Research Report

Reassessing the Evidence of Chinese "Character Amnesia"

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Abstract

Increasing numbers of Chinese and Japanese speakers have been reporting that their ability to handwrite Chinese characters has been steadily diminishing, a phenomenon which is most likely a result of the growing reliance upon digital technologies. This so-called "character amnesia" has recently attracted a great deal of concern from a large number of observers, especially within the People's Republic of China. Unsurprisingly, many of the concerned participants involved in the discourse on this issue tend to rely on various empirical means in order to illustrate why they consider "character amnesia" such a worrying phenomenon. This article argues, however, that the bulk of this empirical support is unreliable and/or invalid. The article also suggests possible amendments which could hopefully lead to a better understanding of this important subject.

Keywords: China; "character amnesia"; Chinese characters; handwriting; Input Method Editors (IMEs); validity and reliability

A decline in Chinese character (*hanzi* 汉字) handwriting skills in East Asia, and especially within the People's Republic of China (PRC), has been attracting concern in recent years. Indeed, and according to many polls and surveys, this tendency to forget and/or miswrite Chinese characters has become very common among speakers of Chinese, who can now easily employ digital tools to *type* words containing relatively complicated and rare characters, but are often faced with memory blackouts when required to *handwrite* the same words (assuming they are for some reason unable to refer to these digital tools in such circumstances). For example, practically every proficient speaker of Mandarin can effortlessly employ a phonetic Input Method Editor (IME) to type the characters used in such words as *chanweiwei* 颤巍巍 (shaky or swaying), or *xinxiang* 馨香 (fragrance), which are considered common at present (i.e. characters that are included in the first level of the official 2013 "List of Standard Chinese Characters for Common Use" (*tongyong guifan hanzibiao* 通用规范汉字表), SCCCU hereafter[1]), as well as characters used in words like *aza* 腌臜

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1 The list is available at http://www.gov.cn/gzdt/att/att/site1/20130819/tygfhzb.pdf. Accessed 20 June 2017.

(filthy), *hangxie* 沆瀣 (evening mist) and *liexi* 鬣蜥 (iguana), that are considered uncommon or complicated (all are included in the second level of the SCCCU). This notwithstanding, few can correctly handwrite (again, without the help of a dictionary or other digital tools) such uncommon characters as *xie* 瀣 or *lie* 鬣, and many are likely to struggle with handwriting even more common characters such as the aforementioned *chan* 颤, *wei* 巍 and *xin* 馨.

It is hardly surprising that many Chinese and Japanese people are experiencing difficulties in handwriting their languages compared to native speakers of languages which are conventionally represented by alphabetic writing systems. In fact, the writing and especially the *handwriting* of scripts that utilize Chinese characters has almost always been considered harder and more complicated (to say nothing of the intensive processes involved in learning such scripts). That is to say, notwithstanding the many years of continuous daily training, it is only natural that native speakers of Chinese or Japanese forget every now and again how to handwrite "properly" some of the two or three thousand so-called "common" Chinese characters that are taught in schools. However, while it is currently much easier to write (that is, to *type*) Chinese characters via digital means (and people are indeed writing in this way more than ever), *handwriting* characters is getting harder. The need for handwriting *per se* in East Asian everyday life is dwindling by the day, like almost everywhere else around the globe. Nowadays, it is enough to remember how to type a certain word phonetically in Chinese or Japanese, and to be able to recognize it, in order to produce texts in most modern phonetic IMEs. Generally, there is less opportunity (or need) for people to handwrite characters, and consequently, their skills in handwriting the thousands of characters they know also appear to be diminishing.

There is no consensus regarding the consequences of this "character amnesia,"[2] but it seems that the general trend, particularly within the Chinese part of the discourse, is to deem it no less than a cultural, linguistic or national "problem," a "crisis," an "embarrassment," or even a "social disease." This kind of attitude is not limited to the Chinese media alone;[3] it is prevalent among many of the

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2 The English term "character amnesia" gained much of its current popularity after the sinologist Victor H. Mair used it in one of his *Language Log* posts. This term is almost always used to refer to what the Chinese dub *tibiwangzi* 提笔忘字, which literally means "pick up the brush, forget the characters." See Mair, Victor. 2010. "Character amnesia," *Language Log*, 22 July, http://languagelog.ldc.upenn.edu/nll/?p=2473. Accessed 20 June 2017.

