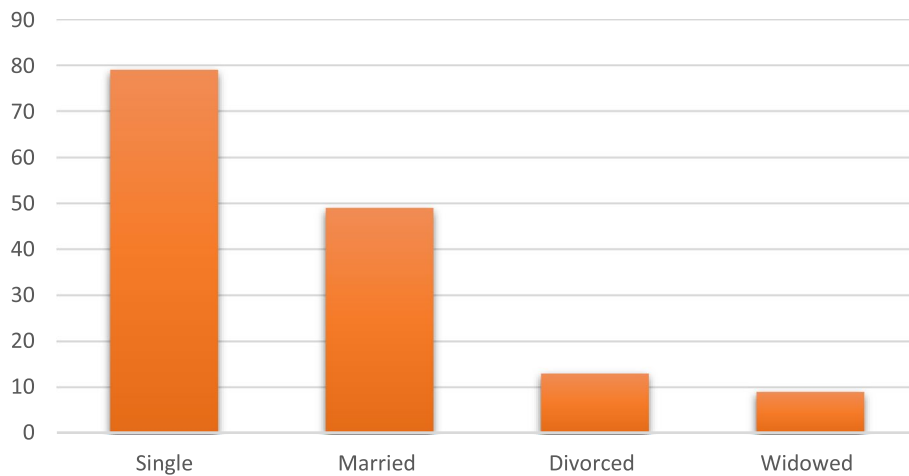

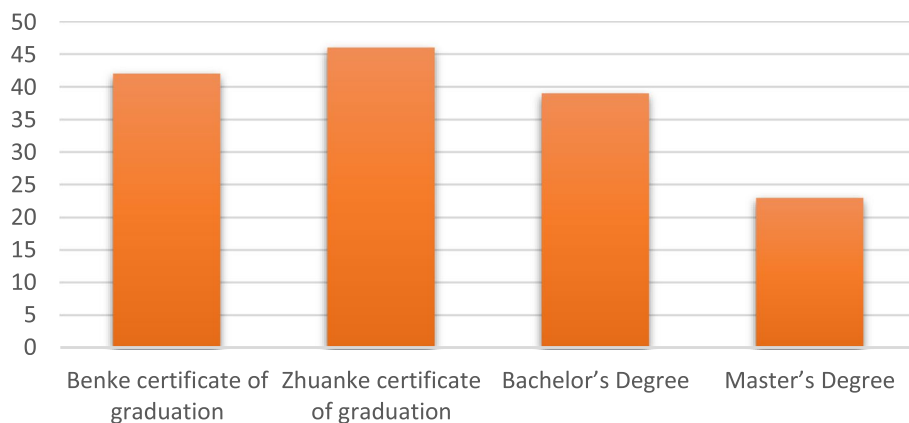**Fig. 3** Marital status of the respondents

Fig. 4 Educational qualification of respondents

Table 4 Educational qualification of the respondents

Description	Frequency	Percent	Valid Percent	Cumulative Percent
Benke certificate of graduation	52	26	26	26
Zhuanke certificate of graduation	58	29	29	55
Bachelor's Degree	53	26.5	26.5	81.5
Master's Degree	37	18.5	18.5	100.0
Total	200	100.0	100.0	

Table 5 Work experience of the respondents

Description	Frequency	Percent	Valid Percent	Cumulative Percent
0–4 years	49	24.5	24.5	24.5
5–9 years	77	38.5	38.5	63
10–14 years	36	18	18	81
15–19 years	24	12	12	93
20 years and above	14	7	7	100
Total	200	100.0	100.0	

and agreed respectively, that the use of English language during radio broadcast gives relevance to it in the stated province. Although 22% were undecided, 13.3% and 6.7% disagreed and strongly disagreed with the statement, respectively. 15.3% strongly agreed and 42.7% agreed that the use of English language in radio broadcasts has helped improve their speaking and understanding of the language, 22% of them were undecided, and 6.7% disagreed with the statement.

