2018

# Development and Assessment of the Korean Author Recognition Test

Hyosun Lee

Eunjin Seong

Wonil Choi

Matthew W. Lowder
*University of Richmond,* mlowder@richmond.edu

Follow this and additional works at: https://scholarship.richmond.edu/psychology-faculty-publications

Part of the Linguistics Commons, and the Psychology Commons

**This is a pre-publication author manuscript of the final, published article.**

Development and Assessment of the Korean Author Recognition Test (KART)

Hyosun Lee[1], Eunjin Seong[1], Wonil Choi[1], Matthew W. Lowder[2]

1. Gwangju Institute of Science and Technology

2. University of Richmond

Author Note

Hyosun Lee, Department of Chemistry, Gwangju Institute of Science and Technology

Eunjin Seong, Division of Liberal Arts and Sciences, Gwangju Institute of Science and Technology.

Wonil Choi, Division of Liberal Arts and Sciences, Gwangju Institute of Science and Technology

Matthew W. Lowder, Department of Psychology, University of Richmond

Correspondence concerning this article should be addressed to Wonil Choi, Division of Liberal Arts and Sciences, Gwangju Institute of Science and Technology, Gwangju, 61005 Contact: wichoi@gist.ac.kr

Abstract

This research reports the development and evaluation of a Korean Author Recognition Test (KART), designed as a measure of print exposure among young adults. Based on the original, English-language version of the Author Recognition Test (ART; Stanovich & West, 1989), the KART demonstrates significant relationships with offline measures of language ability, as well as online measures of word recognition. In particular, KART scores were related to participants' responses on the comparative reading habits (CRH) checklist, suggesting that KART is a valid measure of print exposure. In addition, KART scores showed reliable correlations with offline measures of vocabulary knowledge and language comprehension. Finally, results from a lexical decision task showed that KART scores modulated the magnitude of the word familiarity effect, such that the effect was smaller for participants with higher KART scores The results suggest that the ART is a language-universal task that measures print exposure, which is useful for explaining individual differences in language comprehension abilities and word recognition processes.

*Keywords*: Korean Author Recognition Test, print exposure, language ability, individual differences, lexical decision

Development and Assessment of the Korean Author Recognition Test (KART)

**Introduction**

A large literature indicates that higher levels of language exposure are associated with enhanced vocabulary knowledge, better reading comprehension skills, and greater abilities in many other language-related outcomes. This relationship between language exposure and language ability is detectable in children as young as preschoolers, for whom early print exposure is associated with not only basic language ability, but also a greater interest in reading (Fletcher & Reese, 2005). As children develop more refined reading skills, they are more likely to devote their leisure time to reading. By fourth grade, children start learning new concepts or acquiring new information from books (i.e., read to learn), which continues to enhance their language abilities (Chall, 1983; Hirsch, 2003; Vellutino et al., 2007). This spiral continues into adolescence and adulthood, such that increased levels of print exposure lead to better language abilities, which in turn lead to increased levels of print exposure (Paris, 2005; West, Stanovich, & Mitchell, 1993)–a pattern referred to as reciprocal causation (Mol & Bus, 2011). The robust relationship between print exposure and language outcome measures highlights the potential usefulness of developing a measure that estimates an individual's exposure to printed language. Such a measure might play an important role in explaining individual variability in both online and offline measures of language ability.

Early measures of print exposure tended to come from self-report questionnaires (Greaney, 1980). However, this approach is highly subjective, and people tend to answer in socially desirable ways, exaggerating their reading habits (Ennis, 1965; Paulhus, 1984; Zill & Winglee, 1990). In contrast to the subjective nature of self-report measures, Stanovich and West (1989) constructed the Author Recognition Test (ART) as an objective assessment of print exposure. In the original version of the ART, the names of 50 real authors (from bestselling books) and 50 foils were included in a list, and participants were instructed to

select the names that they recognized to be real authors. To prevent indiscriminate selection, scores are penalized for selecting foils. Several findings in particular are noteworthy from Stanovich and West. First, they reported a strong correlation between ART scores and word processing ability. Specifically, higher ART scores were associated with better performance on the Experimental Spelling Test (EST: Fischer, Shankweiler, & Liberman, 1985) and the Wide Range Achievement Test-spelling (WRAT: Jastak & Wilkinson, 1984). Second, ART scores were related to orthographic processing ability independent of phonological processing ability. Performance on the ART did not explain all the variance in orthographic processing; however, after removing the phonological processing factor, ART scores were a strong predictor of variance in orthographic processing. Finally, Stanovich and West demonstrated that performance on the ART was unrelated to social desirability, which represents an improvement over self-report questionnaires. In short, Stanovich and West verified the ART as an objective measure of print exposure that is related to language ability. Since then, the ART has been widely used to measure one's variability in print exposure and has been reported as a powerful tool to predict a variety of language abilities (for a comprehensive review, see Mol & Bus, 2011).

Stanovich and West's (1989) original ART was updated 20 years later by Acheson, Wells, and MacDonald (2008) to remove authors that were no longer familiar and to include new authors. Specifically, Acheson et al. used 15 authors from Stanovich and West's original ART and 50 new authors for a final list that consisted of 65 real authors and 65 foils. Acheson et al. showed a reliable correlation between scores on the updated ART and scores on the ACT, a standardized achievement test for high school students. Using Acheson et al.'s version of the ART, Choi, Lowder, Ferreira, and Henderson (2015) also found correlations between ART scores and online reading measures such that mean fixation durations during sentence reading were shorter as readers' ART score became higher (see also Lowder &

Gordon, 2017; Moore & Gordon, 2015). These results indicate that print exposure, as measured by the ART, relates to not only readers' offline reading performances but also online reading behaviors.

As previously mentioned, Mol and Bus (2011) argued that there is a reciprocal causation between print exposure and language ability. They applied a meta-analysis to examine the relation between print exposure and reading abilities including comprehension, technical reading, and spelling based on 99 studies. Given that print exposure is both a cause and an effect of enhanced language abilities, the gap in reading ability between proficient readers and less-skilled readers increases with age. For example, ART scores explained 34% of the variance in reading ability among undergraduates, compared to 12% of the variance among preschoolers. This suggests that measures of print exposure can be quite effective in explaining individual differences in reading ability among college students.

There is a substantial body of research demonstrating relationships between ART scores and English language ability across a wide range of ability measures (for a review, see Mol & Bus, 2011). However, to the best of our knowledge, only one study so far has examined the relationship between ART and language ability in Asian languages (Chen & Fang, 2015). Chen and Fang (2015) constructed a Chinese version of the ART (CART) in Taiwan and tested whether there were relationships between CART scores and a variety of measures of reading ability among college-level students. The results showed that CART scores were indeed correlated with offline reading measures such as vocabulary size and reading comprehension, suggesting that measures of print exposure are useful tests for predicting variability in reading ability even in a country in which English is not a dominant language.

Given that the relationship between print exposure measured by the ART and reading ability emerges in English and Chinese, we would expect that the relationship should emerge

in additional languages as well. Accordingly, the main goal of the present study was to develop an objective measure of print exposure in Korean (the Korean Author Recognition Test, or KART) and test it against online and offline measures of language ability. As far as we know, this is the first attempt to link print exposure and language ability measures in Korean. Our specific goals were twofold. First, we investigated whether the KART is a valid measure of print exposure by examining correlations between KART scores and other self-report measures of print exposure, as well as offline language tasks that measure language ability. Second, we investigated the relationship between KART scores and measures of online language processing.

The first specific goal was to investigate the relationship between KART scores and other self-report measures of print exposure. Previous work has demonstrated moderate correlations between scores on the ART and scores on other measures of print exposure. For example, the ART shows reliable correlations with scores on the Home Literacy Environment questionnaire, which is a self-report measure designed to assess a child's literacy habits and the literacy habits of others in the household (Mol & Bus, 2011). Acheson et al. (2008) reported a significant correlation between scores on the ART and responses on the Comparative Reading Habits (CRH) questionnaire, which asks respondents to rate themselves on criteria such as reading speed and interest in reading. Similar correlations have been reported by Choi et al. (2015) in English, as well as Chen and Fang (2015) in Chinese.

