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HIGHER EDUCATION

by

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TABLE 1

HARDWARE CONFIGURATION ON THE CSC'S SYSTEM

IBM 3031-008

Main Memory Size	: 8 Mbytes		
Disk Drives	: IBM 3340	(70 mbytes)	6 units
	IBM 3344	(560 mbytes)	5 units
Tape Drives	: IBM 3420		4 units
Card Reader	: IBM 3505	(1200 cpm)	1 unit
Card Punch	: IBM 3525	(250 cpm)	1 unit
Line Printer	: IBM 3203-005	(1200 cpm)	1 unit
Terminals	: IBM 3277		8 units
	IBM 3279-2		1 unit
	IBM 3279		1 unit
	MEMOREX 2078-2		15 units
	MEMOREX 2718		15 units
	TELEX 276		8 units
	TELEX 178		29 units
	TELEX 080		5 units

Source: Computer Service Center, Annual Report 2529,
(Bangkok: Chulalongkorn Univeristy, 1987).

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Technology and society have had intimate love-hate relations. On one hand, technology extends man's natural capabilities. As Freud observed, technology is really a set of artificial organs, extensions of our natural ones (Freud, 1963). Technology thus helps us do a wide variety of tasks, many of which are impossible without particular technology. In this respect, technology is welcomed by society.

On the other hand, using technology often produces negatives side effects. The development and use of DDT to control malarial mosquitoes have seriously jeopardized natural food chains in many developing countries. Nuclear technology is another example indicating that useful technology can also be ultimately dangerous. In this respect, technology, particularly a new one, has usually been distrusted, rejected or even hated. There have been instances in history that technology itself, and not individuals who carelessly or wrongly utilize technology, is threatened. In the nineteenth century, for example, Belgian weavers took to "accidentally" dropping their heavy wooden clogs (or sabots) into the delicate mechanism of the loom, giving rise to the expression "sabotage" (Rybczynski, 1983:10).

Education, as a major form of innovations created within society, also has special relationship with technology. The relationship is generally favourable, however. Education is regarded as an important source of technological innovation and progress. Technology is also perceived as an important basis and means to further educational progress.

In this paper, I will briefly discuss how computer technology can be utilized in a general social context of higher education. I will also briefly illustrated the current uses and some problems concerning the utilization of computer technology in Thailand's higher education.

THE SOCIAL CONTEXT OF COMPUTER UTILIZATION IN EDUCATION

Technology is a major form of social products. It is created and used socially. Among various technological innovations currently developed and utilized, computer technology stands out as one of the most important ones. It has been utilized with significant effects in many areas of our activities. As nuclear technology, computer technology can be said to be one of the most important technological innovations in the twentieth century.

In education, two broad classes of participants, who may

concern more or less with the use of computer technology and its consequences, can be distinguished. They are the "insiders" and the "outsiders". The insiders are those who work directly within given educational settings such as the universities or research institutes. The insiders can further be classified into 3 groups; the administration, the faculty and the students. These are people who operate mainly within the educational settings. The outsiders are those who primarily work outside the educational settings but have more or less interests tied with activities within the educational settings. These are people or organizations (public or private) that provide resources into the educational settings and consume outputs produced by the insiders.

Within the educational settings, computer technology can be useful in two major ways. Its utilization and consequences, however, concern both the insiders and outsiders.

1. Administrative services.

The potential of technology in aiding educational administration is particularly stressed recently. Computer technology can serve various administrative purposes. As higher education has become an integral part of national development, the need for more effective planning and decision making has been repeatedly mentioned (see Srisa-an, 1982: 6-9; Fredericks and Hock, 1981). An attractive idea recently proposed is the so-called Management Information System (MIS) which can be useful for both day-to-day operations of all the organization's facilities and for planning and decision making. To manage the educational organization's resources and operations more effectively in contemporary complex situation, it is argued that the administration needs the MIS (see Cook, et al., 1981: 71-72, for example). The concept of MIS also implies that the system is computerized.

2. Academic services.

The utilization of computer technology for more direct academic purposes usually concerns its potentials in executing complex documentation and analyses. To aid academic activities, computer technology can be useful for two general purposes. First, it can be utilized as instructional aid for effective delivery of particular lessons. Computer technology has become a solid part of what we call "educational technology". Second, computer

technology can be and has successfully been used to aid research tasks. It is highly effective as a tool to help generate, disseminate and further utilize new knowledges.

