An Analysis on Swedish Students' Ability to Estimate Their Own Proficiency in Kanji Production

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Abstract

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Syfte:	This thesis examines Swedish students' self-estimation regarding the proficiency in writing kanji characters. Various studies about Kanji exist, but investigations about writing are still limited. In addition, the study analyzed the respondent incorrect answers to see in which way they try to retrieve kanji characters.
Teori:	The theoretical framework is error analysis based on the cognitive model of kanji's three basic elements presented by Ivarsson (2016). As for the parameters which were utilized for analyzing incorrect answers, they were based on the work of Chikamatsu (2005). The Can-Do-Statements (CDS) questionnaire was based on Kano & Wei (2015) and the Tip-of-the-Pen (TOP) test based on Chikamatsu (2005)
Metod:	The CDS-questionnaire and TOP-test were conducted on a single occasion, but handed out separately. After the respondents had finished the Cds-test, they were allowed to begin the TOP-test. The Cds-test consisted of four questions regarding proficiency in writing kanji characters, but also asked which level of the Japanese Language Proficiency Test (JLPT) corresponded to their ability, and thus the research was able to divide the respondents into the two following groups: JLPT3 and JLPT2. The TOP-test consisted of forty-four words taken from Kanji Look and Learn (Banno et al., 2009) and the results of the TOP-test were compared to their estimations in order to conclude whether they had a tendency to overestimate, underestimate or could accurately estimate their abilities.
Resultat:	The results indicated that the respondents had a tendency to overestimate their abilities in two out of four statements, namely writing daily kanji and various homophones. Furthermore, there also appeared to be a difference in retrieving kanji characters between the JLPT3 group and JLPT2 group.

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1. Introduction

The Japanese language utilizes a logographic writing system, known as kanji, along with the moraic kana and alphabetic romaji. It is common that students who learn Japanese as their second language have difficulty facing the study of kanji due to the complexity of each character. When studying kanji one has to remember the radical of the kanji, in which order the strokes shall be drawn, the meaning(s) of the character and also the different pronunciations each has. In Japan, the order in which Japanese students learn kanji is based on the Education Kanji list, Kyōiku Kanji 教育漢字. Kanji is learned mainly by rote learning.

Commonly, kanji textbooks produced for L2 learners are usually based on the characters' appearance in the Japanese Language Proficiency Test (from here on, it will be referred as JLPT) (Banno et al., 2009).

As a reference to the author's own experience, when talking to other Swedish learners of Japanese, a majority of them mentioned that the most difficult part in JLPT was the reading comprehension, due to the wide extent of kanji. In contrast to other students, the author considers Japanese reading comprehension and kanji characters as one of the easier parts in the Japanese language. Additionally, kanji recognition and comprehension is essential when reading texts written in Japanese, and therefore it was deemed most interesting and utmost important to examine Swedish students' acquisition of kanji.

Due to limitation of time and scale allowed for this study, the research us focused on comparison of self-assessment on and actual proficiency of kanji writing ability of Swedish students of Japanese. In order to reveal the characteristics of their kanji acquisition process, the data were collected from both intermediate and advanced groups of students to examine possible differences between two levels.

2. Previous research

Although there has been a number of research on second language (L2) learners' acquisition of kanji, a majority of them has focused on recognition/reading of kanji, either comparing the

abilities of first language (L1) users and L2 learners or making inter-level comparison of L2 learner groups . However, the number of research on writing/production of kanji involving L2 learners is limited.

Among the research on L2 kanji writing, the previous studies that are most closely connected to this study are the following:

Chikamatsu (2005) is a comparative research between Japanese students and American students' ability to write kanji via the Tip-of-the-Pen (for a detailed description, look at 4.1). The research consisted of two analyses, the first one focuses on whether respondents could write target kanji characters correctly, wrong with at least one correct radical or gave an incorrect answer without any correct radicals. The second analysis examined what kind of error frequently occurred and compared the occurrence tendencies between the two groups. Furthermore, Chikamatsu (2005) also analyzed what kind of errors the L1 and L2 subjects made when writing characters. Phonetic based errors were the most frequent among the categories, followed by graphic and semantic by both groups. However, regarding errors that overlapped two or more categories, the L1 subjects made as much as 50% while the L2 subjects proportion was not more than 14%. Among various conclusions, it was stated that the L2 students lack intra-character structural and morphological awareness but also lack ability in decomposing characters into radicals. Additionally, it concluded that in the L2 lexicon multiple information about a character such as phonological, orthographic and semantic representations are not strongly assembled (Chikamatsu, 2005).

Kano (2016) conducted a Can-Do-Statement-questionnaire (CDS) survey regarding self-estimation of ability to write, read and comprehend kanji (for a detailed description, look at 4.2). The respondents were students of Japanese and were divided into novice, intermediate and advanced groups respectively, comparing their estimations. In addition, the research also divided the respondents into kanji background, Korean (semi kanji background) and non-kanji background, comparing their estimations. This research is deemed to be relevant to this

study, since this study as well uses the CDS-questionnaire and makes an inter-level comparison between the respondents.

Kano and Wei (2015) likewise to Kano (2016) focuses on students' ability to estimate their Japanese proficiency. However, it is limited to the comparison according to kanji background and the respondents were from South Korea (semi kanji background) and Mexico (non kanji background). In three out of five fields (meaning, reading and structure), both groups were equal in their estimations. However, in writing and usage of kanji vocabulary, there was a moderate difference and the Korean respondents had a higher estimation in both fields. Although this research compared two groups with two different writing systems in their L1, it is deemed to be relevant since one of the groups respondents had the alphabetic writing system, likewise to the Swedish respondents in this study.