The second goal of the present study was to examine the extent to which online language processing is modulated by scores on the KART. Indeed, several previous studies have shown that aspects of online language processing are affected by individual differences in print exposure. For example, Chateau and Jared (2000) conducted multiple experiments to examine the effects of print exposure on phonological and orthographic word recognition processes. Participants in these experiments were divided into two groups based on their ART

scores. The general pattern of results was that the high ART group showed shorter reaction

times and more accurate responses than did the low ART group. More specifically, in a

lexical decision task, the magnitude of the word frequency effect was smaller in the high than

the low ART group, indicating that participants with higher levels of print exposure tended to

have more efficient word recognition processes compared to participants with lower levels of

print exposure—a phenomenon referred to as the lexical entrenchment effect (Diependaele,

Lemhöfer, & Brysbaert, 2013) (for similar effects using eyetracking during reading, see

Moore & Gordon, 2015). Lowder and Gordon (2017) reported that effects of lexical

repetition during natural reading were modulated by ART scores such that the repetition

effect decreased as ART scores became higher. This result indicates that higher levels of print

exposure, as measured by the ART, are associated with efficient word recognition processes

during natural reading. In addition, Choi et al. (2015) tested participants on a battery of

individual differences measures to examine what factors best account for variability in the

size of the perceptual span during reading. They showed that the size of readers' perceptual

span was best predicted by a composite score of language ability in which ART scores were

included as one of the measures, thus supporting the idea that variation in print exposure is

associated with various aspects of online language processing. In contrast, Acheson et al.

(2008) failed to find any reliable relationship between scores on the ART and online measures

of sentence processing, as measured by a self-paced reading task, as well as offline

comprehension question accuracy.

In the present study, we developed the KART as an objective measure of print

exposure for speakers of Korean. We then compared scores on the KART with scores on a

vocabulary task and a comprehension task as offline measures of language ability, and we

compared scores on the KART with performance on a lexical decision task as an online

measure of word recognition processes. If the KART is an effective measure of print

exposure, we should see significant relationships between scores on this measure and scores on offline measures of language ability, as well as online measures of word recognition.

**Construction of a Korean version of the Author Recognition Test (KART)**

Several decisions had to be made about which authors would be eligible to appear on the KART. Before selecting author names, we agreed on several criteria. First, the authors of foreign books (translated into Korean) were eligible to be included on the list. Chen and Fang (2015) excluded authors of translated books because there was no united notation of translated names in Taiwan. As phonetic notation of foreign language is standardized in Korea, authors of translated books were included on the list with no distinction between Korean authors and foreign language authors. Second, although it would have been desirable to include authors from various genres in equal proportions, several of the authors were ambiguous between more than one genre, which made it difficult to represent all genres equally. Therefore, this was not used as a criterion for selecting authors. Finally, in Chen and Fang's (2015) Chinese version of the Author Recognition Test (CART), they included two types of author lists: CART-popular and CART-highbrow. CART-popular was a list of authors of books that were popular choices at college libraries and were top sellers at large bookstores. CART-highbrow was a list of authors recommended by avid readers. However, Chen and Fang showed that the relationship between language ability and scores on the CART did not differ across the two lists. We therefore decided to create only one list of authors for the KART.

An initial list of 275 authors was selected by searching for popular books from two libraries and three big online bookstores:

1. The 100 most borrowed books from Seoul National University library in 2016
2. The 100 most borrowed books from GIST (Gwangju Institute of Science and Technology) college library in 2016

3. The top 100 bestselling books from Kyobobook in 2016

4. The top 100 bestselling books from Aladin in 2016

5. The top 100 bestselling books from Yes24 for 18 months before January 5, 2017.

Out of the original 275 authors, we excluded authors of textbooks, books for the TOEIC/TOFEL, comics, recipe books, baby books, and various kinds of self-help and reference books. This left 126 authors remaining. A pilot test was conducted to identify the authors that showed significant variance in the rate of correct responses. Specifically, we added four foils to the list (the names of four Korean idols), and the full list of 130 names was presented to 186 subjects via a Google Docs survey. The participants were instructed to mark the names they recognized as being authors. Authors with a hit rate of less than 10% or greater than 80% were excluded. Using these criteria, our final list contained 40 author names. Of these 40 authors, 17 were Korean, 5 were Japanese, and 18 were from western countries. In addition, 40 non-author names were added to the list as foils. These foils were created by matching nationality with the real author names. Otherwise, the names were completely made up, based on our knowledge of valid names in Korea, Japan, and western countries. The proportion of foreign names was equal across the real authors and foils. Participants who complete the KART are instructed to: 1) indicate the names they recognize as real authors, and 2) indicate how the name is known. For this second question, participants must choose one of the following three choices: (1) I have heard the author's name, but have never read his/her book(s); (2) I started reading his/her book(s), but never finished; or (3) I have read his/her book(s) before. The KART is presented in Appendix A.

**Method**

**Subjects**

One hundred and five undergraduate and graduate students (47 females) from GIST (Gwangju Institute of Science and Technology, Gwangju, South Korea) participated in this

study. They were all native speakers of Korean, and their ages ranged from 18 to 26. One participant did not finish the experiment, leaving data from 104 participants for the final analysis.

**Materials**

For the lexical decision task (LDT), 120 Korean words were selected from a standard Korean language dictionary (National Institute of Korean Language, 2000). The subjective familiarity of each word was assessed in a rating task. The 120 words were presented to 31 participants via Google Docs, and participants rated each word on a Likert scale ranging from 1 to 7 (1: I have never seen, heard, or used this word before; 7: I see, hear, or use this word almost every day). The mean familiarity across all words was 6.0 (SD: 0.8)[1], and the mean length was 2.1 syllables (range: 1-4 syllables).

One hundred twenty Korean nonwords were generated by changing a letter in each of the words. For example, the nonword, "징문" was created by changing the letter "ㄹ" to "ㅇ" from the Korean word, "질문". The mean length of the nonwords was 2.1 syllables (range: 1-4 syllables).

**Individual difference tasks**

**Reading/Writing Time Estimates.** In this questionnaire, participants were asked to estimate how much time they typically spend reading and writing in a given week. Participants checked the option that corresponded with their estimate in one-hour increments up to seven hours. Specifically, we translated the 'Reading Time Estimates' and 'Writing Time Estimates' used in Acheson et al. (2008) into Korean. In estimating reading time,

---

[1] Because word frequency information using the Sejong corpus (Kang & Kim, 2009) was not available for 12 of our words, we decided to use subjective familiarity measures for analysis of the lexical decision data. Gernsbacher (1984) has shown that experiential familiarity is sometimes a better predictor of word recognition latencies than objective word frequency. Park (2003) has shown a similar pattern among Korean undergraduates.

participants were told that they could include time spent reading ebooks and webtoons (webtoons are a type of online Korean cartoon that is popular among undergraduates). This measure is presented in Appendix B.

**Comparative Reading Habits (CRH).** Comparative Reading Habits (CRH) is a self-report questionnaire asking participants to compare their own reading habits with the habits of their peers, using a Likert scale ranging from 1 to 7. Higher numbers indicate better reading habits, as judged by each participant. The CRH consists of five items: amount of reading, complexity of reading material, reading enjoyment, reading speed, and reading comprehension ability. We translated the CRH used in Acheson et al. (2008) into Korean, except that the item about amount of time spent reading was edited to ask about how much more material participants estimated they read, compared to their peers. This measure is presented in Appendix C.

**Vocabulary task.** To develop a vocabulary measure, we first ran a pilot test using 80 items with four response options. Items were designed to measure participants' general knowledge of word meanings, as well as knowledge about spelling, proverbs, and idioms. Items were based on a previously published vocabulary test book (Lee et al., 2014). Nine subjects participated in the pilot test to help us identify items that were too easy or too difficult. Out of the original 80 items, 20 were excluded based on results of the pilot test, leaving a total of 60 items, also with four response options, for the vocabulary test. This measure is presented in Appendix D.

**Comprehension task.** Five texts were chosen for the comprehension task. Two of them were selected from a middle school textbook of Korean language (Shin, 2015; Yeom, 2015), and the other three texts were extracted from three different non-fiction books (Gescheider, G. A., 1985; Lee, J., 2015; Lee, N., 2014). Each text was approximately one page long. Four comprehension questions were written for each text, for a total of 20

comprehension questions. The questions asked about factual information, but also required readers to draw inferences. Each question was presented in multiple choice format with four options.

It is important to note that comprehension questions can assess different levels of text understanding. Acheson et al. (2008) assessed sentence level comprehension using yes/no questions. In contrast, Chen and Fang (2015) assessed more global text-level comprehension, asking about both literal and inferential aspects of the text. In the current study, we also ask factual and inferential questions; however, our passages were longer than the vignettes used in Chen and Fang's (2015) comprehension task.

