KEYBOARD TRAINING IN AN INFORMATION ORIENTED SOCIETY

Hajime Ohiwa

Keio University, Japan

E-mail: ohiwa@sfc.keio.ac.jp

Abstract: Importance of the mother language support of the computer is pointed out and input method for the Japanese language is described both from historical and practical viewpoint. It is argued that early training of keyboard is essential but it should be done after hand-writing is well established by schoolchildren.

Key words: Touch-typing; Mother Language Support; Large Character Set

1. MOTHER LANGUAGE SHOULD BE SUPPORTED ON A COMPUTER

Although the cost of a computer decreased, it cannot be widely used by common people unless the character set of their mother language is fully supported. It can easily be achieved for most European languages in which only twenty-six-letter alphabets are used.

In Asia, the situation is different. For example, the Japanese language uses not only two types of phonograms (Kana) called Hiragana and Katakana but also uses several thousands of Chinese characters called Kanji. This large character set could not be fully supported by early computers and only Katakana was implemented.

The traditional Japanese typists employ a hunt and peck method of keyboarding because of the large character set. Due to this cumbersome operation and the slow speed, the use of a typewriter has not been as

common in Japan as in the Western society where the typing operation is achieved with visual contact with the keyboard.

Word processing is the central part of the use of computer by a common people (Ohiwa, 1987), and it should be the center of computer literacy education. In 1978, the first Japanese word processor was introduced, and full support of Japanese language was realized. Until the 1990s, this special purpose computer was widely used in Japan, but now its function can be realized by software on a personal computer.

2. INPUT METHODS FOR THE JAPANESE LANGUAGE

2.1 Various input methods were proposed but the keyboard was chosen

Although the Japanese character set was supported by a computer, how to input the character set was the problem. In early Japanese word processors, in addition to common keyboards for the Kana and Kanji alphabets, a special hardware was used as a natural extension of traditional Japanese typewriter. However, the keyboard gradually had gained popularity and ultimately the special input hardware disappeared because of the additional cost and inefficiency of input operations. However, the main reason for keyboard usage is that the way to use keyboard for inputting the character set has become sophisticated as described below and now Japanese users feel comfortable with it.

2.2 Kana-Kanji conversion or consultation to a dictionary has become standard in Japan

The popular method for inputting Japanese language is Kana to Kanji conversion method in which, for inputting Kanji, its pronunciation is inputted by a Kana or an alphabet keyboard and then corresponding Kanjis are shown on a screen by consulting a dictionary. The target Kanji is then pointed out by the user. This interactivity comes from the homonymy of Kanjis. The following is an example to show the problem.

貴社の記者が汽車で帰社した

Kisha no kisha ga kisha de Kisha shita.

(The reporter of your company returned to his office by train.)

In this example, “kisha” may be the reporter, your company, train, or returned to his office. Various technical efforts were made to attack this problem and the method has been very detailed.

2.3 Two-stroke methods

Kanji can be input by using the two-stroke method. A Kana keyboard has forty-eight keys and if a Kanji is assigned by two keys, two thousand three hundred and four ($= 48 \times 48$) Kanjis may be uniquely determined by typing two keys. Many such methods were proposed and used by professional people to input a large number of Kanjis (Yamada, 1983, Ohiwa and Tatsuoka, 1990). Among them T-code by H. Yamada (Yamada, 1983) has been used by computer scientists and TUT-code by H. Ohiwa (Ohiwa and Tatsuoka, 1990) has been used among the printing industry operators.

The advantage of these two-stroke methods is that no interactive activity with computer is needed and that their input efficiency is as good as that of alphabetical typing.

It may seem difficult to memorize key sequences for inputting Kanjis, but it is not as serious as it looks. The number of Kanjis a person uses is relatively small and in fact, it is about four hundred. Therefore, input sequences may be learned within a hundred hours of training. This four hundred Kanji set is different for each person and in total two thousand Kanji sets are used by Japanese people.

3. TOUCH-TYPING IS EASY TO LEARN BUT WRONG METHODS PROLIFERATE

3.1 Touch-typing of keyboard can be done after an hour of training

For getting the ability for touch-typing alphabets, only an hour of practice is enough (Ohiwa and Tatsuoka 1990). The point of practice is as follows:

1. Never look at the keyboard.
2. Use the same fingering,
3. Always return to the home position,
4. Be conscious of the alphabet to be typed.

