

Cultural Value Shifting in Pronoun Use

Journal of Cross-Cultural Psychology
2016, Vol. 47(2) 310–316
© The Author(s) 2015
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/0022022115619230
jccp.sagepub.com



Feng Yu¹, Theodore Peng², Kaiping Peng^{1,3},
Shi Tang⁴, Chuan Shi Chen⁵, Xiaojun Qian¹,
Pei Sun¹, Tingting Han⁶, and Fangyuan Chai¹

Abstract

By investigating the use of first-person pronouns in nine languages using the Google Ngram Database, we examined the degree to which different cultural values skewed toward individualism or collectivism over a span of 59 years. We found that in eight of nine languages (British English being the exception), first-person singular pronouns (vs. first-person plural pronouns) have become increasingly prevalent, which in turn points to a rising sense of individualism. British English showed a U-shaped curve trend in the use of first-person singular pronouns (vs. first-person plural pronouns). Although they initially decreased, British English's first-person singular pronouns (vs. first-person plural pronouns) use was higher than most other languages throughout the whole period. Chinese displayed a fluctuating pattern wherein the use of first-person singular pronouns (vs. first-person plural pronouns) increased in recent periods. The dynamics of cultural change and culture diversity were discussed.

Keywords

individualism, collectivism, Google Ngram, big data, value, culture

Introduction

With increasing influences from various facets of globalization including communications, economy, and technology, we see different cultures around the world coming together and interacting in a global setting. The process of globalization influences every individual from different cultures psychologically (Chen et al., 2015). Albeit theoretically possible, it is not realistic for any

¹Tsinghua University, Beijing, China

²University of California, San Diego, CA, USA

³University of California, Berkeley, CA, USA

⁴University of Cambridge, UK

⁵Harvard University, Cambridge, MA, USA

⁶Beijing Normal University, China

Corresponding Authors:

Feng Yu, School of Economics and Management, Tsinghua University, Room 413, Weilun Building, Haidian District, Beijing 100084, China.

Email: yufeng@sem.tsinghua.edu.cn

Kaiping Peng, Department of Psychology, Tsinghua University, Room 501, Weiqing Building, Haidian District, Beijing 100084, China.

Email: pengkp@mail.tsinghua.edu.cn

culture to remain completely unchanged amid global interactions. Nowadays, cross-cultural psychologists found that fundamental beliefs vary greatly, carrying significant consequences. In early work of psychology, cultural-specific values are most frequently assessed using a continuous spectrum, with individualism on one end and collectivism on the other. But in recent years, researchers have conceptualized them as independent dimensions (Brewer & Chen, 2007; Oyserman, Coon, & Kimmelmeier, 2002; Triandis & Gelfand, 1998).

Both individualism and collectivism orientation of a specific culture can be assessed by language use, especially by examining its use of first-person pronouns (Twenge, Campbell, & Gentile, 2013; Uz, 2014). As an indicator of individualism, first-person singular pronouns (such as “I,” “me”) often represent self-attentional focus (Tausczik & Pennebaker, 2010). For example, more first-person pronouns were used when participants looked into a mirror, strengthening self-awareness (Davis & Brock, 1975). Priming first-person singular pronouns could activate individualistic self-representations as well (Gardner, Gabriel, & Lee, 1999). In the field of cross-cultural psychology, E. S. Kashima and Kashima (1998) and Y. Kashima and Kashima (2003) found individualistic cultures tend to favor explicit use of first-person pronouns, whereas collectivistic cultures allow speakers to drop first-person pronouns from the surface structure of sentences.

In contrast, first-person plural pronouns (such as “we,” “us”) often served as indicators of collectivism and oriented attentional focus toward others or groups (Tausczik & Pennebaker, 2010). For example, the use of first-person plural pronouns could predict better team performance (Sexton & Helmreich, 2000), better romantic relationships (Slatcher, Vazire, & Pennebaker, 2008), and better marriage satisfaction (Simmons, Gordon, & Chambless, 2005). In the field of cross-cultural psychology, more Korean participants than American participants judged ambiguous pronouns as plural (Na & Choi, 2009).

In this study, we measured individualism by subtracting the frequency of first-person plural pronouns from that of first-person singular pronouns. Although Twenge et al. (2013) utilized all cases of first-person singular and plural pronouns to study changes in individualism in the United States, Uz (2014) only used subject and object cases of first-person pronouns. He found that first-person singular and plural pronouns could accurately predict the individualism score in Hofstede’s (2001) study, yet a comprehensive application of all pronouns failed to do so (Uz, 2014). As a result, in this study, we decided to only examine subject (I, we) and object (me, us) cases of first-person pronouns and ignore all possessive (my, our) and reflexive (myself, ourselves) pronouns.