**Procedure**

After providing informed consent, participants completed the lexical decision task (LDT). They were instructed to decide whether each letter string presented on the screen was a word or not, pressing the "m" key on the keyboard for words and the "z" key for nonwords as rapidly as possible without sacrificing response accuracy. The LDT began with 10 practice trials, consisting of five words and five nonwords. After this practice block, the remaining 240 trials (120 words and 120 nonwords) were presented in a random order.

After completing the LDT, participants were given the KART. In the KART, participants were asked to check the names they thought were authors and to indicate how they were familiar with each name that they checked (see Appendix A). After completing the KART, participants were given the Comparative Reading Habits (CRH) questionnaire, as well as the questionnaire for reading/writing time estimates. Finally, participants completed the vocabulary task and the comprehension task. The experimental session lasted approximately 45 minutes.

**Results**

**Analyses**

Descriptive statistics of all task measures are shown in Table 1. As shown in Table 1, KART scores were calculated in three ways. First, the conventional KART score was calculated by subtracting the number of marked foils from the number of marked real authors. A KART score reflecting primary print knowledge (KART.PPK) was obtained by calculating the number of author names for which participants indicated that they had read that author's books and dividing this number by the total number of authors (i.e., 40). Finally, a KART score reflecting secondary print knowledge (KART.SPK) was obtained by calculating the number of author names for which participants indicated that they had not read that author's books and dividing this number by 40. For all analyses, KART.PPK and KART.SPK were weaker predictors than the composite KART score. Accordingly, the following analyses report only the conventional KART score.

Table 1.

*Means, standard deviations, and ranges of each measure*

|  | **Mean (SD)** | **Range** |
| --- | --- | --- |
| **KART.C** | 17.5 (6.7) | 4 – 35 |
| **KART.PPK** | 0.21 (0.13) | 0.00 – 0.55 |
| **KART.SPK** | 0.18 (0.09) | 0.00 – 0.48 |
| **Self.R (hours)** | 1.6 (0.6) | 0.3 - 2.8 |
| **Self.W (hours)** | 1.3 (0.7) | 0.0 – 3.4 |
| **CRH.A** | 3.1 (1.5) | 1 – 7 |
| **CRH.C** | 3.2 (1.5) | 1 – 7 |
| **CRH.E** | 3.7 (1.7) | 1 – 7 |
| **CRH.S** | 3.8 (1.8) | 1 – 7 |
| **CRH.U** | 4.2 (1.3) | 1 – 7 |
| **CRH.Ave** | 3.6 (1.1) | 1 – 7 |
| **Voca.S** | 34.1 (3.9) | 25 – 44 |
| **Comp.S** | 16.4 (2.1) | 9 – 20 |
| **LDT.RT (milliseconds)** | 705 (291) | 317 – 6353 |
| **LDT.ACC** | 0.91 (0.05) | 0.77 – 0.99 |

*Note*. KART.C=Korean author recognition test score (conventional score); KART.PPK=Korean author recognition test-primary print knowledge; KART.SPK= Korean author recognition test-secondary print knowledge; KART.PPK and KART.SPK are presented as proportions as described in the text; Self.R=Self-report questionnaire (reading time estimates); Self.W=Self-report questionnaire (writing time estimates);

CRH.A=comparative reading habit (amounts of reading); CRH.C=comparative reading habit (complexity of reading materials); CRH.E=comparative reading habit (reading enjoyment); CRH.S=comparative reading habit (reading speed); CRH.U=comparative reading habit (reading comprehension ability); CRH.Ave=comparative reading habit (average value); Voca.S=vocabulary test score; Comp.S=comprehension test score; LDT.RT=lexical decision task reaction time; LDT.ACC=lexical decision task accuracy

The reaction time data from the LDT were analyzed using linear mixed effects (LME) models with the lmer function in the lme4 package (Bates, Maechler, & Bolker, 2012) in R (R Development Core Team, 2011), with subjects and items entered as crossed random effects. The lmerTest package (Kuznetsova, Brockhoff, & Christensen, 2017) was used to obtain all P values. In order to examine the relationship between KART and online processes of word recognition, fixed effects included word familiarity, KART score and the interactions among the two factors. Both fixed effects were continuous variables. Random effects included intercepts for subjects and items. By-subject and by-item random slopes were not included in the analyses because the models including them failed to converge.

The remainder of this section is organized in two parts. First, we describe the pattern of correlations between KART and the other offline tasks. Then, we report analyses designed to investigate how KART relates to online word recognition processes.

**Correlations between KART and other measures**

Figure 1 shows correlation coefficients and scatterplots for KART, the offline individual difference tasks, and LDT accuracy. In addition, the diagonal of Figure 1 shows the intraclass correlation coefficients (ICC) of each task, which is a useful metric for assessing the reliability of each measure (see Bartko, 1966; Shrout & Fleiss, 1979). As indicated by the ICC values, all measures showed exceptional reliability. In particular, the KART showed reliability of 0.99.

As shown in Figure 1, KART scores showed modest but reliable correlations with the other offline test scores. For example, KART scores and average CRH scores were correlated at greater than 0.4, which is consistent with correlations between these two measures

observed in previous studies (e.g., *r* = .30 in Chen & Fang, 2015; *r* = .51 in Choi et al., 2015)[2].

Regarding online measures of word recognition, KART scores showed a significant correlation with accuracy on the LDT, such that higher scores on the KART were associated with better word recognition performance. Given that the words used in the LDT were relatively difficult, the positive correlation between KART scores and LDT accuracy indicates that print exposure measured by the KART seems to adequately capture the difficulty of lexical access.

(Figure 1 is around here.)

---

[2] Acheson et al. (2008) did not present the correlation between the average CRH scores and ART scores. Instead, they reported the correlations between ART scores and the five sub-questions from the CRH, which ranged from .14 - .52.
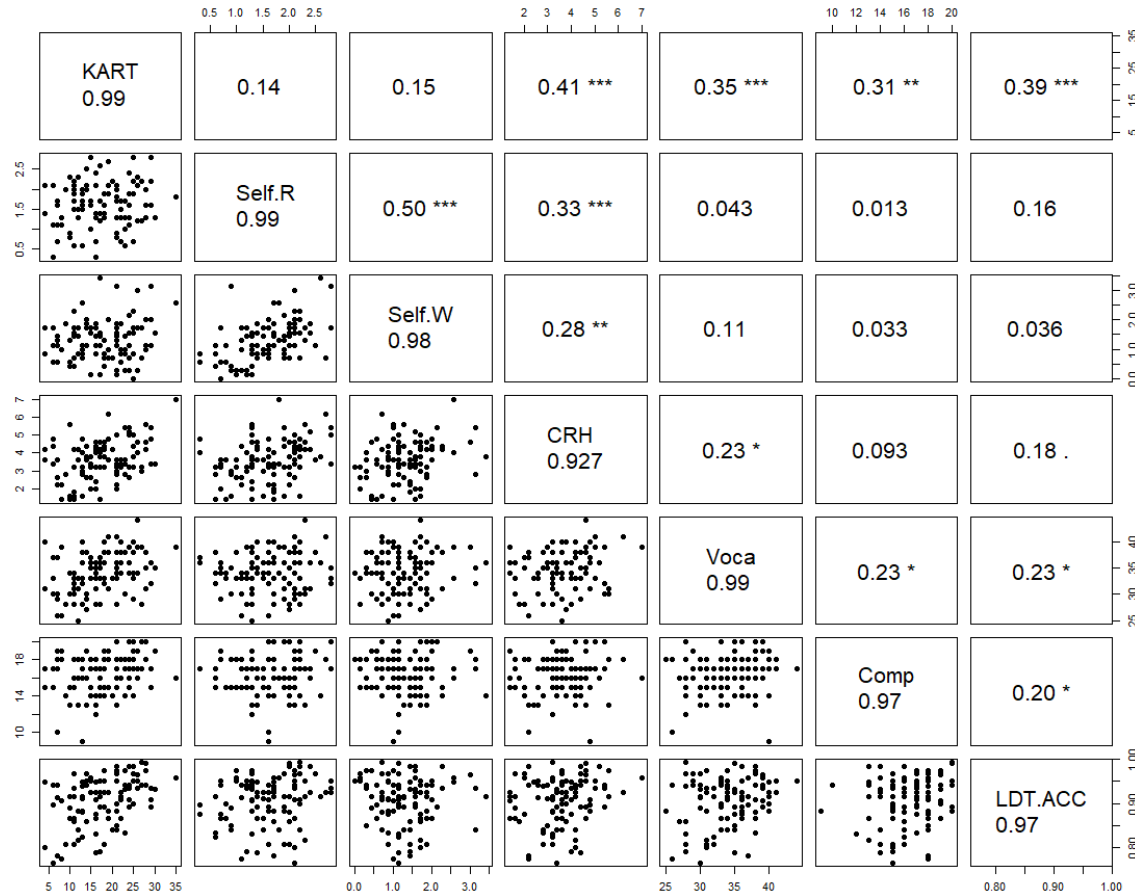
*Figure 1.* Correlations between KART and other measures

*Note.* *p < .05; ** p < .01; *** p < .001

The diagonal values are intraclass correlation coefficients of each task. The upper values of the diagonal are correlation coefficients and the lower values are scatter plots.