3 See, e.g., "Top 10: fading away," *China Daily*, 11 January 2012, http://www.chinadaily.com.cn/china/2010topten/2011-01/11/content_11825785.htm. Accessed 20 June 2017; Du and Zhang 2013; Lian, Weiliang. 2016. "Shouzhu Zhonghua wenming chuancheng de mingmai" (Protecting the lifeline of the Chinese civilization traditions), *Renmin zhengxie bao*, 30 August; Li, Zhenzhong. 2016. "Mei Baojiu huyu 'lian maobi zi' nengfou yingde zhangsheng?" (Mei Baojiu appeals: can "practising calligraphy" win applause?), *Renmin wang*, 3 March, http://opinion.people.com.cn/n1/2016/0303/c1003-28169560.html. Accessed 20 June 2017; Wang, Nan. 2014. "Zhongguo guaqi hanzi xuanfeng" (China's Chinese character whirlwind), *Jinri Zhongguo* 9, 88–89; Zhang, Jingwei. 2010; "Zhengshi 'tibiwangzi' de hanzi wenhua weiji" (Confronting the "character amnesia" Chinese character cultural crisis), *Shidai shangbao*, 27 July, http://www.chinanews.com/cul/2010/07-27/2428148.shtml. Accessed 20 June 2017.

Chinese academic sources that have dealt with this issue.[4] It is also fairly common to come across government officials, especially those from within the Chinese Ministry of Education, who hold similar views.[5]

Such concerned approaches tend to rely on various historical, cultural, aesthetic and often emotional arguments (that the current article does not intend to analyse), which are frequently presented only after certain empirical means of support are discussed or at least mentioned.[6] However, a glance at many such studies suggests that most of the concern regarding "character amnesia" is based on empirical data that is flawed in terms of reliability and validity. To this end, the present article seeks to methodically examine some of the earlier empirical studies pertaining to "character amnesia" in China and to offer possible amendments to the drawbacks identified.

Adequate and Inadequate Choices of Chinese Characters

There are several validity problems that seem to reoccur in many of the test-like surveys, especially those conducted in the PRC, which claim to show how native speakers of Chinese are acutely "afflicted" with "character amnesia" and thus cannot handwrite "common" characters and words. One major problem with the validity of such findings is that many of these surveys actually test the ability to handwrite uncommon or even rare characters and words. It is important to note, however, that differentiating between common and uncommon characters is actually not that hard nowadays. For the PRC, the 2013 SCCCU, issued by the PRC State Council, contains 8,105 characters (an increase of 1,105 characters compared to the previous version of the list, which was issued in 1988). These 8,105 characters are divided into three levels containing 3,500, 3,000 and 1,605 characters, respectively. While it is safe to say that most educated adults in the PRC can read and write a great many (but probably not all) of the 3,500 characters included in the first level, the majority of native Chinese speakers would not even be able to read most of the characters included in the second level; the third-level list contains 1,605 rare characters, including vague and/or archaic characters such as *shen* 屾, *yue* 娧, *ju* 斝, *huan* 酄, *ban* 鎼 or *tong* 翗 that, in general, no one apart from a handful of experts can read, write or even understand.

This is not surprising considering that functional literacy in Chinese "only" requires a familiarity with around 2,000–3,500 characters (although different sources provide different estimations). In fact, according to some statistical estimations, a mastery of the most common 500–600 characters covers about 80 per cent of the characters that appear in contemporary publications, while a

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4 See, e.g., Feng 2014; Hu 2014; Liu 2015; Peng 2016; Shao 2015; Xiong 2014; Yan 2015; Zheng 2014.
5 For example, Yao Xishuang, the director of the Ministry of Education's Department of Language Application and Administration, as quoted in Zhao, Enuo and Liu Yineng. 2013. "Jinfang shuma shidai de 'shixiezheng'" (Beware of the digital age "agraphia"), *Renmin ribao*, 26 September.
6 For more on the arguments aired in the discourse on the decline in character handwriting, see Almog 2018.

familiarity with around 2,000 characters covers more than 95 per cent. A mastery of about 3,000 characters should allow the reader to attain a 99 per cent comprehension of contemporary publications, assuming, of course, that this mastery includes a familiarity with the related common words (*ci* 词) associated with each character (*zi* 字).[7] Reasonably enough, most native speakers do not bother to master or achieve proficiency with the remaining 1 per cent of the character set, which is made up of thousands of seldom-used characters.