We retrieved pronoun frequency data from the Google Ngram Database, which has been widely used in social-psychological research (e.g., Acerbi, Lampos, Garnett, & Bentley, 2013; Greenfield, 2013; Kesebir & Kesebir, 2012; Twenge, Campbell, & Gentile, 2012a, 2012b, 2013). This database contains 4% to 6% of all the books in the history of human publication and provides nine language choices: American English, British English, Simplified Chinese, French, German, Hebrew, Spanish, Russian, and Italian (Lin et al., 2012). While eight of the nine languages we selected for this study come from broadly Western cultures (due to the Google Ngram Database only containing these nine languages), Russian culture is moderately to highly collectivistic, and some other languages like Spanish lie in the middle range, so there are still significant variations in value differences among our selections. Also, the languages score quite differently on several of Hofstede’s (2001) other dimensions (power distance, masculinity, uncertainty avoidance, and long-term orientation). Thus, there exists a good range of cultural variables in this study.

In this study, we aim to examine nine distinct cultural transformations by measuring the outcome of each culture’s lingual metamorphosis, which could skew toward individualism or collectivism. For instance, individualistic cultures may gradually become more collectivistic through exposure to collectivistic cultures, or they could become polarized and even more individualistic as they come in contact with conflicting cultural values. There are few empirical studies depicting

the context of value change under globalization. We aim to find and describe cultural transformation processes through the use of pronouns in large corpus data sets.

Method

We retrieved the frequency of first-person singular pronouns and the frequency of first-person plural pronouns in all nine languages from the Google Ngram Database. The Google Ngram Database provides the relative frequency of every word, in percentage terms, of the text being searched, over the time period specified (in years). The total word counts of a specific word and the number of volumes that contain said word within a particular year can be downloaded at <http://storage.googleapis.com/books/ngrams/books/datasetsv2.html>

We decided to start the scope of our data from 1949, the year in which People's Republic of China was founded and a new Chinese grammatical system was established. Before 1949, many characters (such as, “余,” “吾”) could have been used as either first-person singular pronouns or first-person plural pronouns. Under the new Chinese language system, “我” is used as the only first-person singular pronoun. We chose to begin with 1949 to more conveniently compare Chinese, the language of most collectivistic culture in our study, with other languages. We ended the scope of our data at 2008, the most recent year provided by the Google Ngram Database. Although the book selection process was modified after the year 2000 (Michel et al., 2011), many studies examining this database have included data between 2000 and 2008 and have not found any anomalies (e.g., Twenge et al., 2013).

Results

Table 1 depicts trends of change in the use of first-person singular pronouns (vs. first-person plural pronouns) across languages between 1949 and 2008 using different statistical methods to represent the rate of change (e.g., d and % change). In 1949, Chinese was the lowest first-person singular pronouns (vs. first-person plural pronouns) use language, whereas British English and American English were the highest. The rankings of the use of first-person singular pronouns (vs. first-person plural pronouns) in 1949 were British (0.34%) > American (0.27%) > Russian (0.07%) > Hebrew (0.05%) > Spanish (0.01%) > Italian (-0.02%) > German (-0.08%) > French (-0.09%) > Chinese (-0.11%). In 2008, the rankings were American (0.54%) > British (0.30%) > Hebrew (0.18%) > Russian (0.12%) > Chinese (0.07%) > Spanish (0.06%) > German (0.03%) > French (0.01%) > Italian (0.001%). Between 1949 and 2008, the use of first-person singular pronouns (vs. first-person plural pronouns) ranking of Chinese greatly increased.

Linear regression of “ r with year” (see Table 1) shows that the use of first-person singular pronouns (vs. first-person plural pronouns) in all languages increased except for in British English ($r = -.725$). Quadratic regression (see Figure 1) found U-shaped curves in every language, including British English (Beta for year squared was .590). Although the use of first-person singular pronouns (vs. first-person plural pronouns) of British English showed an early decrease, it was still higher than all languages throughout the whole period with the exception of American English. The average use of first-person singular pronouns (vs. first-person plural pronouns) in all nine languages increased ($r = .829$). To eliminate the influence of absolute values in pronouns frequencies across languages, we transformed the use of first-person singular pronouns (vs. first-person plural pronouns) of every language to z scores and calculated the average standard scores. Unsurprisingly, we found that the average z score also significantly increased ($r = .880$). The results implied a global trend toward individualism.

