

5. FINANCES AND BUDGETS

SZU did not report financial information in the form of periodic budgets or statements that followed a consistent format. Rather, data appeared in narrative reports, many of which were delivered at formal occasions such as the annual meeting of teachers' representatives or at Party convocations. The university yearbooks discussed financial arrangements in the reports of various *lingdao*, including the heads of the Finance, General Affairs and Research offices. Information gleaned from these various sources is not sufficient to compose complete budgets for each year, but the data do allow for an understanding of how university finances generally worked. The first part of this chapter examines university budgeting. The remainder examines several areas of expenditure for teaching support units such as the library, computer center and audio/visual center.

Budgets

Shenzhen University operated three concurrent interrelated budgets. Summary data for available years are presented in Table 5.1. Over the university's history, all the budgets have grown in size (see Table 5.2). By 1994, the city provided about 70% of SZU's budget resources. The off-budgeted supplementary funds (mostly from tuition) accounted for 19%, and the School Fund (income from enterprises and out-of-plan courses) provided the remaining 11%. To put these figures in perspective, educational economist Min Weifan predicts that by the year 2000, Chinese universities will be getting 80% of their funds from the state, 7% from tuition and 13% from school-affiliated business. Thus, SZU's ratio of 70:19:11 put more emphasis on tuition and relied less on the public purse.¹ The distinctions between the budgets related to their different sources of revenue—city and state generated versus school generated. Outside auditing occurred only when public revenue sources (including tuition from the public) were involved. In effect, this gave the university a high degree of autonomy over financial management. Only when public funds were involved was the school made accountable to an outside audit.

Table 5.1: University budgets (selected years, in millions ¥)²

budget type	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996
Education Fund	10.4	21.3	22.2	21.2	25.6	27.2	34.8	46.5		
<i>% of year total</i>			86%	84%	81%		70%	70%		
Supplemental Fund			1.7	2.3	2.5	9.2	10.7	12.9	7.2	13.9
<i>% of year total</i>			7%	9%	8%		22%	19%		
School Fund			2.0	1.9	3.5		4.2	7.4	6.2	7.4
<i>% of year total</i>			8%	8%	11%		8%	11%		

Table 5.2: University budgets percentage increases over previous year³

year	1989	1990	1991	1992	1993	1994
Education Fund	4.2	-4.5	20.8	6.3	27.9	33.6
Supplemental Fund		35.3	8.7	2.68	16.3	20.6
School Fund		5.0	84.2			76.2

Education fund budget

The most widely discussed and documented budget was the university's public budget, referred to as the Education Fund (*jiaoyu jinfei*), with its funds provided by the Shenzhen government. This document was prepared by the university and submitted to the municipality which refined it and approved it. The process often required negotiation. This budget, which was the framework used by the local government for providing funds to the university, was periodically audited by the city's Finance Department, usually on an annual basis. This budget provided funds for salaries, equipment acquisition and school operation. Public funding of the university, as suggested in Table 5.2, grew steadily until 1990, when a decline in funding at SZU reflected the national policy of higher educational retrenchment. In the following years, however, funding picked up so that by 1994 funding was four and one-half times what it had been nine years before. Note that the Education Fund budget was not synonymous with total government investment because it excluded capital projects and research funds tied to specific projects.

Supplemental budget

A second budget concerned off-budget funds and is referred to here as the Supplemental Budget. Revenue in this budget came from donations, from student tuition, including from those who paid fees (*daipei* and *zifei* and out-of-plan students), from rents and from sources other than the municipal government.⁴ Expenditures in this budget went to reimburse departments for teaching *daipei* students (until the program was canceled in the early 1990s), for construction and for miscellaneous items. Since the public budget included only *city* public funds, one reason to have the Supplemental Budget was to provide a budgetary vehicle for including income that came from sources other than the municipal government. Another reason was to make up for the short-fall in municipal funding, as illustrated in the 1991 budget, Table 5.7, on page 130, below. Formal budgeting started at SZU around 1985, and in almost every year since then the university ran a deficit, overspending in various categories in the public budget. This deficit was made up for during the fiscal year and was not carried forward to future years. Each year's deficit outpaced the previous year's. By 1994 a ¥5.6 million (US \$650,000) deficit, or about 12% of the Education Fund, had to be made up by the Supplemental Budget. The supplemental budgets were reported to the municipality, and the accounts were occasionally audited by the city Finance Department.

The major revenue source in the Supplemental Budget was students' tuition, followed by rents. A smaller (but interesting) source of revenue was tuition paid back by SZU alumni who went abroad. In 1991, SZU received ¥153,500 in this category. Students who quit SZU to pursue overseas education were required to pay the state for part of the cost of their education. This reimbursement was also required of graduates who had not worked in China the mandatory five years after graduation as well as of students who left before completing their study. Some alumni who have studied abroad report that they reimbursed the state for their education, calculated at ¥2,500 per year (US \$600-1,200 depending on year) for each year they had not worked in China after graduation. Actually, reimbursement can sometimes be avoided, as long as the study-abroad file included a form chopped by the Higher Education Bureau of Guangdong. SZU students had to submit this form to the university which, as the student's *danwei*, completed other forms for students who studied abroad. Alumni had to obtain chopped forms from their current *danwei* if they wished to avoid paying the fee. In either case, the payment form was more important than the payment per se, and some students/alumni gave side-payments to officials and staff or procured bogus employment history documents and thus avoided making full payment. Reimbursements were to be returned to all students who came back to China after their foreign study and worked in the motherland for five years.