Ivarsson (2016) is a research on Swedish students of Japanese, analyzing their error occurrence pattern in writing and reading of kanji, dividing the students into a novice group and an advanced group. Furthermore, the research included L1 learners also divided into a novice and an advanced group respectively and compared their error occurrence pattern to the Swedish counterparts. The vast majority of writing errors novice students made were pseudo kanji, i.e kanji-like characters that deviate from any existing character, whereas intermediate students that had learned approximately 800 characters had a lower proportion in pseudo characters than the novice beginners, but a considerably larger proportion of phonetic based errors. Since this research focused on analyzing writing errors with similar parameters and also made an inter-level comparison between the Swedish respondents, it was deemed to be considerably relevant.

3. Presentation of problems

Despite the fact that there is a wide extent of research regarding L2 learners' ability in kanji, the Tip-of-the-Pen is a recent method of analyzation regarding writing ability. Furthermore, as for as knowledge extends, there is still no inter-level based analyzation via the Tip-of-the-Pen, let alone using Swedish students.

3.1 Purpose and research questions

The purpose of the following research is to investigate whether Swedish students' self-estimations correspond to their ability of writing kanji by using the Tip-of-the-Pen experiment, and thereafter decipher what sort of shortcomings occur when they fail to write a correct character. The analysis will focus on differences from an inter-level perspective.

The following research questions are set as more concrete goals:

1. Do Swedish students' self-estimations correspond to their true kanji writing ability? In what aspects might their estimations fail and succeed?

2. What sort of error patterns will occur when they write kanji?

3. Do the results in 1 and 2 above differ between the levels?

3.2 Hypothesis

For the above mentioned three questions, the following three hypotheses are constructed:

1. The respondents will probably to some extent tend to overestimate that they can write daily kanji characters. In the TOP-test conducted by Chikamatsu (2005), the subjects were given the task to declare whether they thought they had written the target character correctly or not, and tended to conclude that they had successfully written it when they in fact failed to write the target character.

2. The expected result from the error analysis is that the phonetical error type will be the most frequent one among the error types for both groups, but slightly bigger proportion for the JLPT2 group, since they know more various kanji characters with identical readings. In Chikamatsu (2005) as well as Ivarsson (2016), the phonetical error type was the most frequent one, if excluding pseudo kanji characters.

3. Previous research that have conducted writing tests chose a set of target characters that corresponded to the respondents level. However, in this research, all of the respondents receive an identical copy of the test, consisting of target characters they studied during their freshman year. Therefore, it is expected that minor differences will only occur in the TOP-test and from the results of the error type analysis.

4. Theoretical framework

There are three main frameworks utilized in this study, namely, the Tip-of-the-Pen phenomenon by Chikamatsu (2005)m which investigated retrieval and writing of kanji characters from a psycholinguistic perspective. Can-Do Statements utilized in Kano and Wei (2015) and Kano (2016) which focus on self-assessment in L2 kanji proficiency, and cognitive model of kanji writing error types based on the cognitive model of the mental kanji lexicon by Ivarsson (2016)

4.1 TOT - Tip of the Tongue

Brown and McNeill (1966) proposed an intermediate stage of lexical recall called "The Tip-of-the-tounge"(TOT) phenomenon". The subjects of the tested tried to remember the target word for a presented definition of the target word, but did not manage to, as if the word was stuck on the tip of the tongue. Among the answers there were words with a similar meaning or similar pronunciation to the target word. The TOT phenomenon is a field which is still relevant in psycholinguistic studies. Chikamatsu (2005) diverted the concept of TOT to studies of kanji and proposed TOP, which is an intermediate recall process of Japanese kanji. In the TOP-test, subjects wrote characters that were similar in meaning, orthographic, or phonetic function. The point of conducting a TOP-test, is to analyze the subjects' organization of mental kanji lexicon, such as association among symbol, sound and meaning in kanji (Chikamatsu, 2005).

4.2 Can-Do-Statements (CDS)

In recent years, along with the diversification of Japanese students advancing, the importance of the students independent recognition has been pointed out. In contrast to conventional tests created by the teachers, new forms of tests based on the learners' evaluation of their own abilities, in other words self-assessment. Among self-assessment based questionnaires, CDS questionnaires attract attention to a wide extent. A CDS-questionnaire is a survey that consists of short statements related to language proficiency, for example "Can read and comprehend the content of Japanese newspapers", and the respondent is supposed to answer whether he/ she "can do" or "can not do". The introduction of the CDS which the CEFR (Common

European Framework of References for Language: Learning, teaching, assessment) made, had a great influence on institutions developing tests and education institutions. CEFR was formed during the 1990's by the Council of Europe which set Pluringualism as a goal and the purpose was to improve language textbooks, syllabuses, guidelines of curriculums. CDS-questionnaires do not consist of questions related to what have been taught in class, but also what the respondents may have learned or not learned in their spare time, work and other activities outside of school (Shimada, 2010).

4.3 Cognitive model of kanji writing error types
Kanji consists of the three basic elements "form", "sound" and "meaning" and Ivarsson (2016) explains how kanji is stored according to these elements in the mental lexicon using the cognitive model. Results from various studies, such as Ivarsson and Chikamatsu (2005), inter alia, have proved that the various types of errors that occur differ between the level of kanji proficiency as well as influence from the subjects' L1. In the lexical memory of kanji characters, they are stored in semantic, graphic and phonetic categories. With this storage of characters, when subjects write a character they retrieve it through the memory of characters features, which are the above-mentioned categories.
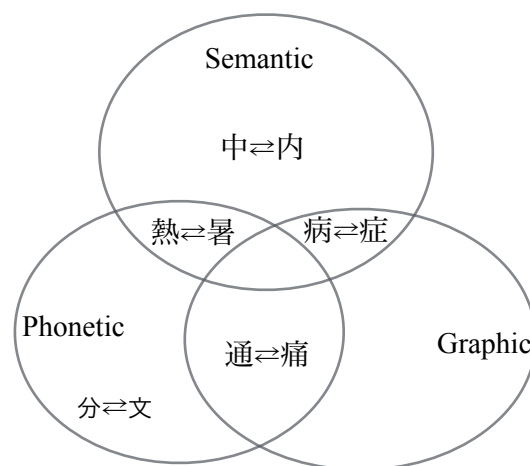

Figure 1 - Cognitive model of kanji writing error types (adopted from Ivarsson (2016)

By memorizing characters in this way, various errors may occur when writing. For instance, using the above presented examples of characters, to write "分" instead of "聞" in the word "新聞" is a phonetic type of error, whereas writing "通" (tsū) instead of "痛" (tsū) in the case of "頭痛" (headache/zutsū) is a phonetic as well as a graphic type of error.

