

## The Importance of Form in the Teaching of Kanji

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The thesis deals with the problem of the teaching of kanji to non-kanji-area people. One of the most problematic points in the teaching of kanji is the selection of the kanji to be taught. Selection generally takes place without taking into account the form of the kanji. However, I think that form is one of the important elements that can facilitate or hinder the process of learning. Western students who have no familiarity with kanji can recognize and memorize better those kanji whose form is easily distinguishable and is in accordance with the visual recognition laws of western people.

First, I introduce some considerations about the visual approach of written characters in general, and then about the different visual approach in the case of the alphabet and in the case of kanji. Then I present an experiment carried out in order to understand the main features of such visual recognition laws and on the basis of the results, in the last part, I derive some conclusions on teaching methods.

### The Problem

As everybody knows, perhaps the most difficult point in teaching the Japanese language is kanjis. The difficulty comes from the fact that while the oral language and its various aspects and peculiarities are basically universal to all men, the ideographic writing system is certainly not a universal means of expression, at least not in Western culture.

To study kanji means, for a student coming from an alphabetic cultural area, to enter a completely foreign dimension. It is this foreignness that puzzles the student. This problem is particularly thorny and delicate during the initial stage of the teaching of kanji. The student is not able by himself to understand how this writing system works, at least not before having studied it for a rather long time. Besides, so far, no effective

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teaching strategies have been developed: in most cases the teaching methodology for kanji is the same as that for native speakers of Japanese.

One of the main points in founding an *ad hoc* approach is the selection of the kanji to be taught at the initial stage. This is a particularly delicate problem because the kanji presented represent the first impact students have with kanji, an impact that can influence learning in the future stages. Normally, the selection of such kanji is based on their frequency of usage and on the importance of the word they stand for. The purpose of this study responds to the following consideration: the above criteria for the selection of kanji are not sufficient; teachers must also consider the form of the kanji (字形). Western students have more facility in recognizing certain forms than others according to their visual habits.

Facility of recognition means that kanji with certain forms are better singled out (recognized) than others. Therefore, if the kanji presented are easy to recognize, the learning process is facilitated. It is therefore important, especially at the initial stage of the learning process to know how Westerners "see" kanji, in other words, how their pattern-recognition mechanism works for kanji. This information can be utilized in order to predispose specific teaching strategies.

The present study tries to analyse some of the fundamental aspects of this problem. In the last part I present an experiment carried out for the purpose of understanding some basic rules of visual approach that Westerners without previous experience of kanji apply to kanji.

The first consideration is that for the student coming from an alphabetic area it is difficult to reorganize the decoding process from a sequential, linear, serial, and uni-dimensional one (alphabet) to one which is global, parallel, bidimensional, and complex (kanji). The problem arises from the tendency to approach kanji according to the decoding rules for the alphabet: as a consequence, the student cannot treat kanji adequately. The decoding rules for the alphabet are based on the analysis of a series of few elements often repeated which logically compose a significant unit. Kanji, on the contrary, require a global approach of visual type. Though the student recognizes intuitively the difference between the two types of signs, he does not have sufficient knowledge to deal with this problem. This is what a correct teaching methodology should supply the student as a premise. (Tollini, 1992).

Perhaps the hardest problem is that the strokes of a kanji cannot be organized by the student into a familiar scheme. Kanji are for the student a bunch of casual strokes arranged in a complex and seemingly arbitrary composition. Consequently, the process of learning kanji seems extremely hard and irrational. It is well known, in fact, that even if a student can recognize a kanji, he cannot necessarily reproduce it correctly. This means that recognition normally works on the basis of an 'overall survey' of the sign.

### General Considerations

Reading written characters necessarily involves recognition of the form of the charac-

ters. The form of the character is compared with the forms memorized in our brain until a match is found, which leads to meaning. This process is the same for any kind of character, be it alphabetic or ideographic. Without the perception of the form of the character and its comparison with the mental forms, however, it is not possible to reach significance.

The matching between a physical character and a mental one does not take into account the real spatial dimensions; rather, it is based on the structure of the character, on the mutual relations of the elements that compose the character. As such, it is a matching between 'patterns.'

Most important is the fact that in the case of kanji, it seems likely that familiarity with the kanji code presumes the knowledge of a kind of 'formal grammar' (字形の規則) which, at the moment of recognition, works in two ways:

1. It is able to identify the 'component parts' ('component part' means those recurrent structures, like radicals, that often are part of different kanji. In Japanese they are called 構成要素).
2. It controls the acceptability of the structure of kanji. In other words, it functions as a filter for the acceptability of the characters, deciding case by case whether they are acceptable or not.