If these points are kept in mind of the trainee and designed sequence of keying is done for an hour, the ability for touch-typing alphabets can be established. One of such training sequence is as follows:

JKJ JLJ J;J JHJ; JUJ JIJ JOJ JPJ JYJ: JMJ J,J J.J J/J JNJ:
 KJK KLK K;K KHK: KUK KIK KOK KPK KYK: KMK K,K K.K K/K KNK:
 LJL LKL L;L LHL: LUL LIL LOL LPL LYL: LML L,L L.L L/L LNL.

The first line is the practice for the letter “J” and the second for “K” and the third for “L”. During the practice of “J”, other letters typed by the right hand is pre-trained and during the practice of “K” and the following letters, the letter “J” is refreshed. After practicing every letters in an hour or two depending on the motor-skill, the ability of touch-typing is established.

This practice is not for memorizing the keyboard layout. After a practice, the fingers memorize how to type. In other words, if asked to type a letter, he/she can type correctly. It is a motor action memorization and not a mental act.

Because it is so easy to learn, it is very easy to lose. Typing everyday for a week or two must be followed for making the learning permanent. This can easily be done nowadays because e-mail and other typing activities have become so necessary.

There are several software packages for typing training, but many of them were developed by a hunt and peck typist. Therefore, their understanding of typing is not that of touch-typing and the target of the practice is to memorize the keyboard layout. It is not helpful for acquiring a touch-typing skill. In fact, if a typist is asked to tell the name of the character of the alphabet associated with some key, he/she cannot answer.

3.2 Typing skill requires several hundreds of hours practice

Although acquiring the ability for touch-typing is very easy, it takes several hundreds of hours for acquiring the skill in which typing become an automatic action and the spelling of a word, for example, does not come out to the typist’s mind during the typing operation. Once such skill is acquired, typing becomes very comfortable activity and a voice recognition system, for example, which is eagerly desired by those who cannot do touch-typing, is not desirable, because roughly speaking, vocal action is twice as laborious as typing action.

3.3 Kanji input without consultation to a dictionary should be used mainly

The two-stroke method should be used for touch-typing Japanese from the viewpoint of efficiency of inputting the mother language. However, to get the skill it is not as easy as alphabetical typing, because two strokes are required for inputting the Japanese characters. If touch-typing is confined to Kana characters, the ability for touch-typing can be acquired after an hour of practice, because the number of combinations of characters is limited to less than hundred. Those who do not input Japanese frequently may use the Kana-Kanji conversion after acquiring the touch-typing skill for Kana.

Those who write Japanese on a computer with Kana-Kanji conversion have many troubles during the conversion process. If he/she concentrates on the contents to be typed, he/she often overlooks the wrong selection of Kanji. This often happens when there are similar meaning Kanjis with same pronunciation. If he/she concentrates on the selection, his/her concentration on the contents is disturbed. Therefore, those heavy users should acquire the touch-typing skill of two-stroke method.

Considering the number of Kanjis one person uses, the touch-typing ability may be acquired less than a hundred hours of training. Although this may seem long for practicing, it is reasonable if you consider the time required for acquiring the skill for Western languages is several hundred of hours.

4. TOUCH-TYPING FOR EVERYONE

Although touch-typing is very easy to practice most people, including Westerners, do not employ touch-typing. This is because its ease is not understood even by IT education professionals. Once its ease is well known, it would be done by every personal computer user.

If someone who does hunt and peck typing knows the ease of touch-typing and undertakes its training, he/she can acquire the ability but it is very hard for him/her to continue touch-typing. The new way of typing requires severe concentration but the hunt and peck method is still comfortable for him/her. If touch-typing is not continued, the acquired ability disappears immediately.

This fact shows the keyboard training should be done at the very beginning of using a keyboard, because once hunt and peck method is established, it is very hard to replace. This means that every IT teacher should be able to teach touch-typing.

Another issue for keyboard training is when it should be done. If it is done at the lower elementary school level, schoolchildren would not do hand-writing, because hand-writing requires harder skills than keyboarding. If letters must be input to the computer by those children whose hand writing skill is poor, it should be done through mouse or pen operations through a letter matrix on the screen.

When keyboard training should be done? The answer would be after establishing a hand-writing skill. Another important point is that teachers should use touch-typing even if he/she does not teach typing. If he/she types by hunt and peck method, children thinks what the teacher does is right, which is a serious mistake from which it is very hard to recover.

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