5. Experiments

5.1 Respondents

Fifteen Swedish university students participated in the experiment. All the participants' mother tongue is the Swedish language and they have studied Japanese at a university. Ten out of fifteen respondents were enrolled in the fifth semester of Japanese language course which is a course at an early advanced level, two respondents were enrolled in the third semester of Japanese language course, which is at the early intermediate level. One respondent were enrolled in the first semester of Japanese language course, but have studied Japanese language at a Swedish high school and the proficiency corresponds to the intermediate level. The last two respondents had been enrolled in a Japanese language course, until a few months earlier, studying their third and most recent semester abroad in Japan, which was an early intermediate course. Excluding one respondent, all of them have been to Japan either for vacation, exchange studies or work. Their ages ranged from 19 to 31 years old, but two thirds were 23 - 26 years old. Seven respondents were placed in the JLPT3 group and the other eight respondents in the JLPT2 group.

5.2 The CDS Questionnaire

The questionnaire consisted of questions in the form of Can-Do Statements (CDS) regarding proficiency in writing daily kanji, writing homophonous words, dividing kanji characters into subparts and awareness of number of strokes of characters. Each statement was accompanied by answers with a scale from 1 to 5, in which 1 equals complete disagreement to the statement, while 5 equals 聞⇔間 complete agreement to the statement. Additionally, the questionnaire included questions of whether they have used Kanji Look and Learn (KLL) (Banno et al., 2009). Since the number of chapters in KLL learned by the respondents functions as level indicator. By asking this, it was possible to separate the participants into groups based on their estimated JLPT level.

5.3. Writing test: Tip-of-the-Pen (TOP)

The task in the writing test to investigate the Tip-of-the-Pen (TOP) phenomenon (see Appendix 3) was primarily to write kanji inside of blank squares. Above the squares the word was written in hiragana and provided with an English translation of the word in order to evade unpredicted homophonous words to be written. In case of not being able to retrieve and write a character, the respondent was given the task to answer what structure the kanji may have by looking at a sheet displaying 7 different structures. Furthermore they were also given the task to estimate the number of strokes the character may have and finally they are supposed to try writing the character.

5.4 Material

Seventy nine characters were used as target characters for the experiment. The characters (see Appendix 2) were taken from the textbook KLL (Banno et al., 2009), which is a textbook the respondents have used in their first year of their Japanese studies. The characters were presented in forty-four words. The kun-yomi (Japanese reading) was utilized in 10 out of 44 words, while the other words used on-yomi (Chinese reading) of the characters. The characters had been systematically selected to attain a variety in number of strokes, structures, readings and level of difficulty. The test consisted of only writing tasks and did not differ between the JLPT3 group and JLPT2 group

5.5 Procedure

The questionnaire and writing test were conducted simultaneously. Twelve respondents received the questionnaire and the test in a classroom of the university during two separate times. The remaining three respondents participated during separate days at study rooms of the university library. In total, the experiment was conducted five times. The time it took for the respondents to complete the two tests ranged from 50 to 100 minutes, but most of them finished it around 70 minutes.

6. Results & discussions

In the following sections, results from the CDS-questionnaire will be presented in subsection 6.1, while the results from the TOP test will be presented and explained in subsection 6.2. In subsection 6.3, classification of erroneous answers and statistics of both groups will be presented and discussed. Furthermore, in subsection 6.4 regarding homophones, subsection 6.5 focusing on subparts division and 6.6 focusing awareness of number of strokes will be presented with results and comparing the CDS-questionnaire results with the TOP-test results.

6.1 CDS-questionnaire results

In the following table, the average self-estimation of respondents proficient in JLPT3 and JLPT2 will be presented respectively.

Table 1 - JLPT3 and JLPT2 Respondents' self-assessment regarding writing kanji

Question	JLPT3 Respondents (7 people)	JLPT2 Respondents (7 people +1 JLPT1 respondent)
Writing daily kanji	4	4,5
Write various homophones	3,4	4
Divide kanji inte subparts	3,9	3,4
Awareness of number of strokes	3,9	4,1
Average	3,8	4