A typical example is the non-acceptability of some component parts or radicals in certain locations within the kanji area. Not only this; there exists also a mechanism that is in charge of the visual organization of the perception of the character.

The act of "seeing" is not, in fact, a passive action: the object seen is not reproduced as such in our mind. The Gestalt studies can supply many examples of the active participation of the seer in the process of perception. This active participation consists in organizing the pattern object of vision, in realizing the connections and relations among the components and in organizing a logical structure. Not necessarily the mental image corresponds to the real pattern of the perceived.

We can suppose that visual perception and what I called "formal grammar" are related and that the latter influences the former. If this is true, the consequence is that those who have insufficient familiarity with formal grammar may be at a loss in the recognition of characters. This happens, for example very often when Western students try to recognize kanjis.

Our mind cannot do without organizing whatever pattern is visually perceived. It is impossible to see without relating the elements to a pattern, because our mind can only see or recognize something under the condition of organizing it. Thus, a figure or pattern is really perceived if and when it corresponds to an organized configuration for the seer.

Now, the kind of 'organizational model' given to the pattern of the object of vision (in our case, a written character) depends in part on the instinctive inborn mechanisms of vision common to every human being (the fundamental organizational laws) and in part on acquired models (alphabetic, ideographic, etc.). Recognition is then a matching that is based on the capacity of organizing and, above all, on selecting data,

that is, on eliminating those items that are judged unnecessary in order to generalize that which is particular. In order to be able to select important data from those that are of secondary importance, it is indispensable that the configuration is organized in one way or another, according to the seer organizational models.

If the code to which the perceived character belongs is known, recognition occurs without problems, but otherwise, unappropriate and unadequate tools are employed, leading to a deformed vision. Therefore, faced with ideographic or hieroglyphic signs, an uninitiated person is not able to recognize the distinguishing details that enable a sure mapping of meaning.

The task is therefore one of organizing a perception adequate to the code used. Every code needs a peculiar organization of vision: the parameters adequate for the alphabet are not good for the ideographic system and vice versa. For instance, kanji require a more detailed visual analysis than the alphabet. (Yamada, 1990: 10)

The same situation occurs when trying to reproduce the sounds of a foreign language: the result is in most cases poor because the aural recognition mechanism is not adequately trained. Even colors that seem to be universal, actually are seen differently in different cultures and the words for colours in different languages (including Japanese: think of 青い, for example) are an evidence of it. The difference between those who are familiar with the code and those who are not is outstanding in the case of cursive handwriting or *kuzure ji*. The capacity of abstraction from the actual object of vision and the mental matching with an ideal pattern is an ability that only those who are familiar with the code have. The capacity of abstraction needs the knowledge of solid parameters of reference: what is acceptable and what is not, in other words, formal grammar. It makes it possible to abstract from the actual form and refer to an ideal standard of reference.

### The Recognition of Ideographic Characters

The problem of how kanji are decoded is a difficult one. There are scholars who believe that kanji are decoded only by means of their form, and those who believe that kanji are recognized by means of phonetic mediation. However, the nature of this problem is specifically psycho- or neuro-linguistic, and as such goes beyond the purpose of this study. In any case—and the debate is still open—the decoding of kanji necessarily passes through the stage of the recognition of form. The passage from form to meaning is a successive stage of the process. There is an obligatory sequence that leads to formal recognition:

1. The first step is an overall survey of the character. The eyes perceive if the form is simple or complex, if the strokes are straight or curved. This step serves to distinguish among kanji, hiragana, katakana, or rōmaji;
2. Reconstruction of the standard character from one of a cursive form;
3. Recognition of the overall formal peculiarity of the character;
4. Perception of the component parts. (Watanabe, 1976: 93–94, 127–28).

After grasping the nature of the character, in the second step the standard form is

reconstructed, and in the third step the overall formal characteristics of the character are recognized. The eyes perceive if the character is symmetrical, complex, regular, composed, etc. (Kaiho, 1984: 46-47). Lastly, attention is turned to the component parts of the character. The next step is matching, which leads to meaning.

This process takes place for every reader, mother tongue or not. A mother-tongue reader, of course, is able to recognize and abstract the forms of characters in a surer and quicker way than a foreign-language learner. The better a code is known, the lesser it is necessary to pay attention to details. While a Japanese can recognize a character at a glance, a foreigner needs more time and more details. This means that familiarity with kanji leads to a greater ability to recognize and neglect unnecessary details.

Kanji are organized units, and the capacity of recognizing their organization is an important element in the process of identification. The problem dealt with in this study is the following: those who are familiar with the ideographic writing system apply formal grammar rules; those who are not, can only apply the general rules of pattern recognition, since they lack more adequate rules. The main tenets of the general pattern recognition rules are:

1. preference for the simplest form;
2. similar (especially if also proximal) forms are seen as related; and
3. internal coherence favours an organized perception.