64.5% of the respondents strongly agreed and agreed respectively that programmes anchored using English
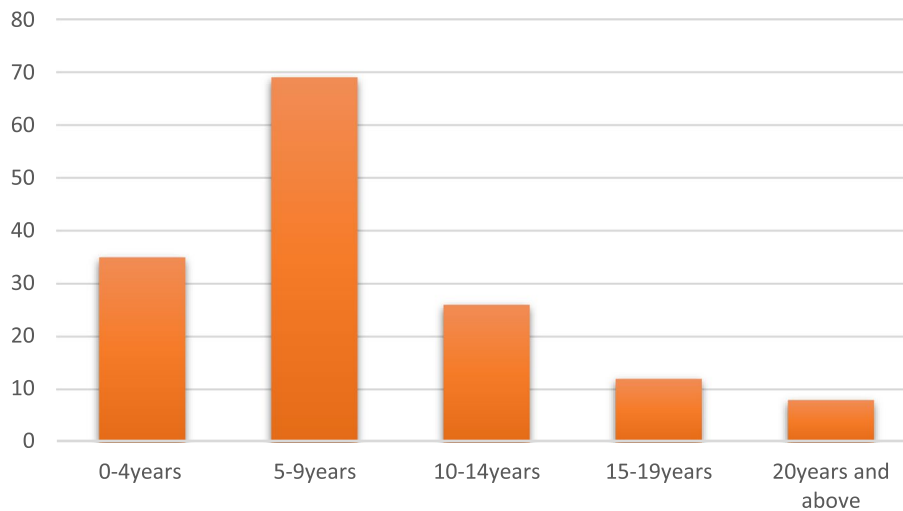

Fig. 5 Years of work experience of the respondents

Table 6 Nativity of the respondents

Description	Frequency	Percent	Valid Percent	Cumulative Percent
Xiang	49	24.5	24.5	24.5
Southwestern Mandarin	56	28	28	52.5
Xong	58	29	29	81.5
Tujia	37	18.5	18.5	100
Total	200	100.0	100.0	

language keeps people connected to culture and tradition, while 24% were undecided, and 10.5% disagreed with the statement. 61.5% agreed that programmes broadcasted in English language will help in the reduction in language dearth and increase in language vitality, 25.5% were undecided, and 13% disagreed with the statement. 58.5% of the respondents agreed that use of English language in radio broadcasts reduces the vocabulary dearth of the dialect, 17.5% were undecided, and 24% disagreed with the statement.
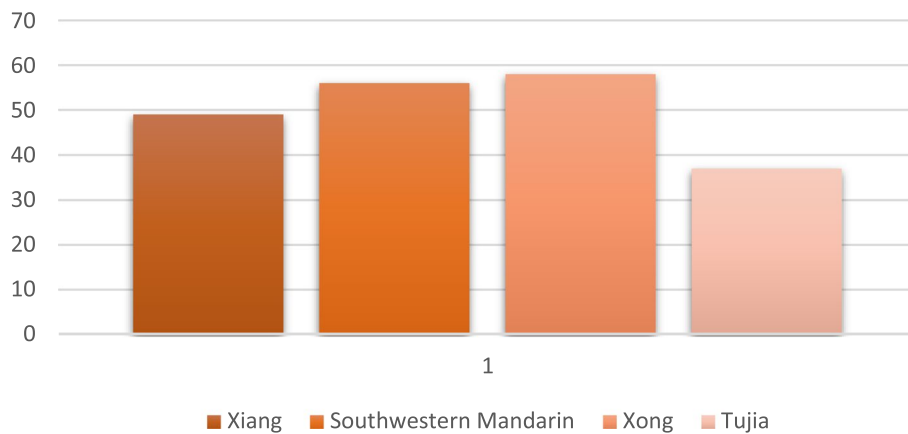
Fig. 6 Nativity of the respondents

Table 7 How long the respondents have been in Hunan Province

Description	Frequency	Percent	Valid Percent	Cumulative Percent
11 months and below	22	16	16	16
1–3 years	44	18	18	34
4–7 years	59	30.7	30.7	64.7
8 years and above	75	35.3	35.3	100.0
Total	200	100.0	100.0	

Table 8 Frequency, percentage of statement of listenership strength of radio stations (Audience response)

Do you listen to radio broadcasts?	Frequency	Percentage	Valid percentage	Cumulative percent
Yes	96	64.00%	64.00%	64.00%
No	54	36.00%	36.00%	100.00%
Total	150	100.00%	100.00%	

Table 9 Frequency, percentage of statement of listenership strength of radio stations (Audience response)