As it can be seen from the table, none of the items were lower than 3, which means that neither group disagreed in none of the questions. Furthermore, there are a few differences between the two groups. In case of writing daily kanji and writing homophones, the JLPT2 respondents have a higher estimation than the JLPT3 respondents. However, in case of dividing kanji into subparts, JLPT3 respondents have a higher estimation than JLPT2 respondents. In the final item regarding awareness of number of strokes, there is a slight difference between the groups, in which the JLPT2 respondents have a higher estimation.
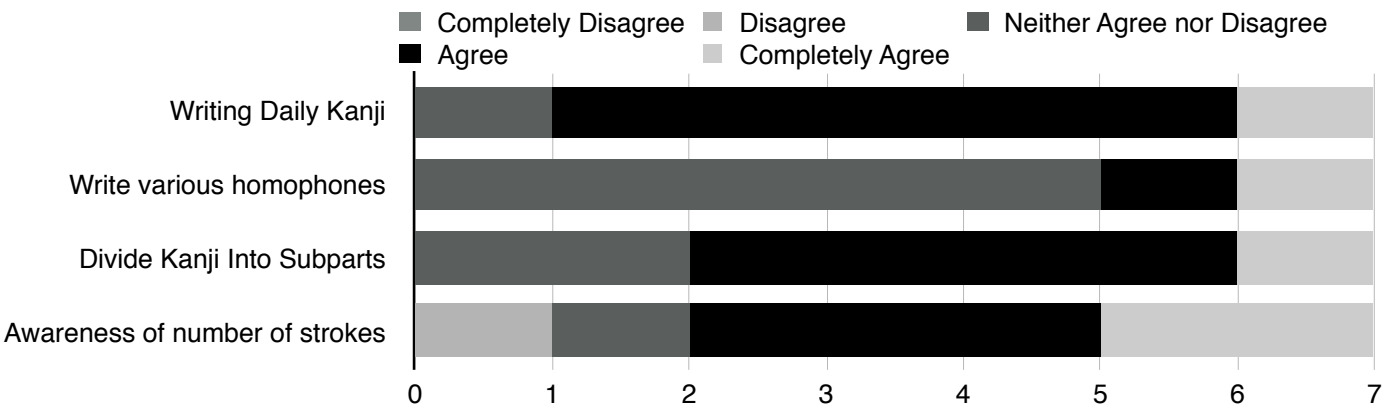
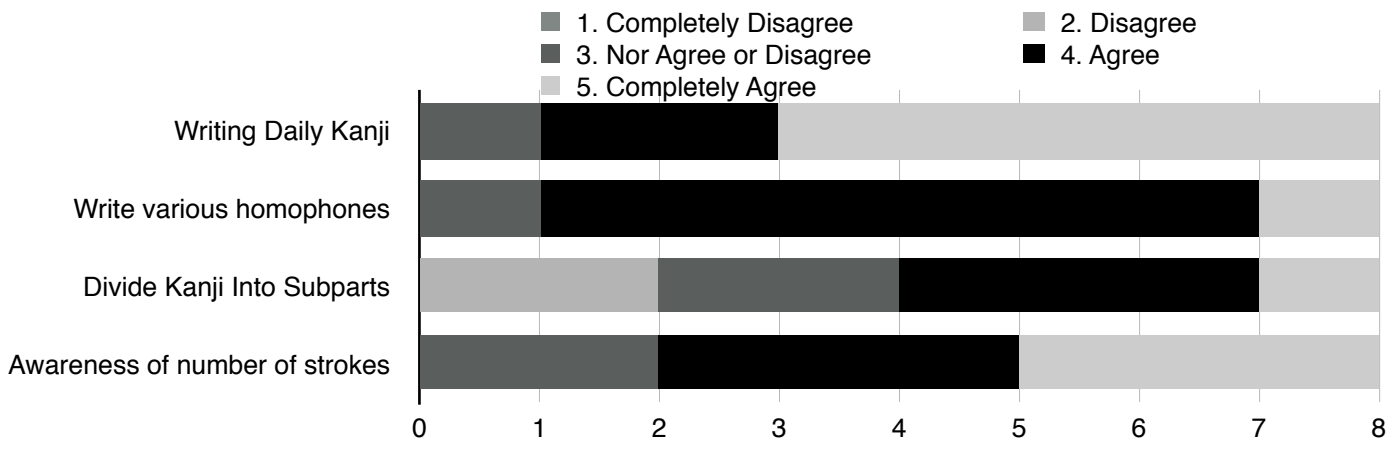**Figure 2 - Breakdown of estimation frequency among JLPT3 respondents**

Figure 3 - Breakdown of estimation frequency among JLPT2 respondents

Evident as it is, it can be observed from the two figures that no one of the respondents completely disagreed in the CDS-questionnaire. There were only three cases as to when "disagreement" was answered. In case of writing daily kanji, five out of seven respondents in the JLPT3 group agreed, while five out of eight respondents in the JLPT2 group completely agreed. Regarding various homophones, five out of seven respondents in JLPT3 group neither agreed nor disagreed, and there were only two cases when the respondents answered "Agree" or "Completely Agree". However, as for the JLPT2 group, six out of eight respondents agreed, while only one answered "Neither Agree nor Disagree", as well as for "Completely agree". "Divide kanji into subparts" is the only item where the JLPT3 group had a higher self-estimation than the JLPT2 group. As it can be seen, no one of the respondents from JLPT3 answered "Disagree" or "Completely Disagree", but four out of seven answered "Agree",

while for "Neither Agree nor Disagree" and "Completely Agree" there is one case of each. However, for the JLPT2 group, two respondents answered "Disagree", and two other respondents answered "Neither Agree nor Disagree", while three out of eight respondents answered "Agree" and only one answered "Completely Agree". In the last item, regarding awareness of number of strokes in characters, there was a very small difference between the two groups. As it can be seen, among the JLPT3 respondents, there was one entry both of "Disagree" and "Neither Agree nor Disagree". As for "Agree" there were three entries, while for "Completely Agree" there were two entries. As for the JLPT2 group, there were no answers of disagreement. However, regarding "Neither Agree nor Disagree" there were two entries, while there were three entries in each of "Agree" and "Completely Agree".

6.1.1 Discussion

The two statements regarding daily kanji and various homophones, were similar to those statements of the CDS-test conducted by Kano (2015) which had Mexican and Korean participants. Likewise to the Mexican respondents, the Swedish respondents have the alphabetic writing system as their first writing system. However the Swedish students had considerably higher estimations than the Mexican respondents in both statements, but equally high estimations if comparing with the Korean students. By comparing the results to the CDS-test conducted by Kano (2016), which focuses on self-estimations and how they differ between the levels of Japanese proficiency, similarities and differences can be perceived. The advanced group which corresponds to the JLPT2 group in this study had higher estimations than that of the intermediate level which could corresponds to the JLPT3 group in this study.

6.2 TOP-Test results

6.2.1 TOP Analysis

There were three categories of an answer in the TOP test. The following three categories will be explained by implementing 編 (hen) as an example.