THE CURRENT USES OF COMPUTER TECHNOLOGY IN THAILAND'S HIGHER EDUCATION

The use of computer technology in Thailand, particularly in universities, has been done within the general context discussed above. In this paper, computer utilization in two major state universities, Chulalongkorn University and Thammasat University, will be briefly illustrated.

Among major academic institutes in Thailand, Chulalongkorn University (CU) is relatively quick to adopt and utilize computer technology. During 1972-1974 the university had considered about utilizing computer technology. On September 18, 1975 a Computer Service Center Project was set up to run the computer operation following from Computer Science Section, the Graduate School, which was set up in 1968 and using the computer system NEAC 2000/200. The Computer Service Center (CSC) at Chulalongkorn University was officially set up in December 1978, however.

The CSC currently uses the IBM 3031-008 (see Table 1). It gives both administrative and academic services primarily to the insider customers. The priority of its operation is to support the university in teaching, researches and administration. However, the CSC also aids other government organizations providing the machine is free to do so. Private organizations may also enter into its operation but, as a policy, the machine utilization time should not exceed 10 per cent of the total operation. During October 1985 - September 1986 the CSC aided 55 courses offered at Chulalongkorn University, 416 theses and 574 research and administration projects (see Table 3).

Thammasat University (TU) is relatively slow to establish its own computer center. As late as October 1980, the Ministry of University Affairs granted permission for the university to establish a computer center to be used in academic, research and administration. During this time, the Thai government was also planning to form a data-processing and documentation center for rural development. The Thammasat University Executive Board then proposed to join these two projects. On September 22, 1981 the National Economic and Social Information Processing

Institute for Education and Development (IPIED) at Thammasat University.

The IPIED currently uses the NEC 350 (see Table 2). Although it gives both administrative and academic services to insider customers, priority is given to documenting, processing and utilizing collected data to be used for rural development. Currently, its operation primarily concerns the Ministry of Interior, Ministry of Agriculture and Cooperative, Ministry of Education, and the National Rural Development Coordination Center.

A NOTE ON CURRENT PROBLEMS

Although there is a general consensus that computer technology is highly useful and effective for both academic and administrative purposes, there are factors that can practically limit the extent of computer utilization.

However, useful and effective it may be, one must realize that computer technology is not developed and used in vacuum. Its existence is within the practical world where research and development cost is enormous and market competition is intense. This leads to at least 2 consequences. First, advanced knowledges about computer technology are monopolized by a handful of technological and financial elites, primarily in the most advanced countries. Second, both the knowledges and the derived products have been commodified. As a commodity, computer technology is highly expensive.

In developing countries like Thailand, these problems are more complicated by the fact that computer technology and its peripheral have to be imported and usually are controlled more or less by government apparatus. Under these circumstances, possibilities to set up new computer centers or to enhance capabilities of the old ones are practically limited. Its monopolization, expensiveness and official control have slowed down the expansion rate of computer utilization in many developing countries. In some cases, as at the two universities mentioned above, the establishment or enhancement of computer systems usually has to rely on foreign aid. This also has other important implications which are beyond the scope of this paper.

TABLE 2

HARDWARE CONFIGURATION OF THE IPIED'S SYSTEM

NEC 350

Main Memory Size	:	6 Mbytes
Disk Drives	:	7 units, 200 Mbytes each
Tape Drives	:	3 units, 2 drives each
Card Reader	:	1 unit
Line Printer	:	2 units
Terminals	:	24 stations, intelligent, each with 384-Kbyte memory unit and 2 floppy disk drive.

Source: IPIED, Thammasat University, Bangkok, Thailand.

TABLE 3

CSC'S SYSTEM UTILIZATION

OCT 1985 - SEP 1986

	Total Utilization	Cu's Projects
Research and Administrative Services	574	490
Instructional Aid	4603	4323
Theses	416	395

Note : Number in each cell represents the number of
 projects served, except for "instructional
 aid" which represents number of persons
 served.

Source: Computer Service Center, Annual Report 2529,
 (Bangkok: Chulalongkorn University, 1987).

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