Another "official" method of assessing the commonness of a certain character in the PRC is to check whether it is required for the highest level of the Chinese Proficiency Test (*hanyu shuipin kaoshi* 汉语水平考试, HSK hereafter). The HSK is the only standardized Chinese proficiency test meant for non-native speakers in the PRC and is developed and administered by an agency of the Ministry of Education. Although the current format of the HSK (used since 2010) does not include lists of required characters for each of its six levels, it does provide lists of words, and a familiarity with 2,663 characters is sufficient for the sixth and hardest level of the test.[8] In other words, the Chinese government itself expects even the most proficient foreign learners of Chinese to master about 2,660 characters.

In addition, it is also possible to differentiate between common and uncommon characters by referring to "unofficial" lists of character frequency statistics compiled by different individuals. One prominent example is the 2004 "Modern Chinese character frequency list" (*xiandai hanyu danzi pinlü liebiao* 现代汉语单字频率列表), compiled by Da Jun 笪骏.[9] The data for this list were gathered from a huge corpus of electronic texts published between 1997 and 2003, and include both informative materials (news, academic, etc.) and imaginative materials (such as fiction or prose).

A 2013 survey conducted by *Chongqing ribao* reporter Lan Shiqiu 兰世秋 is a typical case of the validity problem caused by the unsuccessful distinction between "common" and "uncommon" characters. According to Lan, less than five among 50 participants (aged 20–40) managed to correctly write by hand all of the survey's 20 "common words" (*changyong cihui* 常用词汇). These words included, for example, *lata* 邋遢 (sloppy), *jiyu* 觊觎 (to covet), *gamadao* 伽马刀 ("gamma knife"), Zhaoqing 肇庆 (a prefecture-level city in Guangdong province) and *yongdun* 拥趸 (fanatic).[10] The first word Lan mentions is *lata* 邋遢. Does this constitute a "common" word? How common are its characters?

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7 See, e.g., Bains 2015, 192; Coulmas 1994, 310–11; Taylor and Taylor 1995, 164–65.
8 For an example of such lists, see "HSK character list," http://hanzidb.org/character-list/hsk. Accessed 20 June 2017.
9 Da, Jun. 2004. "Modern Chinese character frequency," http://lingua.mtsu.edu/chinese-computing/statistics/char/list.php?Which=MO. Accessed 20 June 2017. For a similar source, see Zein, Patrick Hassel. 2009. "The most common Chinese characters in order of frequency," http://www.zein.se/patrick/3000char.html. Accessed 20 June 2017.
10 Lan 2013. Furthermore, it is also worth noting that Lan only reveals seven out of these 20 so-called "common words," which is a reliability problem in and of itself, as discussed below.

If the characters are cross-referenced against the three lists mentioned above, we see that both 邋 and 遢 appear in the SCCCU list's second level (3,501–6,000). Second, neither character is required for any level of the HSK test. Third, 邋 and 遢 are ranked in 4,901st place and 5,040th place, respectively, in Da's frequency list. In other words, these are not "common" characters.[11] Lan mentions other supposedly common words that contain characters of similar rarity, such as *jiyu* 觊觎 (both characters appear in the second level of the SCCCU, are not required for the HSK, and are ranked 4,591st and 4,520th in Da's list), *yongdun* 拥趸 (趸 appears in the second level of the SCCCU, is not required for the HSK, and is ranked 5,347th in Da's list), and Zhaoqing 肇庆 (肇 appears in the second level of the SCCCU, is not required for the HSK, and is ranked 3,206th in Da's list).