Correct TOP: Writing 編 with the correct number of strokes and writing both radicals correct.

Half Correct TOP: Instead of writing the character 編, the respondent have answered by writing a character with one of the radicals being correct and the other incorrect, such as "紙" or "遍". Answering with "扁" also falls into the Half Correct TOP category. Furthermore, if the respondent has remembered the radicals correctly, but missed one or several strokes, it is also classified as a half correct answer.

Incorrect TOP: The answer has no relation to the target character. Examples: 寺, 脂 or 譴.

6.2.2 Results

Likewise to the results of the questionnaire, this section will present a table reflecting the results from the JLPT3 group and JLPT2 group respectively.

Table 2 - JLPT3 and JLPT2 respondents' test results in writing kanji

Type of answer	JLPT3	JLPT2
Correct TOP	228 (44%)	453 (72%)
Half correct TOP	103 (19%)	96 (15%)
Incorrect TOP	82 (15%)	53 (8,5%)
No answer	138 (22%)	28 (4,5%)
Total	551 (100%)	630 (100%)

In contrast to the CDS-questionnaire which had only minor differences, the TOP-test results indicate major differences between the two groups. The JLPT2 group had as much as 28 percent higher than the JLPT3 group when it came to CORRECT TOP answers. The only class that is considerably similar in proportion as well as units is the HALF CORRECT TOP class. Furthermore, the proportion of the JLPT3 group's INCORRECT TOP answers is almost twice the amount of the JLPT2 group's proportion. However, another noticeable point is the fact that the proportion of NO ANSWER in the JLPT3 group is the second largest proportion among the classes and approximately five times larger than that of JLPT2 group whose smallest proportion is the NO ANSWER class and only one sixteenth of the amount of CORRECT TOP answers of the JLPT2 group.

6.2.3 CDS-result and TOP-test result

As it could be seen in section 6.1, the JLPT3 group's average estimation was 4 on a scale from 1 to 5, while for the JLPT2 Group the average estimation was 4.5. However, the TOP-test results of both groups displayed that the proportion of CORRECT TOP answers were 44% and 72%, respectively. As for the JLPT3 group, it can be perceived that they have made an overestimation in their proficiency writing daily kanji. Likewise to the JLPT3 group, the JLPT2 group can also be deemed to have made an overestimation, although not in the same extent as that of the JLPT3 group. However, to reach a conclusion based only on the proportion of correct answers might be a haste mistake; it should also be of great importance to analyze their HALF CORRECT TOP answers and take it into consideration when making a judgment by comparing TOP-test results compared to their CDS-questionnaire results.

6.3 Error type analysis

6.3.1 Parameters for error analysis

Among the Half Correct TOP and Incorrect TOP answers, it could be analyzed and deciphered what sort of approach the respondents made in order to retrieve kanji they tried to write when answering. Table 3 will present the categories accompanied with descriptions and examples to clarify the definition of each type.

Table 3 - Error Types

Error Types	Descriptions	Examples
Phonetic	The incorrect character has an identical pronunciation to the target character	Writing "分" (bun) instead of "聞" (bun) in the word "新聞" (shinbun).
Graphic	The incorrect character is similar in shape to the target character.	Writing "間" instead of "聞" in the word "新聞".
Semantic	The incorrect character is similar in meaning to the target character.	Writing "中" (middle) instead of "内" (inside).
Compositional	One or two characters are correctly written, but in reversed order.	Writing "過去" (kako "past") as "去過" instead.

Contextual	The incorrect character is used or introduced frequently with the target in a different word context.	Writing "工業" (kōgyō "manufacturing") instead of "産業" instead of (sangyō "industry").

6.3.2 Analysis

Among the answers that were either half correct or incorrect, there were answers that could be classified into the following categories: phonetic, graphic, semantic, compositional and contextual. Unrelated errors such as pseudo-kanji or existing characters that does not fall into the error types are not included in the statistics.

Table 4 - The occurrence rate of error categories

	Phonetic	Graphic	Semantic	Composition al	Contextual	Total
JLPT3	23 (44%)	16(30%)	7(13%)	6(11%)	1(2%)	53(100%)
JLPT2	11 (30%)	17 (46%)	6 (16%)	3 (8%)	0 (0%)	39 (100%)

As it can be observed, in the case of both groups, phonetic and graphic-based answers were the most frequent categories, but they were reversed: phonetic being the most frequent category for the JLPT3 group, while graphic was the most frequent category for the JLPT2 group. Regarding semantic errors, the proportion and number of entries were similar between the two groups: both being considerably low and only differ by one unit. In case of compositional errors, the JLPT3 group made twice as many errors and a 50% higher proportion than that of the JLPT2 group. However, the result regarding the compositional type was shared by the two groups: it was the second lowest category, being higher than contextual category, which had one entry in the JLPT3 group but no entries in the case of the JLPT2 group

6.3.3 Discussion

The error type occurrence tendency of the JLPT3 group indicates that they are phonetically inclined in retrieving kanji rather than graphical inclination. This result is similar to Chikamatsu (2005) who had American and Japanese students as subjects, and Ivarsson (2016)

who had Swedish and Japanese students as subjects, inter alia, when it comes to students of Japanese that have learned several hundreds of characters, since the number of characters with identical readings increases. However, in contrast to previous studies, the error type occurrence tendency of the JLPT2 group indicates that they are more graphically inclined in their retrieval of kanji rather than phonetically, despite being a group that know more kanji characters with identical readings than the JLPT3 group.

The cause of this result may be the material itself. Since the characters and vocabulary are derived from the textbook KLL, which the respondents have used in their elementary stage of Japanese language course, it may not be surprising as to why they seem to be graphically inclined in their approach of retrieving kanji. It can be assumed that the result would be different if another set of target characters had been chosen for the test, since the respondents have learned these target characters through classes at university which definitely includes rote learning.