We also calculated annual standard deviation (SD) across nine languages. The SD score significantly decreased throughout the years ($r = -.305$), which may be an indication that the difference between individualism levels across languages has decreased.

Table 1. Trends of the Use of First-Person Singular Pronouns (vs. First-Person Plural Pronouns) Change Across Languages.

Language	<i>r</i> with year	Beta for year squared	Use 1949 vs. 2008 (SD)	<i>d</i>	% change	Peak year	Nadir year
Chinese	.663***	.238*	-0.1072% vs. 0.0670% (0.00098)	1.77	162.46	1999	1969
American English	.776***	.611***	0.2753% vs. 0.5406% (0.00089)	2.96	96.32	2008	1965
British English	-.725***	.590***	0.3449% vs. 0.3047% (0.00055)	-0.73	-11.64	1953	2001
French	.987***	.089***	-0.0912% vs. 0.0129% (0.00031)	3.28	114.16	2008	1958
German	.971***	.125***	-0.0825% vs. 0.0399% (0.00048)	2.57	148.40	2008	1957
Spanish	.766***	.558***	0.0115% vs. 0.0624% (0.00014)	3.56	442.09	2008	1949
Hebrew	.961***	.212***	0.0538% vs. 0.1794% (0.00042)	2.99	233.24	2007	1956
Italian	.906***	.322***	-0.0212% vs. 0.0010% (0.00007)	3.17	104.56	2008	1950
Russian	.843***	.422***	0.0715% vs. 0.1236% (0.00024)	2.17	72.90	2008	1961
<i>M</i> (absolute)	.829***	.495***	0.0506% vs. 0.1480% (0.00033)	2.92	192.70	2008	1969
<i>M</i> (<i>z</i> score)	.880***	.454***	-50.09% vs. 191.54% (0.77553)	3.12	482.40	2008	1969
<i>SD</i>	-.305*	.816***	0.1609% vs. 0.1753% (0.00020)	0.72	8.94	2008	1981

Note. *r* with year is the standard Beta of linear regression line at 1949 and 2000. The Beta for year squared is from a regression equation including year (centered) and year squared.

p* < .05. *p* < .01. ****p* < .001.

Discussion

Overall, eight of the nine languages we tested exhibited significant trends that skewed heavily toward individualism. According to the Sapir–Whorf hypothesis, different languages encode distinct cultural cognitions, which in turn lead to speakers of disparate languages adopting their own cultural perspectives. Assuming that area-specific languages, such as American English and Chinese, are good indicators of the cultures they represent, we can conclude that a majority of the cultures we examined became more individualistic over time.

Although it is difficult to ascertain the underlying factors behind British English's unique pattern, we observed a late shift to use of first-person singular pronouns (vs. first-person plural pronouns) when we used a quadratic regression fit. Interestingly, the individualism trend of the Chinese language displayed a fluctuating pattern toward individualism which is similar to what Hamamura and Xu (2015) found, reflecting the dramatic cultural changes that took place in the past 60 years, from the Communist Party taking power in 1949 to the reformation and opening policy of China in the 1980s.

This study contributed to previous literature in cross-cultural psychology in three ways. First, we found that traditional cultures are gradually skewing toward individualism. This observation challenges the underlying assumption of stable time-honored cultures in cross-cultural psychology. Second, cross-cultural psychology often utilizes a Western–Eastern dichotomy. By investigating multiple Western cultures simultaneously in this study, we found intricate within-variances among these cultures that require careful attention. Third, typical methodologies in cross-cultural psychology examine snapshots of given periods in space and time. In our study, by using big data tools such as the Google Ngram Database, we were able to take time and history into account when we compared cultures. They could very well be the core contributing factors behind observable culture differences.

This study also has limitations. First, our result of the British pattern seemingly contradicted with that of Greenfield (2013), who stated that British English also became more individualistic between 1800 and 2000. Interestingly, if we were to limit the time frame to 1949–2000, we would discover somewhat similar patterns. For example, the frequency of certain British English