According to this logic, the only words mentioned by Lan that could reasonably be seen as "common" are *ganga* 尴尬 (embarrassment) and *yaonie* 妖孽 (evildoer). While both characters included in the word 尴尬 are listed in the first level of the SCCCU and are required for the sixth (and hardest) level of the HSK, they are still ranked in 2,726th place and 2,729th place in Da's list. It is fair to say that they are on the far extreme of what might be considered "common." Likewise, the word 妖孽 can be classed in a similar category (i.e. although its characters appear at the first level of the SCCCU, they are not required for the HSK, and are ranked 1,869th and 2,942nd in Da's list). The fact that more than 90 per cent of the 50 adult participants in Lan's survey were unable to handwrite all of these words should not surprise anyone, as they probably did not know, or at the very least had not mastered, some of these uncommon characters in the first place. The only surprising claim offered by this particular test-like survey is that someone actually managed to correctly handwrite all 20 words in *hanzi* without external help.

This is not to argue, however, that such surveys are necessarily unreliable. Consider, for example, if Lan's survey were to be conducted ten more times with the same words or with sets of words containing characters of similar (un)commonness in other areas of the PRC, with the same number of adult participants (preferably from the same age group, education level, etc.), and it produced rather similar results. Accordingly, we could say that this survey is reliable in the sense that it yields more or less consistent results with repeated measurements. However, as Edward Carmines and Richard Zeller note, "just because an indicator is quite reliable, this does not mean that it is also relatively valid."[12] And indeed, as shown above, even if this survey is reliable, it is still invalid, since it does not actually measure what it needs to measure. That is, instead of measuring how well Chinese adults can write "common words" by hand, the survey

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11 It is possible to argue that while the characters used in this word are not common, or that the word itself is not common in print, it is nonetheless common in colloquial speech. Even if this is the case, however, this article is more concerned with the commonness of *writing* certain words (i.e. represented by Chinese characters), since this is what people are supposedly forgetting.

12 Carmines and Zeller 1979, 13.

measures how well they can write "semi-common" or even "uncommon words." This is less a matter of concern when such surveys are used as comic relief, for example in TV gameshows, etc.; however, these surveys are often published in newspapers and magazines,[13] as well as in academic sources,[14] and presented as serious "evidence" of the "crisis" of "character amnesia."

Another important aspect the vast majority of "character amnesia" surveys tend to disregard is the characters' stroke count. While some Chinese characters are made up of a few simple strokes (such as *yi* 一, *yi* 乙, *ren* 人, *ru* 入 or *qi* 七), some contain as many as 29 strokes (for example, *cuan* 爨), 36 strokes (for example, *nang* 齉), or even 48 strokes (for example, *da* 龘). It is not necessarily harder to remember how to handwrite characters with a higher stroke count, or that such characters are necessarily more "complicated." For example, it is arguably easier to remember how to handwrite such characters as *xin* 鑫 (24 strokes), which is the more common and simpler character *jin* 金 times three, than to handwrite certain characters with a lower stroke count, such as *nen* 嫩 (14 strokes), *li* 黎 (15 strokes), or *ju* 橘 (16 strokes).[15] In short, it is important to systematically check if, and to what degree, stroke count has an effect on "character amnesia."

In addition, there is a difference between common Chinese characters (*zi*) and common Chinese words (*ci*). That is to say, sometimes very common characters can be used in writing uncommon words, or, alternatively, to represent a common word in an uncommon way. For instance, to check whether Mandarin speakers from the PRC remember how to handwrite the common character *che* 彻, it would be better to ask them to write it in the context of words of similar commonness such as *guanche* 贯彻 (to implement) or *chedi* 彻底 (thorough). Asking them to handwrite it in the context of an extremely rare word such as *jiongche* 冏彻 (transparent; easily understood), a word which most ordinary Chinese would not know, would obviously produce a significantly higher "fail rate," but that would not mean that the participants had forgotten how to handwrite the character 彻 itself.