Do you listen to these radio stations?	Yes	No	Total
Hunan News Radio (On FM 102.8, 93.0, 88.0 and 93.7)	94(62.6%)	56 (37.4%)	150 (100.0%)
Hunan Economic Radio (On FM 90.1, 91.0, 95.7 and 94.6)	87(58%)	63(42%)	150 (100.0%)
Hunan Traffic Radio (On FM 91.8, 100.3, 102.6, 102.0 and 89.5)	108(72%)	42 (28%)	150 (100.0%)
Hunan Travel Radio (On FM 106.9, 90.6)	95 (63.3%)	55 (36.7%)	150 (100.0%)
Golden Eagle (On FM 95.5, 100.5, 91.3)	139 (92.7%)	11 (7.3%)	150 (100.0%)

3. Research Q3: What are the factors that influence the democratic distribution of languages in the radio stations in Hunan?

Table 12 and Fig. 12 show that the majority of the respondents (70%) agree with the claim that the BCC rules is an influencing factor to the distribution of

Table 10 Frequency and percentage of language use in Hunan (Staff/Audience response)

Please tick the language you use in the following places	English	Southwestern Mandarin	Xong	Tujia
At home	41 (20.5%)	62 (31%)	48 (24%)	49 (24.5%)
At work	33 (16.5%)	73(36.5%)	45 (22.5%)	49 (24.5%)
In school	25 (12.5%)	80 (40%)	40 (20%)	55 (27.5%)
With friends	47 (23.5%)	69 (34.5%)	49 (24.5%)	35 (17.5%)
In the place of worship	33 (16.5%)	35 (17.5%)	85 (42.5%)	47 (23.5%)
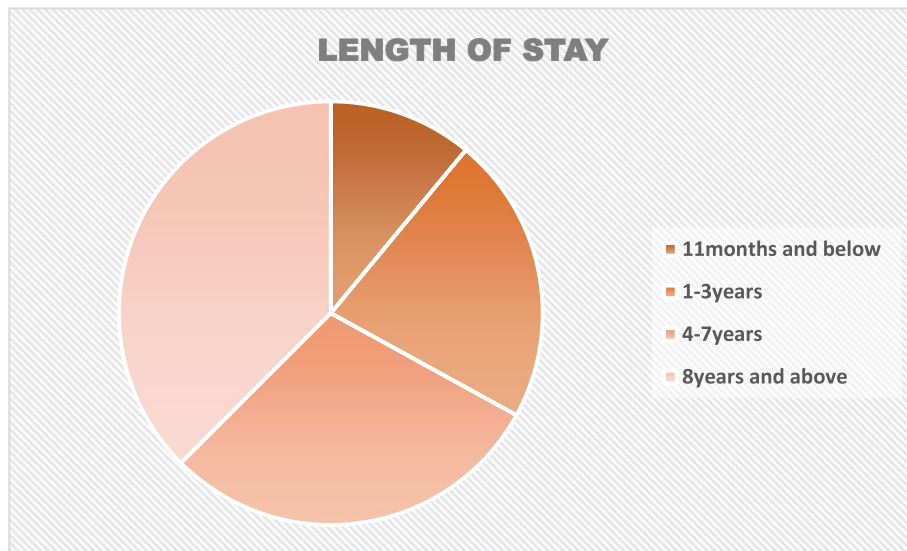
Fig. 7 How long the respondents have been in Hunan province
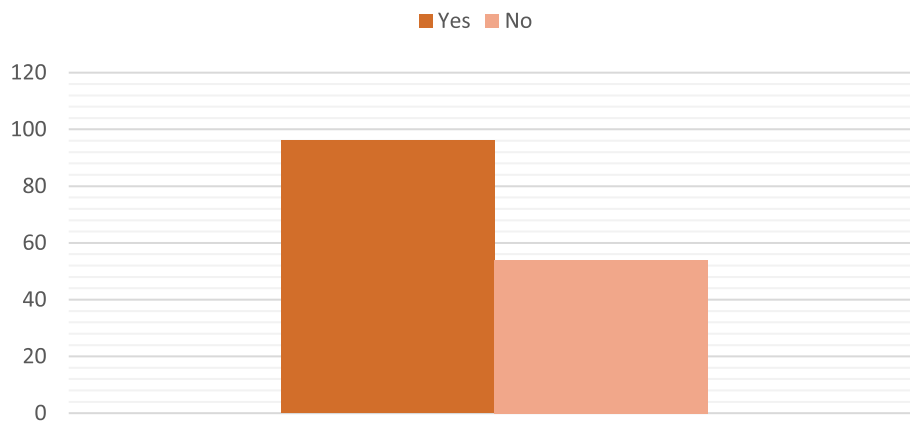