Another factor may be the criteria for the what the graphic type of error is. Ivarsson (2016: 103) defined an orthographic error as two characters that have one similar radical that corresponds to at least 50% of the total number of strokes for both characters. For instance, ”復” and ”複” are orthographically similar due to the right part consisting of more than 50% of the total number of strokes. However, ”彼” and ”復” are not orthographically similar, despite the left radical being the same, due to the fact that it does not contain more than 25% of the total number of strokes for ”復”. In contrast to this, Chikamatsu (2005) did not explain any sort of criteria, but include examples of characters that were qualified as orthographically similar, namely ”督” and ”暫”. However, the only similarity that can be seen is that both characters consist of three components, two on the upper side and one on the bottom of the character, but the characters do not have any components in common. Since this study implemented the same parameters as Chikamatsu (ibid), erroneous answers such as 達 is regarded as orthographically similar to 近 and 痛 is regarded as orthographically similar 病.

Had the parameters implemented by Ivarsson (ibid) instead the results would have become different.

Furthermore, another noteworthy point is the number of overlapping errors, e.g. an answer which falls into at least two types of error. As stated earlier, the following analysis will only analyze errors which overlap the phonetic, graphic and semantic category according to the theoretical framework. As for the JLPT3 group, the sum of phonetic, graphic and semantic errors are 46, and among these errors, four answers overlapped the phonetic and graphic category, while only one answer overlapped the phonetic and semantic category. As for the JLPT2 group, the sum of phonetic, graphic and semantic errors were 34 entries. Out of these 34, four of them overlapped the phonetic and graphic categories, and another two answers overlapped the phonetic and semantic categories. In addition, what was noticeable was that within both groups, these errors occurred at the same characters. Among the overlapping phonetic-graphic errors, the most frequent one was the error of writing ”地” instead of ”池” in ”電池”. As to why this one occurred most frequently may be because the character ”池” (chi/pond) appears rather seldom in words compared to the character ”” (chi/earth) which appears in various words the respondents may have learned, such as ”地下鉄” (chikatetsu/subway) and ”地図” (chizu/map).

In addition, another point that could be perceived was the compositional errors. In the case of JLPT2, only 3 compositional errors occurred, but they occurred exclusively when the respondents tried to write the word ”過去” (kako/past). As for the JLPT3 group, some of the respondents produced this error in other words as well, but three out of six errors occurred when they wrote the word ”過去”. This may be due to the fact that both characters have only two syllables, and one being mutual: the consonant ’K’. Due to this, L2 students may tend to mix the order of these two characters and produce an error. However, this is only mere conjecture and further research using words consisting of two kanji characters with similar pronunciation or same number of syllables would be required to make a conclusion.

6.4. Homophones

6.4.1 Results

Since the content of the test was derived from KLL which teacher few homophones, the number of homophones were extremely limited. In total there are four homophones: "暑い/熱い" (atsui) and "放す/話す" (hanasu). Four sentence examples will be provided to explain the meanings:

今日は暑い - Kyō wa atsui - It is hot today

コーヒーは熱い - Kōhii ha atsui - The coffee is hot

公園で犬を放す - Kōen de inu wo hanasu - Let one's dog loose in the park

友達と話す - Tomodachi to hanasu - Talk with friends

What might be confusing is the homophonous word atsui. In both of the examples above, the translation is "hot". While it is true that both of the words are identical in reading as well as meaning, the usage is different. The former one is used to describe the weather or the temperature of the air, while the latter is used to describe the temperature of objects.

The following two graphs are intended to explain the results of the two groups in trying to write the above mentioned homophones:

Table 4 - Results of writing homophones for JLPT3 group

Answer	暑い	熱い	放す	話す	Total
Correct TOP	0	0	0	7	7 (25%)
Half Correct TOP	3	3	0	0	6 (21%)
Incorrect TOP	2	1	2	0	5 (18%)
Mix Up Correct	1	0	0	0	1 (3,5%)
Mix up Half	0	1	0	0	1 (3,5%)
No Answer	1	2	5	0	8 (29%)

| Total | 7 | 7 | 7 | 7 | 28 (100%) |

Table 5 - Results of writing homophones for JLPT2 group

Answer	暑い	熱い	放す	話す	Total
Correct TOP	5	1	1	8	15 (47%)
Half Correct TOP	0	5	0	0	5 (16%)
Incorrect TOP	1	0	3	0	4 (12%)
Mix Up Correct	0	1	0	0	1 (3%)
Mix Up Half	1	0	0	0	1 (3%)
No Answer	1	1	4	0	6 (19%)
Total	8	8	8	8	32 (100%)

Due to a limited number of respondents and a limited number of homophonous words, the results are considerably similar. However, what is distinguishable between the two groups are the results of CORRECT TOP and NO ANSWER. In the case of CORRECT TOP, the proportion of the JLPT2 group is approximately twice as large as that of the JLPT3 group, while the proportion of NO ANSWER of the JLPT3 group is almost 33% larger than that of the JLPT2 group. Other differences can be perceived by analyzing each character. For example, in contrast to the JLPT3 group whose only CORRECT TOP answers are in the case of ”話す”, the JLPT2 group had at least one or several CORRECT TOP answers in each character. From the contrary perspective, similarities are also evident. In both groups all of the respondents made a CORRECT TOP answer in the case of ”話す”. Additionally, MIX UP answers occurred not more than 2 times in both groups. As to why all respondents succeeded in writing the character for ”話す” is due to the fact that it is a word that appears frequently in colloquial oral and text-based conversations, unlike the word ”放す” which appears seldom.

MIX UP occurred not more than two times, but the cause as to why it ever occurred is due to the two characters, 熱 and 暑, are identical in meaning, only differing in usage.