KART=Korean author recognition test score; Self.R=Self-report questionnaire (reading time estimates); Self.W=Self-report questionnaire (writing time estimates); CRH=comparative reading habit (average value); Voca=vocabulary test score; Comp=comprehension test score; LDT.ACC=lexical decision task accuracy

**LDT data modulated by KART**

For the linear mixed effect analysis of the LDT reaction time data, incorrect trials were excluded, as well as reaction times that were shorter than 300ms or longer than 2000ms. In total, 10.02% of the data were excluded.

The results revealed a significant main effect of KART scores ($t = -2.84$, $p < 0.005$), demonstrating that higher scores on the KART were associated with faster reaction times. In addition, a significant main effect of word familiarity emerged ($t = -14.73$, $p < 0.001$), indicating that increases in word familiarity were associated with faster reaction times. More importantly, there was a significant interaction between KART scores and word familiarity ($t = 2.83$, $p < 0.005$). As shown in Figure 2, the relationship between word familiarity and reaction times was modulated by KART scores such that participants with higher KART scores showed a smaller effect of word familiarity compared to those with lower KART scores.

Because our mixed effect models analyzing the effect of word familiarity and KART scores on accuracy rates failed to converge, we instead conducted a two factor ANOVA to examine the relationship. For this analysis, KART scores and word familiarity were both divided into two levels based on a median-split method. Error variance was calculated by participants ($F_1$) and by items ($F_2$). As expected, the main effect of KART was statistically significant such that the participants with higher KART scores were more accurate on the task than the participants with lower KART scores, $F_1 (1, 202) = 11.39$, $p < .001$; $F_2 (1, 234) = 4.06$, $p < .05$. In addition, a main effect of word familiarity emerged in the subject ($F_1$) analysis and was marginally significant in the item analysis ($F_2$) such that the more familiar word condition showed higher accuracy rates than did the less familiar word condition, $F_1 (1, 202) = 64.68$, $p < .0001$; $F_2 (1, 234) = 2.98$, $p < .09$. Interestingly, there was a significant interaction between KART scores and word familiarity, $F_1 (1, 202) = 13.09$, $p < .001$; $F_2 (1,

234) = 4.49, *p* < .05. The source of the interaction was such that accuracy rates for the familiar word condition were not different between the two KART groups (98.3% in the high KART group vs. 98.5% in the low KART group), whereas accuracy rates for the unfamiliar word condition were higher in the high KART group (86.6%) than in the low KART group (80%). This result indicates that the relationship between word familiarity and accuracy rates in the lexical decision depends critically on KART scores.
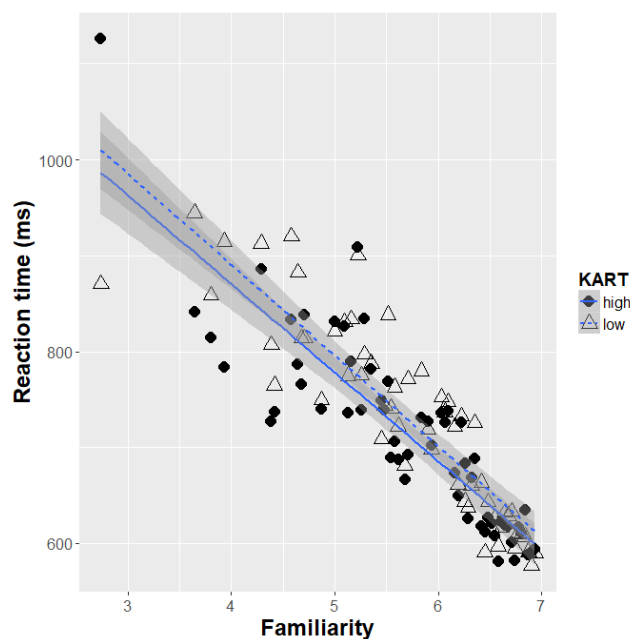


*Figure 2*. Effects of word familiarity and KART score (split as high versus low) on reaction time (ms) in the lexical decision task

## Discussion

In the present study, we created a Korean version of the Author Recognition Test (KART) to examine the relationship between print exposure and language abilities among young adults whose native language is Korean. To this end, we examined correlations between KART scores and offline tasks measuring individual differences in language ability, as well as online measures of word recognition. The results showed that 1) there were moderate correlations between KART scores and other offline measures of language ability, and 2) effects of word familiarity in a lexical decision task were modulated by KART scores.

With respect to the first point, KART scores showed significant correlations with vocabulary knowledge scores, as well as reading comprehension scores. These results are consistent with previous findings demonstrating moderate-to-strong correlations between ART scores and vocabulary knowledge among college students, assessed using a variety of vocabulary tests (e.g., Burt & Fury, 2000; Grant et al., 2007; Stanovich et al., 1995; Stanovich & Cunningham, 1992; West & Stanovich, 1991). Previous studies have also shown significant correlations between ART scores and scores on a variety of language comprehension measures (e.g., Burt & Fury, 2000; Grant et al., 2007; Martin-Chang & Gould, 2008; Osana et al., 2007; Stanovich & Cunningham, 1992; 1993; Stanovich & West, 1989).

Beyond these results using native speakers of English, Chen and Fang (2015) reported significant correlations between ART scores and measures of vocabulary and reading comprehension among native speakers of Chinese. Similarly, Rodrigo, McQuillan and Krashen (1996), using a Spanish version of the ART, reported a significant correlation between print exposure and vocabulary among native speakers of Spanish. Vander Beken and Brysbaert (2017) recently developed a Dutch version of the ART, which showed significant correlations with scores on vocabulary and spelling tests among native speakers of Dutch. The results of the current study, combined with these previous findings, indicate that measures of print exposure are likely to show robust relationships with measures of vocabulary and comprehension ability irrespective of the language under investigation. In addition, the excellent reliability of the KART (0.99) is very similar to the high reliability estimate that was reported for the Dutch version of the ART (0.97; Vander Beken & Brysbaert, 2017). Although other versions of the ART have not generally reported reliability estimates quite this high, they do tend to have reliabilities that are quite good: 0.84 (Stanovich & West, 1989), 0.76 (Chen & Fang, 2015), and 0.85 (Martin-Chang & Gould,

2008). One exception is the Spanish version of the ART, which had a reliability of only 0.61 (Rodrigo et al., 1996). One reason for the lower reliability for this version may be the relatively low number of author names that appeared on the test (i.e., 16 authors on the Spanish ART, compared with 40 or more on most other versions of the ART. Thus, the ART seems to be a reliable measure in general, with some versions such as the KART developed here demonstrating excellent levels of reliability.

It is important to note the pattern of relationships between KART and the other measures of print exposure used in the present study. Specifically, KART scores were significantly correlated with CRH scores, whereas KART scores were not related to the self-report reading/writing habits measures, suggesting that these self-report estimates are perhaps unreliable as measures of print exposure (see also Acheson et al., 2008; Cunningham & Stanovich, 1990; 1991; Stanovich & West, 1989). As mentioned in the Introduction, self-report measures of the time one spends reading and writing are known to be unreliable because they are quite susceptible to responses that reflect social desirability. Another issue associated with these self-report measures is the accuracy of the responses. In the questionnaire used in the current study, we asked respondents to estimate how much time they spend reading a variety of materials *during a week*. Even if a respondent is not intending to respond in a socially desirable manner, it is somewhat difficult to generate an accurate time estimate, which may lead to values that are either greatly underestimated or overestimated. The issues raised here might also be reasons that these self-report measures did not show any relationships with any of the other measures including off-line tasks of vocabulary and reading comprehension, or performance on the LDT. Another important finding of this work is that KART scores modulated the relationship between word familiarity and word recognition time such that readers with higher KART scores showed smaller differences in reaction times between familiar and unfamiliar words compared with those with lower KART

scores. This result is consistent with Chateau and Jared (2000), who showed a smaller word frequency effect in a LDT for their high ART group compared to their low ART group. These results indicate that readers with greater amounts of print exposure engage in quicker and more efficient word recognition processing compared to readers with lower amounts of print exposure. These similarities between English and Korean results suggest that the (K)ART is not only a good measure for estimating print exposure, but also a useful measure for explaining individual differences in processes of word recognition.