Fig. 8 Listenership strength of radio broadcast

language in radio broadcasting. This is followed by 14% who are undecided about the claim, and 16% who disagree with the claim. It was affirmed by the supportive claim of 46% and 30% of the respondents who agreed and strongly agreed, respectively, that the listenership strength of the audience is a factor that influences the democratic distribution of language. 6% were undecided about this claim, 16% disagreed, and 2% strongly
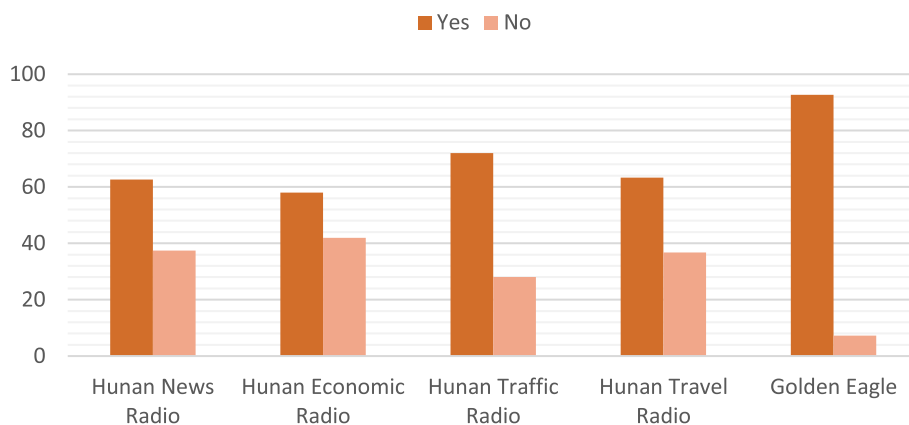
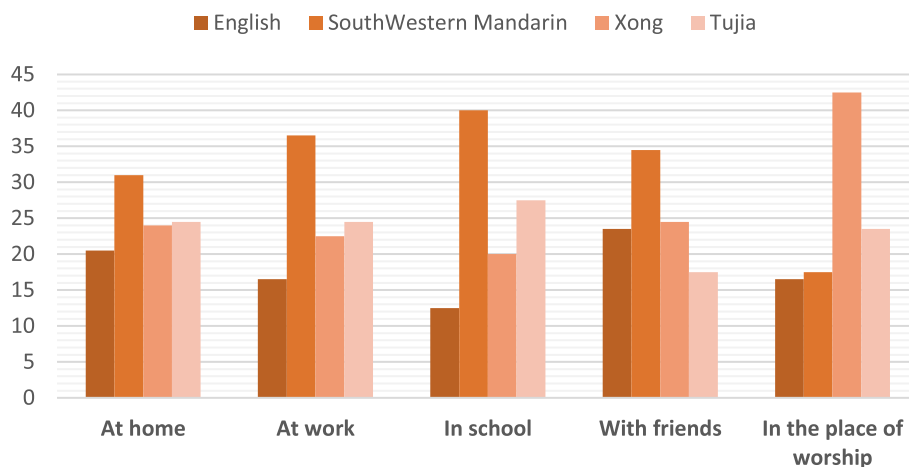**Fig. 9** Listenership strength of the radio stations

Fig. 10 Percentages of languages in use

Table 11 Frequency, percentage on statement regarding the roles of radio broadcast media in the management of multilingualism in Hunan (Audience response)