6.4.2 Comparison of CDS-result and TOP test result

The estimations of both groups regarding proficiency in writing various homophones were moderately lower than the estimation of writing daily kanji. The average for JLPT3 was 3,4 and 4,0 for JLPT2. By adding CORRECT TOP and MIX UP CORRECT, the sum for the JLPT3 is merely 28,5% and 50% for the JLPT2 group. With this in mind, it seems that both groups have made another overestimation. However, the results indicate nothing more than a tendency. Additionally, considering the fact that the data consists of not more than four homophonous words and fifteen respondents, no conclusions can be made, but indicates that further experiments including self-estimation and proficiency in writing homophones are important.

6.5. Dividing kanji into subparts

6.5.1 Results

When subjects seemed to struggle in retrieving a character, they were given the task to answer which shape they thought was most similar to the character. Hence, the number of answers regarding subparts is considerably limited. The following table will present the data of both groups.

Table 6 - Results of dividing kanji into subparts

Answer	JLPT3	JLPT2
CORRECT	71 (66%)	79 (72%)
INCORRECT WITHOUT KANJI	18 (16,5%)	20 (18%)
INCORRECT WITH KANJI	19 (17,5%)	11 (10%)
Total	108 (100%)	110 (100%)

The number of answers is strikingly similar, only differing by two units between the groups. Additionally, the proportion of correct answers also considerably similar and are the two biggest proportions for both of the groups. On the other hand, the proportions of INCORRECT answers without a kanji and with kanji are reverted between the two groups. There were several cases when the respondents answered which shape they thought was most similar to the target character, but never managed to write an answer. As a consequence, it

becomes impossible to conclude whether the respondents lacks the skill in dividing the target character into subparts or were thinking of a completely different character. However, among the incorrect answers with a written character, a mutual mistake could be found among the respondents of both groups. The respondents had a difficulty in dividing a character that belonged either to the UPPER-LEFT or lower-left category (see appendix 3). As for these two answers, the respondents tended to classify these two as top/bottom and left/right. For instance, "座" and "度" were in some cases classified as TOP-BOTTOM, whereas 建 was considered to have a LEFT-RIGHT structure. Besides these errors, there were also a few mistakes when the respondents classified a top/bottom-character as a character of the enclosure-category, such as 寒.

6.5.2. Comparison of CDS-questionnaire results and the TOP test results
The statement regarding the ability of dividing characters into subparts had the lowest estimation among the JLPT2 respondents (3,4), but were significantly higher among JLPT3 students (3,9). As to why these estimations are low might be due to the fact that the teaching of various radicals is less focused compared to reading, writing and stroke order of characters. Overall, the respondents seem to be quite aware of their ability regarding dividing characters into subparts. However, it is still unsolved as to why the JLPT3 respondents have an estimation higher than that of the JLPT2 respondents, despite a higher number of acquired kanji characters and a similar educational background. One explanation may be that some students have developed this ability or use it as a strategy when encountering a new character. However, an even more plausible explanation may be that in the university, during the kanji classes the teacher hands out tasks were students are supposed to combine various kanji characters into another existing character. Since the JLPT3 respondents have until recently been receiving this sort of education, while the JLPT2 respondents have recently been studying new kanji on their own without combining characters or components into existing characters, it is likely the cause as to why the JLPT3 group's estimation is higher than that of the JLPT2 group. But in order to clarify this, it would be preferable to include interviews in

the procedure with the respondents asking how it come that some of them are confident in the statement while others are not.

Another point worth to discuss is the differences of the results in Table 2 representing kanji writing and the results in table 6 regarding kanji division. As it could be seen, there were major differences when it came to write characters correctly, but minor differences in kanji division. With this in mind, one might doubt the significance of being able to divide kanji into subparts, if one is able to write the characters correctly. Dividing kanji into subparts was the only statement in the CDS-questionnaire that the JLPT2 group had a low estimation (3,4), and even lower than that of the JLPT3 group (3,9). But considering the results in the TOP-test, in which the JLPT2 group had 72% correct and 15% half-correct answers, it can therefore be considered that the practice of dividing kanji into subparts is only important in the novice stage of learning the Japanese language. Once a few hundred characters have been taught and memorized, the importance of practicing kanji division may become lower for students of the intermediate and advanced Japanese when learning new kanji characters.

6.6 Strokes for kanji characters

Another task the respondents were given was to answer how many strokes the target character had when they struggled in retrieving a character. However, unlike the other analyses of the test results, the analysis of awareness of strokes is considerably difficult due to limited data. Even when the respondents struggled in retrieving a character, they did not necessarily answer how many strokes they think the character had, and thus it was first decided to analyze the characters they had written. However, as it could be seen in section 6.3 focusing on error types, various factors were present when the respondents were retrieving a character, e.g. when the character "分" (bun) was written instead of "聞" (bun) in the word "新聞" (shinbun/ newspaper). In this case, the respondents who made this mistake, wrote a character with ten strokes fewer than the target character, and it might seem as if respondents' awareness regarding number of strokes is low. However, since it is deemed to be a phonetic type of error, the answer becomes ambiguous and it is difficult to reach a conclusion whether the results of the tests correspond to the results in the CDS-test regarding awareness of number of strokes.

With this in mind, it seems to be of great importance to ask whether students think about the number of strokes when retrieving a character. The TOP-test is based on the TOT, which, inter alia, analyzed how many phonemes the produced answer had in relation to the target word. Another sort of answer that was noteworthy was that one respondent answered "読" instead of "聞" in the word "新聞". Unlike "分" the character "読" have the same number of strokes as "聞" and therefore it may seem as if the respondent were aware of the number of strokes, however there might be another form of reasoning the respondent had when making the answer, being completely unrelated to the number of strokes.