Similar relationships between print exposure and online language processes have also been found by Lowder and Gordon (2017). Lowder and Gordon recorded adult readers' eye movements while they read sentences. They showed that the word repetition effect (measured by fixation durations) was modulated by ART scores such that the size of the effect became smaller as a reader's ART score increased. This result indicates that readers with higher ART scores tend to process words more effectively during reading compared to those with lower ART scores. However, Acheson et al. (2008) did not find significant correlations between ART and word reading time or comprehension question accuracy in a self-paced reading task. Thus, the relationship between ART scores and sentence-level online processing is a bit mixed, even in English. Further research is needed to clarify the relations between print exposure and online language comprehension at all levels of processing.

Notably, some previous work has suggested that primary print knowledge (PPK) is a better predictor of language abilities than conventional ART scores (Chen & Fang, 2015; Martin-Gould & Chang, 2008), whereas conventional KART scores in the current study were a substantially better measure than either PPK or secondary print knowledge (SPK). There are several possible reasons for this discrepancy. First, there may be important cultural differences between the Korean sample used in the current study and the Chinese and American samples used in previous experiments. Our own intuitions are that Korean students

do not read many books, but rather they read other texts that contain information about authors and their books, as when they study to prepare for college entrance exams. Supporting this point, Korean participants in the current experiment indicated that they had read books by the authors only about 8 times, on average, despite knowing an average of 17 authors. Thus, it seems possible that Korean participants were more likely to encounter these names by reading other types of materials than reading the books themselves—a pattern that may be different in other cultures. Second, it should be noted that PPK is not as well-established a measure as the conventional ART score, and in fact many experiments using the ART do not ask participants to indicate how they know the author names. Because so few experiments have separated ART scores into PPK and SPK, we cannot determine at this point whether the pattern we have observed here will turn out to be the norm, or whether PPK may turn out to be a more useful measure of print exposure than the conventional ART score. Finally, it is possible that PPK scores reflect, at least in part, some aspect of socially desirable responding, such that participants are motivated to report that they have personally read books by the author even when they have not. To the extent that this is the case, it undermines the purpose of the ART as an objective measure of print exposure.

In sum, the present study is the first to develop a Korean version of the Author Recognition Task (KART). We found that native Korean-speaking college students' levels of print exposure, as measured by the KART, were related to online processes involved in word recognition, as well as with offline reading-related tasks. Given the relationships between ART scores and language ability found in the current study, along with previous studies in other languages, this measure seems to be a good indicator of an individual's print exposure, which in turn is related to a variety of language processing skills.

References

Acheson, D. J., Wells, J. B., & MacDonald, M. C. (2008). New and updated tests of print exposure and reading abilities in college students. *Behavior Research Methods*, *40*(1), 278-289.

Bartko, J. J. (1966). The intraclass correlation coefficient as a measure of reliability. *Psychological Reports, 19*, 3-11.

Bates, D., Maechler, M., & Bolker, B (2012). *lme4: Linear mixed-effects models using S4 classes* (R package version 0.999999-0). Retrieved from https://cran.r-project.org/

Brysbaert, M., Mandera, P., & Keuleers, E. (2018). The word frequency effect in word processing: An updated review. *Current Directions in Psychological Science*, *27*(1), 45-50.

Burt, J. S., & Fury, M. B. (2000). Spelling in adults: The role of reading skills and experience. *Reading and Writing*, *13*(1), 1-30.

Chall, J. S. (1983). *Stages of reading development*. New York, NY: McGraw-Hill

Chateau, D., & Jared, D. (2000). Exposure to print and word recognition processes. *Memory & Cognition*, *28*(1), 143-153.

Chen, S. Y., & Fang, S. P. (2015). Developing a Chinese version of an Author Recognition Test for college students in Taiwan. *Journal of Research in Reading*, *38*(4), 344-360.

Choi, W., Lowder, M. W., Ferreira, F., & Henderson, J. M. (2015). Individual differences in the perceptual span during reading: Evidence from the moving window technique. *Attention, Perception, & Psychophysics*, *77*(7), 2463-2475.

Cunningham, A. E., & Stanovich, K. E. (1990). Assessing print exposure and orthographic processing skill in children: A quick measure of reading experience. *Journal of Educational Psychology*, *82*(4), 733-740.

Cunningham, A. E., & Stanovich, K. E. (1991). Tracking the unique effects of print exposure in children: Associations with vocabulary, general knowledge, and spelling. *Journal of

*Educational Psychology*, *83*(2), 264-274.

Diependaele, K., Lemhöfer, K., & Brysbaert, M. (2013). The word frequency effect in first-and second-language word recognition: A lexical entrenchment account. *The Quarterly Journal of Experimental Psychology*, *66*(5), 843-863.

Ennis, P. H. (1965). *Adult book reading in the United States* (National Opinion Research Center Report No.105). Chicago: University of Chicago Press.

Fischer, F. W., Shankweiler, D., & Liberman, I. Y. (1985). Spelling proficiency and sensitivity to word structure. *Journal of memory and language*, *24*(4), 423-441.

Fletcher, K. L., & Reese, E. (2005). Picture book reading with young children: A conceptual framework. *Developmental review*, *25*(1), 64-103.

Gernsbacher, M. A. (1984). Resolving 20 years of inconsistent interactions between lexical familiarity and orthography, concreteness, and polysemy. *Journal of experimental psychology: General*, *113*(2), 256-281.

Gescheider G. A. (1985). *Psychophysics: Method and theory* (K. Lee, Trans.). Seoul, Yangyounggak.

Grant, A., Wilson, A. M., & Gottardo, A. (2007). The role of print exposure in reading skills of postsecondary students with and without reading disabilities. *Exceptionality Education International*, *17*(2), 175-194.

Greaney, V. (1980). Factors related to amount and type of leisure time reading. *Reading Research Quarterly*, 337-357.

Hirsch, E. D. (2003). Reading comprehension requires knowledge of words and the world. *American Educator*, *27*(1), 10-13.

Jastak, S., & Wilkinson, G. S. (1984). *The wide range achievement test-Revised*. Wilmington, DE: Jastak.

Kang, B. M., & Kim, H. K. (2009). *Token frequency of Korean: analyze of 15 million words in*

*Sejong corpus*. Seoul: Hankookmunhwasa.

Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2017). lmerTest Package: Tests in Linear Mixed Effects Models. *Journal of Statistical Software*, *82*(13), 1–26.

Lee, J. (2015). *Human rights law*. Seoul, Hongmoonsa.

Lee, E., Kim, A., Kang, Y., Part, S., Yang, I., & Cho, S. (2014). *Korean vocabulary for middle school students 3,* Seoul, Erumenb.

Lee, N. (2014). *The history of feminism and the appearance of the gender concept*. In Korean Women Studies Institute (Ed.), Gender and Society. (pp. 213-214).

Lowder, M. W., & Gordon, P. C. (2017). Print exposure modulates the effects of repetition priming during sentence reading. *Psychonomic Bulletin & Review*, *24*, 1935-1942.

Martin-Chang, S. L., & Gould, O. N. (2008). Revisiting print exposure: Exploring differential links to vocabulary, comprehension and reading rate. *Journal of Research in Reading*, *31*(3), 273-284.

Mol, S. E., & Bus, A. G. (2011). To read or not to read: a meta-analysis of print exposure from infancy to early adulthood. *Psychological bulletin*, *137*(2), 267-296.

Moore, M., & Gordon, P. C. (2015). Reading ability and print exposure: Item response theory analysis of the Author Recognition Test. *Behavioral Research Methods, 47*, 1095-1109.

National Institute of Korean Language (2000). *Standard Korean language dictionary*. Doosan Dong-A Co., Ltd.

Osana, H. P., Lacroix, G. L., Tucker, B. J., Idan, E., & Jabbour, G. W. (2007). The impact of print exposure quality and inference construction on syllogistic reasoning. *Journal of Educational Psychology*, *99*(4), 888-902.

Paris, S. G. (2005). Reinterpreting the development of reading skills. *Reading research quarterly*, *40*(2), 184-202.