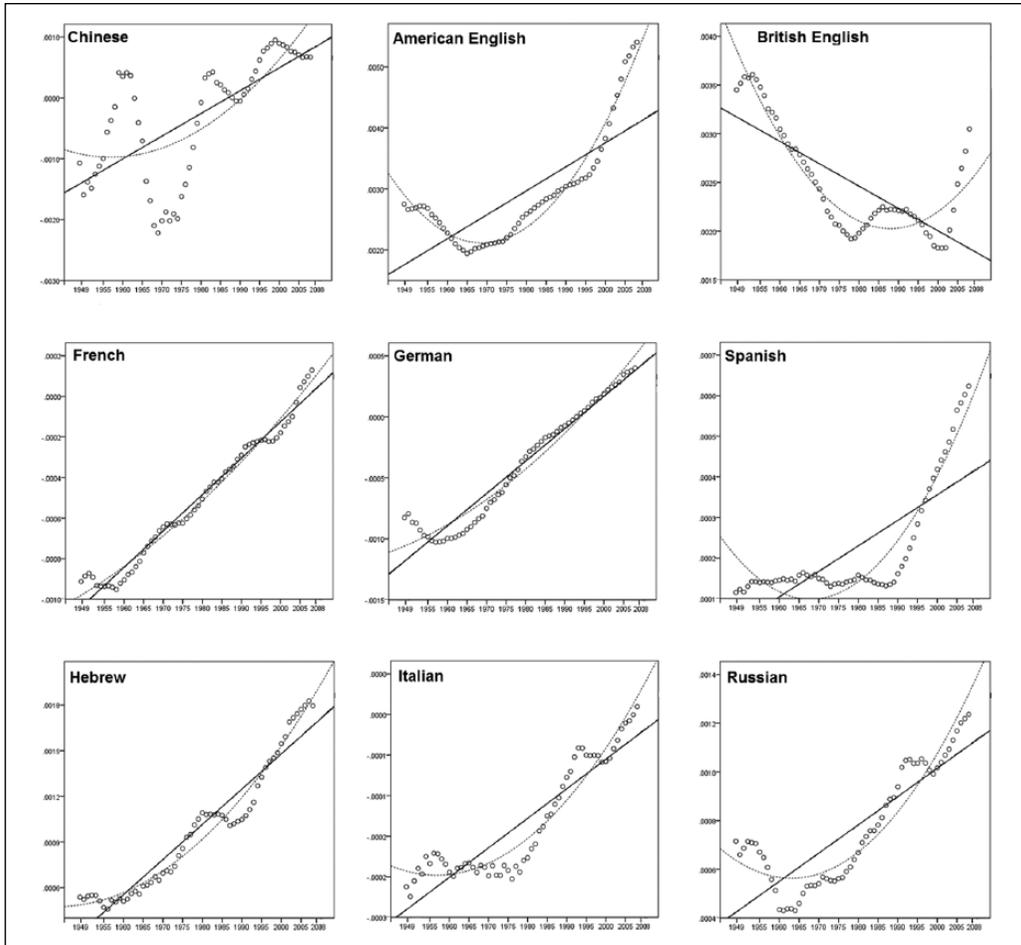


Figure 1. Trends of the use of first-person singular pronouns (vs. first-person plural pronouns) of nine languages, 1949 to 2008.

Note. In these plots, small circles are the observed data, solid lines are the linear regression lines, and dot-dashed lines are the quadratic regression curves.

individualism indicators used by Greenfield (2013) such as “get,” “feel,” or “self” first decreased before increasing. Other indicators like “individual,” however, increased consistently over time. The decreasing trend of individualism in British English we found in this study may be due to the fact that different countries that were formerly part of British Empire are all included in British English. Some of them are relatively collective like Singapore, Malaysia, Hong Kong, India, Pakistan, and so on. But these countries’ data could not be distinguished from British English in the Google Ngram Database. Another possibility is the use of “we” differing in British English. As a formal culture, the English are more likely to use “we” to politely express themselves and not a group, whereas Americans may be more casual and more likely to neglect intricate social norms, using “we” to express the meaning of group identity. All in all, value changes in British culture require further inspection. Second, the trend for individualism in non-English languages could be confounded by an increase in works being translated from English to other languages in the past few decades (and vice versa). This possibility raises a series of inquiries about translations that are beyond the scope of our study. One could ask what proportion of the publications

are translated works, or whether translations (e.g., English-to-Chinese or Chinese-to-English) also drop pronouns. Third, the annual variation of all individualism levels decreased overall, which could be indicative of more collective cultural values compared with 50 years ago. However, we are hesitant to draw a final conclusion at the moment. In this study, all the data involved were secondary sources, and we only used first-person pronouns as indicators of cultural values. Although previous studies found reliability, a larger range of cultural value indicators and more diverse sources of data are required to bolster the robustness of our conclusion.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by National Natural Science Foundation of China (Grant 71501105) and Beijing Social Science Fund (Grant 15ZXC020).