The statement regarding awareness of strokes was unique by the fact that the estimations between the two groups were very small, differing only by 0,2. The JLPT3 group's average estimation was 3,9 and as for the JLPT2 group the estimation was 4,1, which means that agreed to the statement that they are aware of number of strokes. Likewise to American L2 students (Chikamatsu, 2005: 83), Swedish students receive instruction in how each kanji shall be drawn, what order the strokes shall be drawn, and told how many strokes there are when a kanji is presented. Additionally, it is also common that Swedish students have to answer how many strokes there are for a presented character during exams. Thus it may have a major effect on their estimation regarding awareness of strokes.

7. Summary and conclusion

As it could be seen from the CDS-questionnaire result, both groups had considerably high estimation regarding each the statement, excluding homophones among JLPT3 respondents and dividing kanji characters into subparts as for the JLPT2 respondents. The two initial statements, daily kanji and various homophones, were similar to those statements of the CDS-questionnaire conducted by Kano (2015) which had Mexican and Korean participants. Likewise to the Mexican respondents, the Swedish respondents have an alphabetic background, although the Swedish students had considerably higher estimations than the Mexican respondents

By comparing the TOP-test results it was concluded that both groups tend to estimate their abilities higher than what they actually are able to perform, excluding dividing kanji into subparts. However, it seems as if the JLPT2 group has a higher awareness than that of the JLPT3 regarding their own proficiency.

However, among the results, opposites to the hypotheses of this study were evident. Namely the fact that graphic type of errors were the biggest proportion for the JLPT2 group when it was expected that they would commit more phonetical type of errors, since the respondents should know more kanji characters that have identical sounds. Another contrasting point was the difference in the results, it was expected that small differences would only occur, since the test consisted of characters all of them had learned in their freshman year. The greatest major difference was the TOP-test analysis, in which the JLPT2 group had 72% CORRECT TOP answers, and the JLPT3 group had 44%, while NO ANSWERS for the JLPT2 group was not more than 4,5% but 22% for the JLPT3 group.

Another finding was achieved by analyzing the erroneous answers the two groups made when retrieving kanji. While the number of respondents is limited, there was a moderate difference in the proportion of the graphic and phonetic errors between the two groups. The JLPT3 group tended to have a stronger phonetic inclination than that of the JLPT2 group which had a stronger graphical inclination when retrieving characters. Although there were no remarkable differences concerning the semantic based and compositional type of errors, an interesting similarity was found: most of the compositional errors occurred when the respondents tried to retrieve the characters for the word "過去" writing it as "去過".

8. Limitations and suggestions for the future
During the procedure, various limitations became apparent when analyzing the data. Needless to say, one of the main limitations is the number of respondents that participated in the test, being limited to not more than fifteen people. As a consequence, there was not wide extent of material to analyze, and in addition, there were many questions left unanswered by some of the respondents, limiting the data even more. Besides the number of respondents, other

limitations exist in the TOP-test itself. This research tried to confirm what sort of tendency the two groups had when estimating their abilities in writing daily characters, homophones, dividing into subparts and awareness of strokes by using only one form of test. In future researches, it would be convenient to conduct separate tests in order to ascertain whether the respondents' estimations correspond to their proficiency. Instead presenting a Japanese word written in kana and accompany it with its English translation and try to write it similar to this research, it would be preferable to present the target character asking the respondents which shape they think is most similar to the character. As for confirming the awareness of number of strokes, it would be more convenient to write the reading of a character accompanying it with the meaning in English and thus evading phonetical inclination and other forms of errors, making it easier to evaluate the respondents estimations. On the other hand, since this study speculated that L2 learners might not be thinking how many strokes a character have when they struggle to write it, it would be preferable to see a research with interviews asking L2 learners how they try to retrieve various kanji characters and write them when they struggle. By doing this, one may be able to clarify what strategy is most commonly used and based on those results new TOP-tests based on the common strategies can be conducted.

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Appendix

APPENDIX 1

QUESTIONNAIRE

Name:_____

A. I have used Kanji Look and Learn when studying kanji: yes/no

B. If yes, up to which chapter did you study? Answer:_____

C. I have used other textbooks for learning kanji (please write):

   _____

   _____

D. In case of kanji, which level of JLPT corresponds to your ability? If you have never

   taken the test, please answer which level you estimate that corresponds to your ability in

   regard to number of characters you have learnt:

   N3 (617 characters)

   N2 (985 characters)

   N1 (2220 characters)

E. I can write kanji that appear in daily life (家・大学・宿題・日本語・出口)

   1. Completely disagree

   2. Disagree

   3. Neither agree nor disagree

   4. Agree

   5. Completely agree

F. I can write various homophones (words with same pronunciations but different meanings),
such as "鼻 (はな) (nose)・花 (はな) (flower)" with correct kanji

   1. Completely disagree

   2. Disagree

   3. Neither agree nor disagree

4. Agree

    5. Completely agree

G. I can divide kanji into subparts

    1. Completely disagree

    2. Disagree

    3. Neither agree nor disagree

    4. Agree

    5. Completely agree

H. I know the correct number of strokes for kanji characters

    1. Completely disagree

    2. Disagree

    3. Neither agree nor disagree

    4. Agree

    5. Completely agree

APPENDIX 2

List of Target Characters

学生　座る

空気　南口

曜日　新聞

今週　勉強

一度　昼間

教室　近い

公園　寒い

暑い　熱い

急ぐ　医者

国内　話す

研究　過去

機会　鉄道

電池　口座

特別　産業

空港　橋

病院　建物

親切　調査

映画　便利

放す　頭痛

都合　船便

虫歯　宿題

運転　夢中

APPENDIX 3
Kanji shapes

1. Left/right

2. Top/bottom

3. Enclosure

4. Top enclosure

5. Left enclosure

6. Bottom enclosure

7. Upper left

8. Lower left

APPENDIX 4

Example of test

1. がくせい student

If you cannot write the kanji, proceed to A-D.

A. Write the number of the shape that you think is most
   similar to it.

B. How many strokes do you think it has?

   _____ strokes

C. Use the space below to try to write it.

D. Write the one you think is your best
   guess.