

When the Chinese Teach Us What Technology is Really About

China is an ideal place for the European who wants to grasp the essence of technology. To eat at a restaurant, for example, is a totally new experience. Chopsticks, compared to forks, spoons and knives, look rudimentary at first, but while in most of our restaurants one has to wait ten to twenty minutes after having ordered, in China dishes arrive within a few minutes. This particular efficiency is related to what Ledderose describes as a *module system* [1]. Most dishes are combinations of ready-made parts: pork with mushrooms and bamboo sprouts, pork with mushrooms and soy sprouts, chicken with mushrooms and bamboo sprouts, and so on. Chopsticks are but a part of a specific food production system.

The Chinese script is another striking example of the technical differences between Europe and China. On the one hand we have, say, English and its 26-letters alphabet. On the other hand we see Chinese with several thousand characters. A child needs a couple of weeks to memorize the graphs of the first system, and many years for the latter (educated people in China know 3,000 to 4,000 characters, scholars up to 10,000). But the Chinese script deserves a closer look. First, similar to food production, it is based on a module system: Its fifty thousand characters are composed by choosing and combining a few modules taken from a relatively small repertoire of some two hundred parts. This aspect makes the task of memorizing them much easier than one would imagine at first. Second, where the letters of our alphabets are mostly symbols of sound, Chinese characters are symbols of meaning. Therefore, where Europeans have to learn a new language every time they want to read something from five hundred kilometers away or five hundred years ago, the Chinese can read the characters of a two thousand years old text, or communicate by written means with friends from other parts of China although they speak different dialects.

Today, the People's Republic of China is confronted with the personal computer revolution and its ASCII keyboard. To overcome this problem, the Chinese use dedicated software to write in Chinese. Using the official Roman-alphabet transcription, one types the character's pronunciation (Fig. 1) and recognizes it in a selection of homophones (Fig. 2) (Many Chinese characters share the same pronunciation and are differentiated by written means).

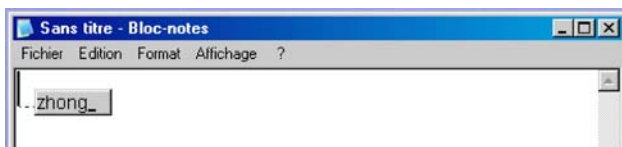


Fig. 1



Fig. 2

The system is surprisingly fast. Characters can be type faster than written by hand, and a Chinese person entering Chinese on a computer is as fast as an English-speaking person typing in English. However, one often hears people complaining that they have forgotten how to write one or another Chinese character, commenting "I use the computer all the time, I don't remember how to write by hand anymore". Why? Because the input method does not require the knowledge of the strokes that make up a character.

The encounter of computer technology and the Chinese script constitutes a good case study to help us grasp how technology impacts society. To build on Akrich and Latour's famous model of the door-closer [2], if the message of a wall is: "Use the door, if you want to go through", the message of the keyboard interface is "Use the Roman-alphabet, if you want to use this computer". Unless one can provide the bulldozer and cement to make a new door and wall, or the research laboratory and billions of dollars required to design a different computer interface, one is bonded by the contents of the technical tool. The elements above illustrate a systematic relationship between a user and a tool which can be formulated in a simple statement: *If a technical object is used, and if its content cannot be modified by its user, its content will be –during its use– imposed on the user.* Although it is as dull as stating that the sum of the internal angles of a triangle is equal to 180°, this formulation is helpful when looking at today's technical devices because the consequences of new technologies are often rendered invisible. If one is given chopsticks to eat an ice cream, who should be blamed? The waiter, the ice cream, or the chopsticks? For many Chinese today, it is the ice cream. After over three thousand years of use, I hear today's Chinese computer users, including engineers, confronted to alphabet-encoded difficulties, complain on a daily basis that "the Chinese script is not convenient."

Fortunately, for many reasons, the Chinese characters will not disappear soon. Attempts to abolish them have been made in the past and failed miserably. Besides, China is currently investing billions in science and technology innovation. Its computer industry is growing at an amazing speed and the first computers with homegrown Chinese processors came out this year. Graphic tablets and competing interface systems, better suited to the Chinese script, are under constant development. How will computer technology look on the day it was re-invented by the Chinese to fit their own needs?

[1] This fascinating discussion, as well as the examples on food and script is to be found in Ledderose, Lothar. *Ten Thousand Things: Module and Mass Production in Chinese Art*. New Jersey: Princeton University Press, 2000, pp. 1-23.

[2] Akrich, Madeleine. "Comment décrire les objets techniques?" *Techniques et culture* 9 (1987): 49-63.; Latour, Bruno. "Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer." *Social Problems* 35-3 (1988): 298-310.