## The Experiment

### The Purpose of the Experiment

The experiment described here was designed to verify how Westerners coming from an alphabetic cultural area and without previous knowledge of kanji "see" their internal structure. In other words, which are the initial reference parameters with which a foreign student faces kanji. This is done in order to understand how, at the initial stage of the learning process, students perceive the pattern of kanji. As the learning process proceeds, of course the student naturally modifies the parameters, acquiring more adequate ones. It is important to understand the approach to kanji at this stage, because it can condition the future learning process and can give useful hints for teaching procedures.

### Description of the Experiment

The following list of 33 kanji (in print) was presented to 50 persons, all of whom were completely unfamiliar with kanji.

花 雲 考 屋 交 着 当 壳 美 産 義 居 蚕 術 省 票 異 益 我  
否 豊 界 育 步 果 岳 岩 辛 赤 寿 寺 雇 袋

The testees were asked to divide the kanji in the list into two parts as they liked using a pencil. Then the division of the kanji was grouped into typologies and analyzed.

The above 33 kanji were chosen to represent various typologies of kanji forms.

## Results

The tessees largely preferred very few and very simple criteria of division:

1. horizontal: 702 kanji out of 1650 (42.5%);
2. vertical: 381 kanji out of 1650 (23%);
3. homogeneous forms.

Horizontal division was largely preferred when a kanji presents a clear division between the upper and the lower parts, especially when the upper and lower parts are quantitatively balanced. For example: 票 (42 horizontal, 8 vertical), 豊 (42 horizontal, 5 vertical, 3 otherwise).

Vertical division was largely preferred when a kanji is vertically symmetrical, that is, the right and the left parts are the same or are very similar. The presence of a vertical line or a vertical separating space dividing the kanji increases the tendency toward vertical division. For example: 我 (42 vertical, 8 otherwise), 美 (28 vertical, 12 horizontal, 10 otherwise).

In general, horizontal and vertical divisions were the most largely preferred typologies of division with a total percentage of 65.5%. Of the remaining 34.5%, 6% were transversal divisions and 28.5% different types of divisions, such as division of single parts, etc.

The kanji with the highest scores in horizontal division were:

育(43), 豊(42), 票(42), 雲(41), 否(38), 岳(37), 異(37), 着(34), 袋(32), 界(30), 岩(29), 辛(26), 果(26), 壳(52), 寺(23), 赤(23), 花(22), 当(22).

The kanji with the highest scores in vertical division were:

我(42), 美(28), 義(22), 果(19), 界(18), 花(17), 術(17), 辛(17), 交(16), 赤(16), 当(14), 異(14), 蚕(13), 益(12), 否(10), 寺(10).

Homogeneous forms are those considered not separable because they belong to a single organized pattern. The most common case is that of closed forms (connected lines): closed forms are rarely broken up, while open forms are easily considered separate parts. For example: 步 was divided in 止 and 少 by only 11 persons, while 18 considered only the top three lines as a separate part.

The presence of a transversal line crossing a kanji was often considered as a hint for division along the line. For example: 考 was divided in that way by 28 persons.

In general, some of the very basic laws of universal pattern recognition also find application in the case of kanji. The division of kanji according to component parts is irrelevant, because it does not fit into the universal laws of recognition.

It is interesting to note that the 9 kanji present in both lists of high horizontal and vertical score, all present a high degree of vertical symmetry and in the meantime have a clear horizontal divisibility: 果, 界, 花, 辛, 赤, 当, 異, 否, 寺.<sup>1</sup>

<sup>1</sup> An incidental consideration is that the letters of the alphabet in their printed forms, both capital and small, are based on three main forms: a. | ( / , \ ); b. —; c. 0, combined together. Perhaps the preference for vertical and horizontal criteria of kanji division is related to the first two visual criteria used for the alphabet. The circle (c.) has no counterpart because kanji have no such forms.

### Teaching Considerations

The above results find didactic application in two directions:

(1)

The selection of kanji to be presented to beginners must consider not only the frequency and importance of the kanji but also their form. That is to say, kanji whose forms are easily recognized by students must be preferred because:

- a) the presence of recognizable organizational criteria enhances memorization ability;
- b) the above-mentioned simple criteria have an important role in distinguishing kanji among themselves.