| S/N	Statements		SA	A	U	D	SD	Total
1	Radio stations in Hunan has helped expand the language lexicon	F	32	16	67	35	-	150
		%	21.3	10.7	44.6	23.4	-	100.0
2	The use of English language during radio broadcast helps gives relevance to it in Hunan	F	33	65	18	25	9	150
		%	22	43.3	12	16.7	6	100.0
3	The use of English language in radio broadcasts helps improve speaking and understanding of the language	F	23	64	33	20	10	150
		%	15.3	42.7	22	13.3	6.7	100.0
4	Programmes anchored using English language keeps people connected to culture and tradition.	F	27	68	29	21	5	150
		%	18.5	46	24	10.5	1	100.0
5	When programmes are broadcasted in the English language, there will be reduction in language dearth and increase in language vitality.	F	29	64	41	11	5	150
		%	19.5	42.0	25.5	10.5	2.5	100.0
6	The use of English language in radio broadcasts reduces the vocabulary dearth of the dialect.	F	24	63	35	28	-	150
		%	22	36.5	17.5	22.5	1.5	100.0
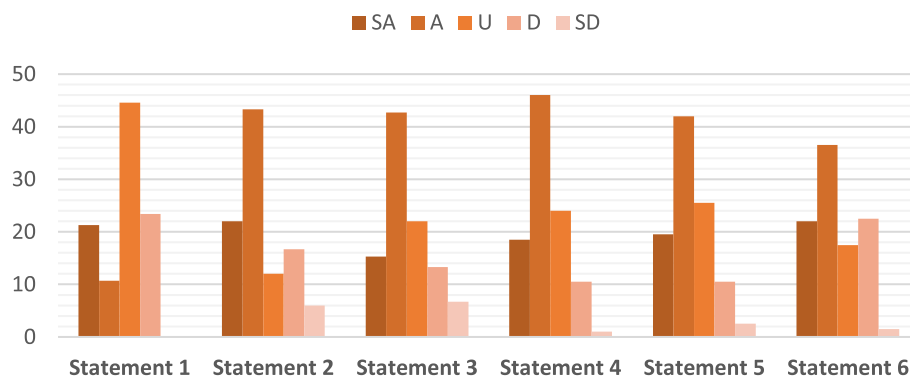
Fig. 11 Roles of radio broadcast media in the management of multilingualism in Hunan (Audience response)

disagreed with this claim. 18% and 56% of the respondents strongly agree and agree respectively that National Language policies is an influencing factor of the democratic distribution of language in broadcast station in Hunan, while 26% disagreed with the statement. 34% and 42% strongly agreed and agreed respectively that sponsorship level is a factor that influences the democratic distribution of language in radio broadcast, while 16% and 8% disagreed and strongly disagreed to the claim.

18% and 36% strongly agreed and agreed that the location of the radio station is a big influence to the distribution of languages during broadcast in Hunan. According to an interview about this factor, these respondents said that the location of a radio station determines the language use. Citing an example, one of the respondents mentioned that a radio station situated in a multilingual environment like Hunan will end up broadcasting in the generally understandable language. 24% of the respondents were undecided, 18%, and 4% disagreed and strongly disagreed with the statement (Tables 13 and 14, Figs. 13 and 14).

4. Research Q4: What are the challenges faced in communicating in English Language in the radio stations in Hunan?

The above reveals that 66% of the respondents agreed that poor provision for English language professionals in radio stations is also a challenge faced by broadcast stations in communicating through English language. 10% were undecided and 24% disagreed with the statement. 72% agreed that lack of linguists in radio broadcast stations is a challenge faced by broadcast stations. 12% were undecided, and 16% disagreed with the statement.

5. Research Q5: In what ways can radio stations kindle the use of English Language in Hunan?

The above reveal that 58.5% of the respondents agreed that broadcasting more in English language will help revitalize the language in Hunan. 17.5% were undecided, and 24% disagreed with the statement. 62% agreed that broadcasting more culturally-educating and language-reviving contents by radio stations will help revitalize

Table 12 Factors that Influence the democratic distribution of languages in the radio stations in Hunan (Staff response)

S/N	Statement	Response						
			SA	A	U	D	SD	Total
1	Broadcasting Corporation of China rules	F	11	24	7	8	-	50
		%	22	48	14	16	-	100.0
2	Listenership Strength	F	15	23	3	8	1	50
		%	30	46	6	16	2	100.0
3	National Language Policies	F	9	28	-	13	-	50
		%	18	56	-	26	-	100
4	Sponsorship Level	F	17	21	-	8	4	50
		%	34	42	-	16	8	100
5	Location of radio station	F	9	18	12	9	2	50
		%	18	36	24	18	4	100

Fig. 12 Factors that influence the democratic distribution of languages in the radio stations in Hunan