References

- Acerbi, A., Lampos, V., Garnett, P., & Bentley, R. A. (2013). The expression of emotions in 20th century books. *PLoS ONE*, *8*, e59030.
- Brewer, M. B., & Chen, Y. (2007). Where (who) are collectives in collectivism? Toward conceptual clarification of individualism and collectivism. *Psychological Review*, *114*, 133-151.
- Chen, S. X., Lam, B. C. P., Hui, B. P. H., Ng, J. C. K., Mak, W. W. S., Guan, Y., . . . Lau, V. C. Y. (2015). Conceptualizing psychological processes in response to globalization: Components, antecedents, and consequences of global orientations. *Journal of Personality and Social Psychology*. Advance online publication. doi:10.1037/a0039647
- Davis, D., & Brock, T. C. (1975). Use of first person pronouns as a function of increased objective self-awareness and performance. *Journal of Experimental Social Psychology*, *11*, 381-388.
- Gardner, W. L., Gabriel, S., & Lee, A. Y. (1999). "I" value freedom but "we" value relationships: Self-construal priming mirrors cultural differences in judgment. *Psychological Science*, *10*, 321-326.
- Greenfield, P. M. (2013). The changing psychology of culture from 1800 through 2000. *Psychological Science*, *24*, 1722-1731.
- Hamamura, T., & Xu, Y. (2015). Changes in Chinese culture as examined through changes in personal pronoun usage. *Journal of Cross-Cultural Psychology*, *46*, 930-941.
- Hofstede, G. (2001). *Culture's consequences* (2nd ed.). Thousand Oaks, CA: Sage.
- Kashima, E. S., & Kashima, Y. (1998). Culture and language: The case of cultural dimensions and personal pronoun use. *Journal of Cross-Cultural Psychology*, *29*, 461-486.
- Kashima, Y., & Kashima, E. S. (2003). Individualism, GNP, climate, and pronoun drop: Is individualism determined by affluence and climate, or does language use play a role? *Journal of Cross-Cultural Psychology*, *34*, 125-134.
- Kesebir, P., & Kesebir, S. (2012). The cultural salience of moral character and virtue declined in twentieth century America. *The Journal of Positive Psychology*, *7*, 471-480.
- Lin, Y., Michel, J., Aiden, E. L., Orwant, J., Brockman, W., & Petrov, S. (2012). *Syntactic annotations for the Google Books Ngram corpus*. In M. Zhang (Ed.), *Proceedings of the 50th Annual Meeting of the Association for Computational Linguistics, System Demonstrations* (pp. 169-174). Stroudsburg, Pennsylvania, US: Association for Computational Linguistics.
- Michel, J. B., Shen, Y. K., Aiden, A. P., Veres, A., Gray, M. K., The Google Books Team, . . . Aiden, E. L. (2011). Quantitative analysis of culture using millions of digitized books. *Science*, *331*, 176-182.
- Na, J., & Chio, I. (2009). Culture and first-person pronouns. *Personality and Social Psychology Bulletin*, *35*, 1492-1499.
- Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, *128*, 3-72.

- Sexton, J. B., & Helmreich, R. L. (2000). Analyzing cockpit communications: The links between language, performance, error, and workload. *Human Performance in Extreme Environments*, 5, 63-68.
- Simmons, R. A., Gordon, P. C., & Chambless, D. L. (2005). Pronouns in marital interaction. *Psychological Science*, 16, 932-936.
- Slatcher, R. B., Vazire, S., & Pennebaker, J. W. (2008). Am “I” more important than “we”? Couples’ word use in instant messages. *Personal Relationships*, 15, 407-424.
- Tausczik, Y., & Pennebaker, J. W. (2010). The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology*, 29, 24-54.
- Triandis, H. C., & Gelfand, M. J. (1998). Converging measurement of horizontal and vertical individualism and collectivism. *Journal of Personality and Social Psychology*, 74, 118-128.
- Twenge, J. M., Campbell, W. K., & Gentile, B. (2012a). Increases in individualistic words and phrases in American books, 1960–2008. *PLoS ONE*, 7, e40181.
- Twenge, J. M., Campbell, W. K., & Gentile, B. (2012b). Male and female pronoun use in U.S. books reflects women’s status, 1900–2008. *Sex Roles*, 67, 488-493.
- Twenge, J. M., Campbell, W. K., & Gentile, B. (2013). Changes in pronoun use in American books and the rise of individualism, 1960-2008. *Journal of Cross-Cultural Psychology*, 44, 406-415.
- Uz, I. (2014). Individualism and first person pronoun use in written texts across languages. *Journal of Cross-Cultural Psychology*, 45, 1671-1678.