Normally, in the selection of kanji, the criteria related to the form of kanji are limited to the choice of kanji with a limited number of traits. Therefore, kanji with four or five strokes are preferred to more complicated ones. However, this is not a sufficient criterion (Flaherty, 1991: 192). Facility of memorization is not always and merely limited to simplicity of form, especially in the case of non-pictorial kanji. Where the form of the kanji fits into clear organizational models, the number of strokes becomes relatively unimportant. For example, see the following two lists of kanji:

1. 扼, 処, 矛, 炒
2. 高, 員, 益, 容

Even if the kanji in the second list have a greater number of strokes, they are probably more easily recognizable and memorizable than the kanji in the first list.

The results of the experiment show that there are some kanji—those congruent with general recognition laws—which were largely decomposed in the same way, while others were decomposed in many different ways. This means that the forms of the first type of kanji were clearly distinguished and visually organized in a easy and certain way. These kanji (such as 雲, 育, for example) possess formal characteristics that respond to the visual organizational models of Westerners and are therefore better distinguishable than others. In fact, according to the results of the experiment, Western students unfamiliar with the kanji code apply very simple visual criteria: horizontal, vertical, and homogeneous forms. This means that discrimination for them works better at that level. They can better distinguish kanji that belong to these patterns.

This being the case, at the initial stage of kanji learning, the selection of kanji should be based also on criteria of ease of distinguishability. Therefore, for example, the following pairs

1. 米 and 台;    2. 美 and 合;    3. 相 and 思  
are easily distinguished, because: a) each kanji belongs to a well-defined visual criterion (the first, vertical, and the second, horizontal), and b) the pair is formed by contrastive patterns.

On the contrary, the following selection is liable to generate confusion:

1. 米 and 木;    2. 合 and 思;    3. 相 and 記
- (2)

Another teaching issue that can be gleaned from the results of the experiment is that

the internal structure of kanji is not clearly visible to those who have no knowledge of the kanji code.

Consequently, learning kanji at the beginner level means memorization of patterns composed of seemingly meaningless and casual strokes and dots. This approach makes the learning process very hard, because no rational or organizational reference system is supplied. This being the case, every single character is a unique and unrelated unit, and kanji are not seen as a system of related characters. Under these conditions, learning kanji becomes a mere mnemonic activity.

On the contrary, the perception of relations (same component parts) lays the basis for an organizational and rational approach facilitating the learning process. It is well known, in fact, that the human mind naturally tends to organize related information and label it in a single unit. The stocking and retrieval of information is thus much facilitated. Let me give an example taken from numbers. The number eighty-seven can be written: 87 in the decimal system, or 1010111 in the binary system, or 127 in the octal system.

It is evident that memorization, retrieval, and reutilization are easier for the decimal system, than for the other systems. Try, for example, to remember your telephone number in the above systems. The reason why the decimal system is easier is that it organizes information in a more compact way. The number 87 means, in the decimal system, eight times ten plus seven.

The same process applies to kanji: it is easier to remember that 思 is composed of a "rice-field" above and a "heart" below, rather than remembering the individual nine strokes in order. Therefore, where possible, the recognition of the component parts of the kanji enhances the learning process. However, since the beginner is not normally able to recognize this structure, it must be taught.

As the learning of kanji proceeds, the students learn, helped by the teacher, to recognize the component parts. In order to facilitate this process, the teacher should choose those kanji whose component parts are clearly distinguishable by the student. Again, the results of the experiment can supply a useful hint. Kanji similar to the following seem to be in accordance with the recognition models preferred by Western students: 新地社会的政対代相現明動最記台志旨声, because their component parts are clearly distinguishable and structured in accordance with visual pattern rules. The clear perception of the single component parts facilitates their recognition in different kanji.

A further consideration is that in the selection of kanji, the recurrence of component parts facilitates recognition and memorization. For example, the following series should be easily learned: 本札机杏知凡短, because both recognition criteria and the recurrence of component parts have been taken into account. Learning even few component parts allows the recognition of form (and ability of reproduction) of a rather large number of kanji.



## CONCLUSION AND FUTURE DIRECTIONS OF RESEARCH

In conclusion, I would simply like to point out that in the teaching of kanji to Westerners, the selection of kanji is not normally given the importance it actually has. In fact, not much research is carried out in this field. In the above pages, I have suggested that one (of course, not the only) of the criteria for selection should be the form of the kanji, that is, the form of the selected kanji should lend itself to being easily perceived, distinguished, and recognized by students unfamiliar with the kanji code. Otherwise, confusion will arise. To that purpose, a simple experiment was performed.

In the future, more research, both theoretical and practical, should be carried out in order to understand how kanji can be better learned by Western students. In doing this, the psychological features of people from non-kanji areas should be the starting point. In particular, a future direction of the present research is the nature of the connection between visual perception, semantic access, and memorization.

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