Park, T. (2003). Subjective frequency estimates of Korean words and frequency effect on word

recognition. *Korean Journal of Experimental Psychology*, *15*(15), 349-366.

Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of personality and social psychology*, *46*(3), 598-609.

R Development Core Team. (2011). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from http://www.r-project.org/

Rodrigo, V., McQuillan, J., & Krashen, S. (1996). Free voluntary reading and vocabulary knowledge in native speakers of Spanish. *Perceptual and Motor Skills*, *83*(2), 648-650.

Shin, D. (2015). Eagle owl, the emperor of night. In M. Bang et al., (Eds.), *Korean language 5* (pp. 213-214). Seoul, Jihak Publishing Company.

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: uses in assessing rater reliability. *Psychological bulletin*, *86*(2), 420.

Stanovich, K. E., & Cunningham, A. E. (1992). Studying the consequences of literacy within a literate society: The cognitive correlates of print exposure. *Memory & Cognition*, *20*(1), 51-68.

Stanovich, K. E., & Cunningham, A. E. (1993). Where does knowledge come from? Specific associations between print exposure and information acquisition. *Journal of Educational Psychology*, *85*(2), 211-229.

Stanovich, K. E., & West, R. F. (1989). Exposure to print and orthographic processing. *Reading Research Quarterly*, 402-433.

Stanovich, K. E., West, R. F., & Harrison, M. R. (1995). Knowledge growth and maintenance across the life span: The role of print exposure. *Developmental Psychology*, *31*(5), 811-826.

Vander Beken, H., & Brysbaert, M. (2017). Studying texts in a second language: The importance of test type. *Bilingualism: Language and Cognition*, 1-13.

Vellutino, F. R., Tunmer, W. E., Jaccard, J. J., & Chen, R. (2007). Components of reading ability:

Multivariate evidence for a convergent skills model of reading development. *Scientific studies of reading*, *11*(1), 3-32.

West, R. F., & Stanovich, K. E. (1991). The incidental acquisition of information from reading. *Psychological Science*, *2*(5), 325-330.

West, R. F., Stanovich, K. E., & Mitchell, H. R. (1993). Reading in the real world and its correlates. *Reading Research Quarterly*, 35-50.

Yeom, M. (2015). 'Guernica', the masterpiece of Picasso. In M. Bang et al., (Eds.), *Korean language 5* (pp. 202-203). Seoul, Jihak Publishing Company.

Zill, N., & Winglee, M. (1990). *Who reads literature? The future of the United States as a nation of readers*. Cabin John, MD: Seven Locks Press.

THE KOREAN AUTHOR RECOGNITION TEST

## Appendix A
### Korean Author Recognition Test (KART)

---

## Korean Author Recognition Test (KART)

아래 제시된 보기들은 사람들의 이름입니다. 이 중에는 작가들의 이름도 있고, 작가가 아닌 사람들의 이름도 있습니다. 확실하게 작가라고 생각되는 사람의 이름을 모두 골라주세요. 작가가 아닌 사람의 이름을 고를 시 감점이 있으므로 작가라고 확신하는 사람의 이름 옆에만 체크해주세요. (*작가는 책의 저자를 의미합니다.)
이름을 골랐다면 어떤 방식으로 작가라는 것을 알게 되었는지 아래에 제시된 (1), (2), (3) 중 하나를 선택해주세요. 감사합니다.^^

(1): 작가의 이름을 들어본 적은 있지만 작가의 작품을 읽은 적은 없다.
(2): 작가의 작품을 읽으려고 시도했지만 다 읽지 못했다.
(3): 작가의 작품을 1개 혹은 그 이상 읽었다.

| | 실제<br>작가다 | (1) | (2) | (3) | | 실제<br>작가다 | (1) | (2) | (3) |
|---|---|---|---|---|---|---|---|---|---|
| 아부라메 시노 | ☐ | ☐ | ☐ | ☐ | 알베르 카뮈 | ☐ | ☐ | ☐ | ☐ |
| 조정래 | ☐ | ☐ | ☐ | ☐ | 전애순* | ☐ | ☐ | ☐ | ☐ |
| 한강 | ☐ | ☐ | ☐ | ☐ | 산들 | ☐ | ☐ | ☐ | ☐ |
| 니노미야 카즈나리 | ☐ | ☐ | ☐ | ☐ | 글로리아 맥컴버 | ☐ | ☐ | ☐ | ☐ |
| 호메로스 | ☐ | ☐ | ☐ | ☐ | 오쿠다 히데오 | ☐ | ☐ | ☐ | ☐ |
| 요한 볼프강 폰 괴테 | ☐ | ☐ | ☐ | ☐ | 마이클 샌델 | ☐ | ☐ | ☐ | ☐ |
| 이설민 | ☐ | ☐ | ☐ | ☐ | 하나자와 루이 | ☐ | ☐ | ☐ | ☐ |
| 요나스 요나손 | ☐ | ☐ | ☐ | ☐ | 에쿠니 가오리 | ☐ | ☐ | ☐ | ☐ |
| 헤르만 헤세 | ☐ | ☐ | ☐ | ☐ | 김소월 | ☐ | ☐ | ☐ | ☐ |
| 김난도 | ☐ | ☐ | ☐ | ☐ | 웨인 필버그 | ☐ | ☐ | ☐ | ☐ |
| 애덤 스미스 | ☐ | ☐ | ☐ | ☐ | 혜민 스님 | ☐ | ☐ | ☐ | ☐ |
| 하나타와 이치로 | ☐ | ☐ | ☐ | ☐ | 해리 코튼허트 | ☐ | ☐ | ☐ | ☐ |
| 진목 | ☐ | ☐ | ☐ | ☐ | 월터 도리슨 | ☐ | ☐ | ☐ | ☐ |
| 칼 세이건 | ☐ | ☐ | ☐ | ☐ | 더크워스 글램 | ☐ | ☐ | ☐ | ☐ |
| 김희설 | ☐ | ☐ | ☐ | ☐ | 알피노 르베유르 | ☐ | ☐ | ☐ | ☐ |
| 알랭 드 보통 | ☐ | ☐ | ☐ | ☐ | 프란츠 카프카 | ☐ | ☐ | ☐ | ☐ |
| J.R.R. 톨킨 | ☐ | ☐ | ☐ | ☐ | 법륜 | ☐ | ☐ | ☐ | ☐ |

THE KOREAN AUTHOR RECOGNITION TEST

| 리처드 도킨스 | □ | □ | □ | □ | 무라카미 하루키 | □ | □ | □ | □ |
|---|---|---|---|---|---|---|---|---|---|

(1): 작가의 이름을 들어본 적은 있지만 작가의 작품을 읽은 적은 없다.
(2): 작가의 작품을 읽으려고 시도했지만 다 읽지 못했다.
(3): 작가의 작품을 1개 혹은 그 이상 읽었다.

| | 실제 작가다 | (1) | (2) | (3) | | 실제 작가다 | (1) | (2) | (3) |
|---|---|---|---|---|---|---|---|---|---|
| 신경숙 | □ | □ | □ | □ | 에우로스 | □ | □ | □ | □ |
| 스테판 허스턴 | □ | □ | □ | □ | 백구영* | □ | □ | □ | □ |
| 스콧 알렉산더 | □ | □ | □ | □ | 채사장 | □ | □ | □ | □ |
| 프레드릭 먼도우 | □ | □ | □ | □ | 박훈 | □ | □ | □ | □ |
| 에드몽 드 포르탕 | □ | □ | □ | □ | 카니얼 휘트먼 | □ | □ | □ | □ |
| 홍희라 | □ | □ | □ | □ | 기욤 뮈소 | □ | □ | □ | □ |
| 천솔뫼 | □ | □ | □ | □ | 손영지 | □ | □ | □ | □ |
| 김진명 | □ | □ | □ | □ | 백석 | □ | □ | □ | □ |
| 프레아 뮐레르 | □ | □ | □ | □ | 신영복 | □ | □ | □ | □ |
| 피터 플래거티 | □ | □ | □ | □ | 안나 스팅 | □ | □ | □ | □ |
| 리사 우드워드 | □ | □ | □ | □ | 미셸 푸코 | □ | □ | □ | □ |
| 김영하 | □ | □ | □ | □ | 이설태 | □ | □ | □ | □ |
| 베르나르 베르베르 | □ | □ | □ | □ | 윤동주 | □ | □ | □ | □ |
| 장 지글러 | □ | □ | □ | □ | 나태주 | □ | □ | □ | □ |
| 히가시노 게이고 | □ | □ | □ | □ | 은서희 | □ | □ | □ | □ |
| 정유정 | □ | □ | □ | □ | 미뉴얼 스미스 | □ | □ | □ | □ |
| 설민지 | □ | □ | □ | □ | 히로유키 오시타 | □ | □ | □ | □ |
| 제인 오스틴 | □ | □ | □ | □ | 어니스트 헤밍웨이 | □ | □ | □ | □ |
| 권순보 | □ | □ | □ | □ | 장순태 | □ | □ | □ | □ |
| 김미경 | □ | □ | □ | □ | 윤이석 | □ | □ | □ | □ |
| 진소미 | □ | □ | □ | □ | 정희열 | □ | □ | □ | □ |
| 아투로 가르시아 페레즈 | □ | □ | □ | □ | 더글라스 케네디 | □ | □ | □ | □ |

*Note.* Names marked with an asterisk(*) were not used in the current experiment. '전이선' and '백가영' were used instead of '전애순' and '백구영'. However, because '전이선' and '백가영' published books after the time when the current experiment was conducted, we changed their names into non-author names.