Transparency and Data Regarding Survey Participants

Most empirical data-gathering exercises pertaining to "character amnesia," including opinion polls and test-like surveys, usually collect and/or provide little information, if any, regarding their participants. This makes such empirical research impossible to repeat, and thus renders it unreliable. For example, an oft-cited survey conducted by *China Youth Daily* in 2013 found that 98.8 per cent of the 2,517 participants had reported experiencing "character amnesia." It also

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13 See, e.g., Du and Zhang 2013, 5.
14 See, e.g., Hu 2014, 95; Li 2015, 57; Shu 2015, 51.
15 See also in this regard Mair, Victor. 2013. "Of toads, modernization, and simplified characters," *Language Log*, 16 August, http://languagelog.ldc.upenn.edu/nll/?p=5838. Accessed 20 June 2017.

claimed that 18.9 per cent of these "character amnesiacs" were born in the 1990s, 48.5 per cent in the 1980s, and 23.8 per cent in the 1970s. However, besides the results themselves (such as "98.8 per cent admit that they have experienced character amnesia," or that "only 38.9 per cent of the participants often handwrite Chinese characters"), the survey provides no extra information about the participants (such as their gender or level of education, etc.).[16] Despite this, it is not unusual to come across both popular as well as academic sources that cite this survey as proof of the severity of "character amnesia."[17]

What kind of information about its participants, then, should a potentially reliable empirical study of "character amnesia" collect and reveal? The most obvious would be the age of the participants and their level of education. While the effect of age and education on the ability to handwrite Chinese characters is quite easily discernible, gender might also play a role, especially in areas where different manifestations of gender discrimination are still commonplace. Data on participants' occupation as well as their place of birth and current whereabouts could also prove useful in this respect. In addition, future empirical efforts should aspire to higher levels of transparency with respect to the participants' personal information but also with respect to the survey methodology. For example, researchers should supply a full copy of the survey questionnaire instead of just providing respondents with a few convenient examples that might very well be exceptions. Furthermore, studies should also be clear about where, when and how they are conducted. It is important to establish if surveys are carried out in an anonymous and voluntary fashion, or if participants are financially compensated in any way. It is also necessary to know how closely participants are supervised, and to rule out the possibility of any cheating, for example, by asking a friend or looking up a character on a mobile device.

Moreover, another important yet very elusive factor that future surveys should at least try to account for is the approximate number of people who refused to take part. Many semi-illiterate people, especially in different regions within the PRC, are likely to refuse to participate in surveys that directly relate to reading and writing. Consequently, those with the lowest handwriting abilities are probably not included in most statistics related to "character amnesia."

The Comparative Dimension

"Character amnesia" is a relative phenomenon in the sense that no literate person is entirely immune to such forgetfulness. In addition, no one, barring special

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16 Xu, Jie, and Zhou Yi. 2013. "98.8% shoufangzhe ceng tibiwangzi" (98.8% of respondents had character amnesia), *Zhongguo qingnian bao*, 27 August, http://zqb.cyol.com/html/2013-08/27/nw.D110000zgqnb_20130827_2-07.htm. Accessed 20 June 2017.

17 For popular sources which cite this survey see, e.g., Lan 2013; Qing, Chuan. 2013. "Jiucheng guoren 'tibiwangzi' you duo kepa?" (90% of Chinese have "character amnesia" – how terrible is it?), *Hongwang*, 28 August, http://hlj.rednet.cn/c/2013/08/28/3126693.htm. Accessed 20 June 2017. For academic sources, see, e.g., Xiong 2014, 96; Zheng 2014, 141.

cases of head trauma, etc., is likely to experience an "absolute" case of "character amnesia" (a theoretical situation in which a person can still read but is incapable of writing any character whatsoever). Thus, in order to find out just how widespread (or marginal) "character amnesia" truly is, empirical studies must adopt several comparative methods in order to attain a satisfactory level of validity. The first and foremost dimension to be compared is the difference between levels of competence in reading and handwriting. For example, asking 100 Mandarin speakers to handwrite the character *ao* 翱, as in the word *aoxiang* 翱翔 (to soar, to hover) will probably result in a relatively high level of failure, since 翱 is moderately uncommon. Let us imagine for the sake of argument that only 80 out of 100 study participants manage to handwrite it correctly. Does that mean that the other 20 per cent are experiencing a state of "character amnesia" with respect to this character? Not necessarily, because it is also possible that many of them did not master (or did not even know) this character in the first place.