Table 13 Challenges in communicating in English language in the radio stations in Hunan (Staff response)

S/N	Statement		Response					
			SA	A	U	D	SD	Total
1	Poor provision for English language professionals in the radio stations	F	20	13	5	12	-	50
		%	40	26	10	24	-	100.0
2	Lack of linguists in radio broadcast stations	F	15	21	6	8	-	50
		%	30	42	12	16	-	100.0

Table 14 Frequency, percentage on statement regarding the ways radio stations can revitalize the use of English language in Hunan (Audience response)

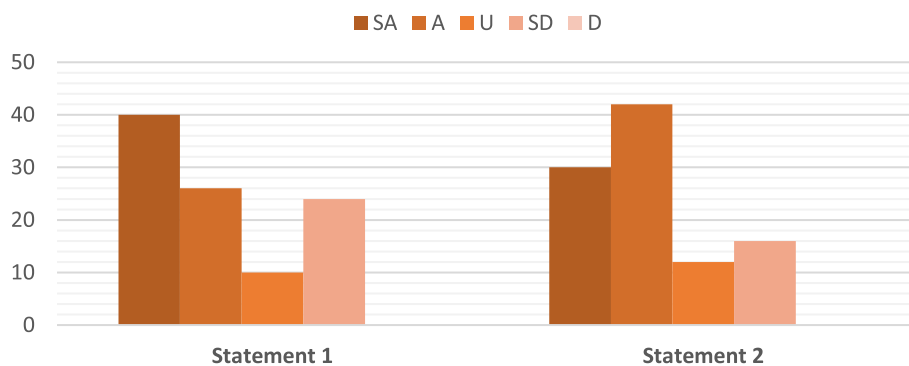| S/N	Questions		Response					
			SA	A	U	D	SD	Total
1	Broadcasting more in English Language	F	44	73	35	45	3	200
		%	22	36.5	17.5	22.5	1.5	100.0
2	Broadcasting more culturally educating and language reviving contents	F	60	64	36	24	16	200
		%	30	32	19.5	12	8	100.0

Fig. 13 Challenges in communicating through english language in the radio stations in Hunan
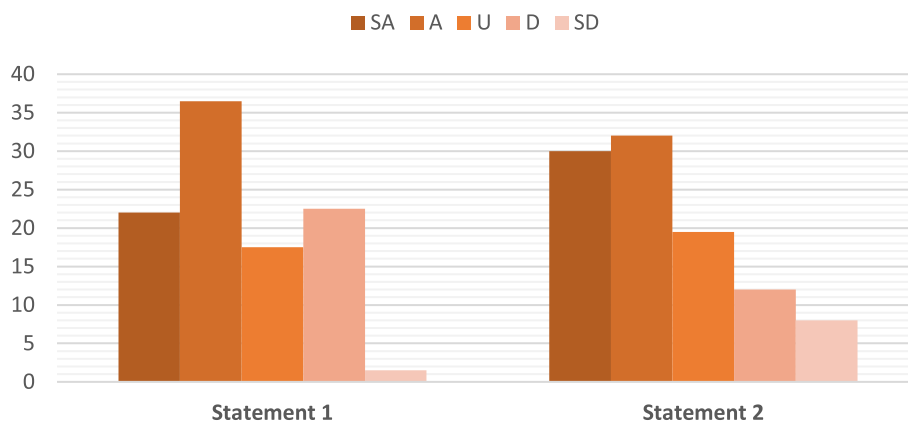
Fig. 14 Frequency, percentage on statement regarding the ways radio stations can kindle the use of English language in Hunan

English language in Hunan. 19.5% were undecided, and 20% disagreed with the statement.

Results

The study was carried out to assess the impact of language used in radio broadcasting in Hunan. Based on the results of the data analysis, the following findings emerged:

1. Research Q1: Does English Language have any impact on the listening audience in radio stations in Hunan?

The results from Research Q1 indicated that the use of English language has significant impact on the listening audience in radio stations in Hunan given that majority of the respondents agreed to using their indigenous dialects in their day-to-day activities. The result also revealed that the majority of the respondents listen to radio broadcast and this indicates that the radio media language could have a big impact on the audience through radio broadcast and help them develop their English language vocabulary and comprehension. This affirms the claim of [3] and [25] that in the age of increasing international communications and relations, it is important to broadcast in international languages since it reaches more peripheral areas than other media, and improves the vocabulary of the audience.