THE KOREAN AUTHOR RECOGNITION TEST

Appendix B
Reading/Writing Time Estimates

## Reading/Writing Time Estimates

다음은 여러분들의 읽고 쓰는 습관을 알아보기 위한 자가진단 테스트입니다. 최대한 솔직하게 답변해주시면 감사하겠습니다.

### Ⅰ. 글을 읽는 시간 (일주일 기준)

| | 1시간 | 2시간 | 3시간 | 4시간 | 5시간 | 6시간 | 7시간 이상 |
|---|---|---|---|---|---|---|---|
| 1. 교과서 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. 학술 자료 (교과서 제외) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. 잡지 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. 신문 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. 이메일 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. 웹툰 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. 인터넷 매체 (이메일, 웹툰 제외) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. 소설 (ebook 포함) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. 비소설 (ebook 포함) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. 기타( ) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

### Ⅱ. 글을 쓰는 시간 (일주일 기준)

| | 1시간 | 2시간 | 3시간 | 4시간 | 5시간 | 6시간 | 7시간 이상 |
|---|---|---|---|---|---|---|---|
| 1. 수업시간에 요구되는 모든 작문 숙제 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. 신문기사, 혹은 수업에서 요구되지 않는 인터넷 매체글 (이메일 제외) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. 개인적인 글 (예: 일기, 편지 등) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. 이메일 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. 수업시간에 요구되지 않는 창의적인 글쓰기 (예: 소설, 시, 희곡 등) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. 이메일을 제외한 직업 관련 문서 (메모, 레포트 등) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. 기타( ) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Appendix C
Comparative Reading Habits (CRH)

## Comparative Reading Habits

다음은 동료 학생들과 여러분의 읽는 습관을 비교하는 문제입니다. 1~7 척도를 기준으로 해당 점수에 동그라미를 쳐주세요. 높은 점수는 동료들에 비해 문제에서 요구하는 시간이나 양 등의 크기가 크다는 것을 의미합니다. 질문에 대한 판단은 개인의 몫으로 최대한 솔직하게 답변해주시면 감사하겠습니다.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. 여러분은 동료 학생들에 비해 얼마나 많이 읽는다고 생각하십니까? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. 여러분은 동료 학생들에 비해 얼마나 복잡한 글을 읽는다고 생각하십니까? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. 여러분은 동료 학생들에 비해 읽는 것을 얼마나 즐기고 계십니까? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. 여러분은 동료 학생들에 비해 평균적으로 얼마나 빨리 읽습니까? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. 여러분은 동료 학생들에 비해 글의 내용을 얼마나 잘 이해한다고 생각하십니까? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

THE KOREAN AUTHOR RECOGNITION TEST

## Appendix D
## Korean Vocabulary Task

1. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 <u>먼</u> 것은?
① 온량하다　　② 무지하다
③ 수더분하다　④ 순하다

2. 밑줄 친 단어와 바꿔 쓰기에 가장 적절하지 <u>않은</u> 것은?

> 연희는 따스한 햇살이 내리쬐는 넓은 호수를 멀찍이서 바라보며 <u>애수</u>에 잠겨 있었다.

① 슬픔　② 근심　③ 우수　④ 공상

3. 밑줄 친 단어와 의미상 대립적인 관계가 <u>아닌</u> 것은?

> 얼마 전 교실에서 있었던 도난 사건을 두고 친구들은 모두 설아를 <u>힐난</u>하였다.

① 갈채　② 칭송　③ 지탄　④ 찬미

4. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 <u>먼</u> 것은?
① 저울질하다　② 비교하다
③ 견주다　　　④ 둘러대다

5. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

> 만남과 헤어짐을 여러 번 반복하다 보면 결국 그 모든 것이 ( )는 것을 알게 될 거야.

① 미덥다　　　② 진실하다

6. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 <u>먼</u> 것은?
① 미숙하다　　② 섬세하다
③ 서투르다　　④ 어줍다

7. 밑줄 친 단어의 의미와 가장 거리가 <u>먼</u> 것은?

> 저 형제는 어릴 적 부모를 잃고 고아원에서 함께 자라서 그런지 유난히 형제 사이가 <u>각별하다</u>.

① 대수롭다　　② 남다르다
③ 특별하다　　④ 범상하다

8. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 <u>먼</u> 것은?
① 건설적　　　② 적극적
③ 긍정적　　　④ 관능적

9. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

> 현재 일어나는 일련의 사건들을 보고도 권력의 ( )에 나서는 건 큰 용기가 필요한 일이다.

① 본질　② 전면　③ 의식　④ 일부

10. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

> 그 사업을 진행하기 위해서는 막대한 ( )이/가 필요하다.

① 외상　② 요금　③ 자금　④ 수수

THE KOREAN AUTHOR RECOGNITION TEST

③ 부질없다    ④ 실답다

료

11. '50살'의 나이를 의미하는 말은?
① 불혹   ② 약관   ③ 이립   ④ 지천명

12. 다음 (  ) 안에 공통적으로 들어갈 수 있는 말은?

· 문화적 (    )
· 민족에 대한 (    )을 일깨우다.
· 자신의 직업에 대한 (    )을 갖다.

① 자긍심      ② 자존심
③ 자족감      ④ 자신감

13. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 <u>먼</u> 것은?
① 추상적      ② 감각적
③ 이상적      ④ 공상적

14. 밑줄 친 단어와 바꿔 쓰기에 가장 적절하지 <u>않은</u> 것은?

자식의 일에 부모가 지나치게 <u>개입</u>해서는 안 된다.

① 관여   ② 간섭   ③ 견제   ④ 참견

15. 다음 (  ) 안에 공통적으로 들어갈 수 있는 말은?

· 사람을 대하는 데 있어 (    )인 태도로 나가다.
· 그 의사는 시종일관 (    )으로 환자를 상대했다.

16. 다음 (  ) 안에 들어갈 말로 알맞은 말은?

그 소문은 남의 말 좋아하는 (    )들 에 의해 그럴듯하게 꾸며진 이야기에 불과하다.

① 불한당         ② 철면피
③ 호사가         ④ 외골수

17. 다음 (  ) 안에 들어갈 말로 알맞은 말은?

수현이는 자신에게 불리한 상황이 닥치면 (    ) 말하는 버릇이 있다.

① 에둘러         ② 덧없이
③ 참신하게       ④ 옥죄어

18. 밑줄 친 단어와 바꿔 쓰기에 가장 알맞은 것은?

로미오와 줄리엣의 양 가문은 <u>분쟁</u>이 심하다.

① 알력   ② 독점   ③ 통감   ④ 사양

19. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 <u>먼</u> 것은?
① 가늠하다       ② 헤아리다
③ 판단하다       ④ 겨누다

20. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 <u>먼</u> 것은?
① 감찰하다       ② 관장하다

THE KOREAN AUTHOR RECOGNITION TEST

· 고위층의 몇몇 관료들은 (     ) 관료의식을 버려야 한다.

① 이타적          ② 권위적
③ 방관적          ④ 적대적

③ 담당하다        ④ 주관하다

---

21. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 먼 것은?
① 수두룩하다      ② 소담하다
③ 숱하다          ④ 허다하다

22. 다음 (  ) 안에 들어갈 말로 알맞은 말은?

다양한 생각을 받아들이지 않고 한 가지의 생각만을 (     )하는 것은 위험한 일이다.