Employing the same example (handwriting the character 翱) in a methodology accounting for this dimension might involve asking 100 participants to transcribe *ao* into *hanzi* as it appears in a sentence such as "海鸥在空中 *áo* 翔" (seagulls hover in the sky), while asking a group of 100 different people to transcribe 翱 into *pinyin* 拼音 (including tone marks), as it appears (in bold) in "海鸥在空中 翱翔." So, if, for instance, only 80 out of 100 participants in the first group manage to transcribe *ao* to 翱, while 95 out of the 100 participants manage to transcribe 翱 into *áo*, we could conclude that the overall handwriting level for this character (at least in this specific context) is 15 per cent lower than its reading level. Accordingly, if we repeat this process with other characters and words covering a wide variety of commonness and complexity, we should be able to achieve a much clearer view of the differences between the levels of Chinese character reading and handwriting, one which is much more meaningful than simply showing that a certain number of people cannot handwrite certain characters or words.

Furthermore, empirical studies that compare levels of "character amnesia" between cities, regions, countries and languages (mainly between Mandarin, Cantonese and Japanese) would be a worthwhile exercise. Comparing levels of "character amnesia" between regions that use "traditional characters" (Taiwan, Hong Kong and Macau), and regions which use "simplified characters" (mainly the PRC and Singapore) is also of obvious importance. Answering questions such as whether "character amnesia" is more or less common in certain cities or regions and why, and whether it is more common among Japanese speakers than among Cantonese or Mandarin speakers and why, could drastically affect the way in which we understand and evaluate the phenomenon of "character amnesia" itself. By the same token, comparing other factors such as age (which is about the only comparative dimension that some past studies have included), gender, occupation and level of education may also prove to be of great significance in this regard.

Similarly important, and methodologically possible, are empirical studies of "character amnesia" which deal with this phenomenon from a temporal perspective. The same survey, for example, can be conducted several times in the same city/region with similar numbers and types of participants over the course of a few months or years. This would assess if, and to what extent, "character amnesia" is spreading or diminishing. Finally, it could also be very useful to occasionally combine the two aforementioned kinds of empirical studies – opinion polls and test-like surveys – into one empirical effort. This should theoretically allow the researcher to draw interesting, and hopefully valid, connections between the way people think and feel about "character amnesia" and their actual reading and handwriting abilities. For example, do people who perceive "character amnesia" as a problem or a crisis exhibit lesser or higher degrees of it? Research should also be undertaken to try to discover connections between the amount of exposure to digital technologies and levels of "character amnesia." It has been assumed by many previous sources (empirical or otherwise) that "character amnesia" is, by and large, caused by computers and mobile phones; however, little has been done to try to prove this basic assumption empirically. To date, there have been many opinion polls that have showed that people are writing less by hand and more via digital devices and many test-like surveys which have allegedly proved that people are experiencing "character amnesia," but there is a stark disconnection between these two types of studies, a disconnection which must be bridged if a better and more accurate understanding of this phenomenon is to be achieved.

Acknowledgement

Biographical note

Guy ALMOG is an adjunct lecturer at the department of Asian studies at the University of Haifa. His current research interests include the exploration of the different historical and cultural roles of Chinese characters within East Asian societies, as well as the historical and philosophical examination of pacifism in contemporary Japan.

摘要: 愈来愈多的说汉语与说日语的人发现, 他们手写汉字的能力一直在持续下降。该现象最有可能的起因是对数字技术日益依赖。这种所谓的 "提

笔忘字" 最近引起了广大观察者的强烈担忧, 特别是在中华人民共和国。
并不意外的是, 为了解释说明为何 "提笔忘字" 被认为是一种令人担忧的
现象, 许多涉及这个话题的参与者们都倾向于依靠各种经验手段来解释。
然而本文认为, 这些依靠经验方法支持的大部分是不可靠或无效的。因此
本文提出了有可能性的修正, 希望能够更好地理解该重要主题。

关键词: 中国; 提笔忘字; 汉字; 手写; 输入法 (IMEs); 效度与信度

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