2. Research Q2: What are the roles of the broadcast media in the management of multilingualism in the radio stations in Hunan?

The results from Research Q2 indicate that the roles of the broadcast media in the management of multilingualism are the expansion of language lexicon through introduction of new words and giving relevance to English language

through the use of the language during broadcast, which in turn helps in reduction of language dearth and keeps people connected to their culture. In the case of English language in Hunan, this is not so as indigenous languages are the major languages used in broadcast. This result agreed with the findings in [26] which rightly observed that using indigenous languages as the sole media language is indirectly setting an agenda at the expense of English language, which is vital for the public to be conversant with in this day and age.

3. Research Q3: What are the internal and external factors that influence the democratic distribution of languages in the radio stations in Hunan?

The results from Research Q3 explained that internal and external factors that influence the democratic distribution of languages in the radio stations in Hunan are: the Broadcasting Corporation of China's rules, listenership strength, national language policies, sponsorship level and location of the radio station. The analysis reveals that the majority of the respondents believe that the location of the radio station is a much bigger influence to the distribution of languages during broadcast in Hunan. This result agreed with the findings of [27] which states that the broadcast media in some areas hardly broadcast in English language because there is lack of attention and allocation given to it. Proper planning and implementation of these policies (to suit both the urban and rural radio media stations) play vital roles in language use in broadcasting.

4. Research Q4: What are the challenges faced in communicating through English language in the radio stations in Hunan?

The results from Research Q4 revealed that lack of English language professionals and linguists in the

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broadcast stations are the major challenges faced in communicating through the indigenous dialects in the radio stations in Hunan. The result agreed with [28] who argued that despite the fact that LPP is an academic discipline grounded in linguistics, it is controlled more by politicians, those with less experience of the discipline rather than the actual experts. These politicians often make more emphasis on science subjects, and when they do focus on linguistics, they emphasize more on literature than language proficiency. It also corroborates the author's findings that the BCC allocating a small amount of time to programs or news in English language is only relegating the language to the background, making them almost ineffective in broadcast stations.

5. Research Q5: In what ways can radio stations kindle the use of English language in Hunan?

The findings from Research Q5 revealed that the major ways radio stations can kindle the use of English language in Hunan are through broadcasting more educating and language-reviving contents, as this aids promotion of culture and languages, and the use of English language in radio broadcasting which reduces marginalization of the language. This affirms the argument in [6] that says the greater use of a language, the stronger the language becomes.

Conclusion

Radio is considered an effective tool in the dissemination of information quickly. Radio broadcast in China has been in existence for a long time and is still very important in disseminating information. This study examined the impact of language use in radio broadcasting in Hunan province in China. It aimed to discover the extent to which the use of English language in radio stations in Hunan can impact its listeners and help promote the language of the study area. The English language programmes play an important role in the life of the people living in a community as many depend on this radio for their various broadcast needs. The population of the study area makes it imperative for the use of English language during radio broadcast to engender the desired development for the Hunan populace.

To verify the assumption that radio station has made no major impact in Hunan through its use of English language, five research questions were raised in the study. This study adopted a Big Data survey method and made use of a self-constructed questionnaire for the collection of data. The questionnaire enabled the researcher to obtain first-hand information on the subject matter from respondents in some notable communities in the area of study. 150 respondents were randomly selected for the survey. The sample size was determined using stratified random sampling technique. Data was collected using the constructed questionnaire and were quantitatively analyzed. The impact of language used in radio broadcasting in Hunan was studied using these selected stations (Hunan News Radio FM, Hunan Economic Radio FM, Hunan Traffic Radio FM, Hunan Travel Radio FM, Golden Eagle FM). The study concludes that the broadcasters in Hunan radio stations need to take the issue of English language programmes more seriously, or the language will continue to suffer in a community in need of international development and recognition, where the use of indigenous languages reign supreme. We shall compare the linguistic qualities of different communities in China in our future works and how Big data in combination with Natural language processing security can be applied.

Declarations

Ethics approval and consent to participate
The research has consent for Ethical Approval and Consent to participate.

Consent for publication
Consent has been granted by all authors and there is no conflict.

Competing interests
The authors declare no competing interests.

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