① 고수    ② 일치    ③ 후원    ④ 동의

23. 다음 (  ) 안에 들어갈 말로 가장 적절하지 않은 것은?

세상을 (     )으로만 바라보는 사람은 행복이 곁에 있어도 그것이 행복인지 알지 못한다.

① 염세적          ② 절망적
③ 낙천적          ④ 비관적

24. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 먼 것은?
① 수용하다        ② 시인하다
③ 기각하다        ④ 인정하다

26. 밑줄 친 단어와 바꿔 쓰기에 가장 알맞은 것은?

판소리는 전승되는 설화에 기반을 두고 형성되었다.

① 터전    ② 기틀    ③ 초석    ④ 바탕

27. 밑줄 친 단어와 바꿔 쓰기에 가장 알맞은 것은?

그녀는 시장 한 구석에 자리를 잡고 넉살 좋게 주변 상인들과 떠들기 시작했다.

① 숫기    ② 비위    ③ 기세    ④ 배짱

28. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 먼 것은?
① 치하    ② 경축    ③ 하례    ④ 하사

29. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 먼 것은?
① 책동하다        ② 종용하다
③ 조장하다        ④ 모략하다

30. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 먼 것은?
① 방략    ② 계교    ③ 참언    ④ 술책

25. 다음 (  ) 안에 들어갈 말로 알맞은 말은?

1970년대 산업화는 급속한 경제성장을 가능하게 하였다. 하지만 그 (      )에는 빈부격차의 심화나 인권유린 등의 문제가 자리 잡고 있다.

① 이면   ② 내면   ③ 거죽   ④ 실정

31. 다음 (  ) 안에 들어갈 말로 알맞은 말은?

(      )의 조화를 부릴 줄 아는 신선의 경지에 이르다.

① 풍운   ② 풍광   ③ 풍문   ④ 풍기

THE KOREAN AUTHOR RECOGNITION TEST

32. 다음 ( ) 안에 공통적으로 들어갈 수 있는 말은?

· 세밀한 관찰과 ( )을/를 거듭하다.
· 다양한 실험을 통해 우리 것에 대한 ( )을/를 계속하다.
· 뜻하는 바를 이루기 위하여 비열하고 ( )한 방법을 사용하는 것은 옳지 못하다.

① 진에   ② 천착   ③ 낙착   ④ 투도

33. 다음 중 맞춤법이 올바른 것은?
① 배게   ② 베개   ③ 베게   ④ 비게

34. 다음 중 맞춤법이 올바른 것은?
① 졸립다          ② 졸리다
③ 졸린다          ④ 졸련다

35. 다음 중 맞춤법이 올바른 것은?
① 널판지          ② 널팬지
③ 널빤자          ④ 널빤지

36. 다음 중 맞춤법이 올바른 것은?
① 왠일이야?       ② 웬일이야?
③ 왠열이야?       ④ 웬열이야?

37. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

서진이는 친구들에게 ( ) 장난을 많이 친다.

① 짓궂은          ② 짓구즌
③ 지꾸즌          ④ 짖궂은

38. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

아무리 나한테 관심이 없다고 해도 그걸 어떻게 ( ) 모를 수가 있어?

① 여지껏          ② 여태껏
③ 여진껏          ④ 여태것

39. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

탈모로 머리가 ( ).

① 벗꺼지다        ② 뱃기지다
③ 벗어지다        ④ 벗겨지다

40. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

손의 ( )가 심하다.

① 부기   ② 붓기   ③ 붇기   ④ 부끼

41. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

( )의 고수를 찾아가는 일은 멀고도 험난했다.

① 제야   ② 지야   ③ 재하   ④ 재야

42. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

아이의 ( )을 보니 하루의 피로가 모두 풀리는 기분이었다.

① 베냇짓          ② 배내웃음
③ 배냇짓          ④ 베냇웃음

THE KOREAN AUTHOR RECOGNITION TEST

43. 다음 ( ) 안에 들어갈 말로 알맞은 말은?

    이사 갈 집의 (    )에는 예쁜 정원이 있다.

① 뒷뜰    ② 뒨뜰    ③ 뒤뜰    ④ 뒷들


44. 다음 속담의 ( ) 안에 들어갈 말로 알맞은 말은?

    (        )은/는 메워도 사람의 욕심은 못 채운다.

① 호수    ② 연못    ③ 우물    ④ 바다


45. 다음 속담의 ( ) 안에 들어갈 말로 알맞은 말은?

    (    )도 굴러가다 서는 모가 있다.

① 수레    ② 달걀    ③ 바퀴    ④ 통나무


46. 다음 중 한자성어의 뜻이 나머지 셋과 가장 거리가 먼 것은?
① 간담상조(肝膽相照)
② 단금지교(斷金之交)
③ 읍참마속(泣斬馬謖)
④ 지음(知音)


47. 다음 중 ( ) 안에 들어갈 한자성어로 가장 알맞은 것은?

    그는 이유 없이 매를 맞은 것이 분해 (    )하였다.

① 절치부심(切齒腐心)
② 후안무치(厚顔無恥)


48. 다음 중 ( ) 안에 들어갈 한자성어로 가장 알맞은 것은?

    다음 날이면 한국을 아주 떠난다는 생각에 밤새 잠을 이루지 못하고 (    )하였다.

① 전전반측(輾轉反側)
② 자강불식(自强不息)
③ 정문일침(頂門一鍼)
④ 지리멸렬(支離滅裂)


49. 다음 중 단어의 뜻이 나머지 셋과 가장 거리가 먼 것은?
① 절차탁마(切磋琢磨)
② 형설지공(螢雪之功)
③ 수불석권(手不釋卷)
④ 견위치명(見危致命)


50. '동풍'을 의미하는 순우리말은?
① 하늬바람          ② 샛바람
③ 마파람            ④ 된바람


51. '갈피를 잡을 수 없도록 마구 지껄이는 모양'을 의미하는 순우리말은?
① 코랑코랑          ② 콩팔칠팔
③ 왕배덕배          ④ 내광쓰광


52. '오래 써서 끝이 닳아 떨어진 물건'을 의미하는 순우리말은?
① 모지랑이          ② 사그랑이
③ 무드러기          ④ 지스러기

THE KOREAN AUTHOR RECOGNITION TEST

③ 지란지교(芝蘭之交)

④ 목전지계(目前之計)

---

53. '빈틈없이 아주 여무진 사람'을 의미하는 순우리말은?

① 당도리　　② 잡도리

③ 모도리　　④ 약도리

54. '몹시 지친 상태에 있다'를 의미하는 순우리말은?

① 맛문하다　　② 맛부리다

③ 맞갖다　　④ 맛바르다

55. '거방지다'의 뜻으로 알맞은 것은?

① 하는 짓이 점잖고 무게가 있다.

② 잘난 체하거나 남을 낮추어 보듯이 행동하는 데가 있다.

③ 몹시 요망스럽게 보여서 불길하게 느끼거나 상서롭지 못하다.

④ 말이나 행동이 겸손하고 예의 바르다.

56. '철겹다'의 뜻으로 알맞은 것은?

① 정이 넘칠 정도로 매우 다정하다.

② 제철에 뒤져 맞지 아니하다.

③ 가엾고 불쌍하여 마음이 슬프다.

④ 사리를 분별할 만한 지각이 없다.

57. '겯고틀다'의 뜻으로 알맞은 것은?

① 사상이나 의지 따위가 동요됨이 없이 확고하다.

② 믿음과 의리를 저버리고 돌아서다.

③ 논리적으로 양립할 수 없다.

58. '드잡이'의 뜻으로 알맞은 것은?

① 길을 인도해 주는 사람이나 사물

② 스스로 자기 자신을 망치는 일

③ 늦추어진 것을 바짝 잡아 죄는 일

④ 서로 머리나 멱살을 움켜잡고 싸우는 짓

59. '두남받다'의 뜻으로 알맞은 것은?

① 오는 사람을 맞아 안으로 인도하다.

② 남의 행동, 태도를 본받아 따르다.

③ 남다른 도움이나 사랑을 받다.

④ 남의 의견에 반대가 되는 말로 받다.

60. '아근바근'의 뜻으로 알맞은 것은?

① 정신이 흐릿하고 몽롱한 모양

② 무엇을 이루려고 애를 쓰거나 우겨대는 모양

③ 한데 뒤섞이고 엉클어져 어수선한 모양

④ 서로 마음이 맞지 아니하여 사이가 벌어지는 모양

THE KOREAN AUTHOR RECOGNITION TEST

| ④ 서로지지 않으려고 버티어 겨루다. | |