School fund budget

The third budget was called the School Fund (*xuexiao jijin*), and this remained the most mysterious aspect of the university's bookkeeping. Called the President's Fund prior to 1991, the School Fund complemented the other budgets to provide funds for *inter alia* course development, teacher welfare, international conference attendance, and to subsidize campus operations beyond what was permitted by the city-funded budget. For example, in 1988 ¥200,000 (US \$54,000) from the President's Fund were used to supplement ¥1 million (US \$270,000) to purchase computer equipment.⁵ The main sources of funds in this budget were, first, profits remitted by SZU-run enterprises and, second, the university's cut of departments' earnings obtained from their selling research, providing services, or teaching out-of-plan courses. In 1988 SZU's Adult Education Department/Open College reported that it had paid ¥200,000 (US \$54,000) into the School Fund over five years.⁶ It had also borrowed and repaid a ¥380,000 (US \$102,000) loan from the School Fund to build a new 2-story canteen to replace a crumbling 30-year old structure.⁷ No academic department ever publicly reported its

contribution to the School Fund, nor did the leaders of departments usually reveal these figures to their own staff. Department contributions were very much a private matter between president and department head.

Despite suggestions to the contrary, the School Fund was not managed by the Finance Office. It came under the direct control of the president, or his delegate.⁹ From 1986 to about 1993 this fund was managed by vice-president Ying Qirui. After this period it was directly controlled by Cai Delin, who used some of the funds to increase staff salaries, providing them in 1994 with a ¥300 (US \$35) monthly subsidy, which had increased to ¥700 (US \$84) by 1995, when Cai was retired. Neither fund manager chose to disclose much information about the fund. Given the School Fund's lack of transparency and the absence of public rules on fund management, the money was handled at the discretion of its manager. Public scrutiny did not exist, and there was no outside check that prevented the manager from using funds for personal use, including loans or for stock and securities speculation.

**Table 5.3: Planned distribution of income (percentage)
from side business courses, 1987⁸**

	from	night- school courses	cadre training	open <i>dazhuan</i> class
into president's fund		15	30	15
adult education department		18	70	3
academic department		67		82

Department contribution

From almost the founding of the university, SZU's administration encouraged academic departments to create their own sources of income. In order to reduce the public burden of educational funding, SZU intended to "change the one channel income source into multi-channel income sources."¹⁰ Department heads were authorized to handle budgeting, and these budgets were not reviewed by the university administration. In a 1986 report to the Shenzhen government on the school's finances, SZU admitted in a somewhat embarrassed manner that it had been unable to run many side-businesses "due to limited conditions, inadequate research staff and housing problems." With envy, the school cited the side-income of universities in Guangzhou: Jinan ¥800,000 (US \$215,000), Zhongshan, ¥6.24 million (US \$1.7 million);

Huanan Industrial, ¥6.4 million (US \$1.7 million); Huanan Teachers, ¥5.8 million (US \$1.6 million). In terms of income production, SZU very much wanted to play in the big leagues.

Regulations in 1987 formally laid down a policy of "...encouraging the side-businesses of academic departments to give full play to the potential of each academic unit and actively carrying out profit-making activities. Those who work more, earn more."¹¹ Departments would be charged for school equipment used (e.g., photo-copies, typewriters) and would remit to the university 65% of gross income when services were provided to enterprises and off-campus work-units. In contrast, departments were allowed to retain much of the income they generated by running night-school courses for Adult Education (see Table 5.3, previous page). The open *dazhuan* (specialized certificate) classes were more profitable than the night-school courses for part-time *zhuanke* students. The students of the former were not required to take unified entrance examinations, and lower-level teachers (sometimes part-time, with lower wages) could often be hired to teach them. Another type of offering—short-term and correspondence courses—was virtually unregulated: departments were required only to submit their intentions to the school's off-campus course department.

By 1988 university authorities were beginning to recognize the main disadvantage of the uncontrolled running of side-businesses: they detracted from the research nature of the academy. As a way to discourage "uncreative and shapeless" side-courses and training classes, departments were told that more income from these endeavors should be paid into the School Fund.¹² In contrast, to encourage research (and research-generated side-income), profit from research did not have to be remitted to the School Fund, beginning with spring 1989. The units themselves were expected to plow the profits back into building better research conditions and welfare. The university was willing to provide the funds needed to build a research capability, but research units were warned that the funds did not come free, that they had to be paid back, at least partially, by remittances to the School Fund.¹³

By the late 1980s SZU faced a difficult dilemma concerning side-business income. Given limited funding from Shenzhen, side-business income was essential for maintaining school operations. The leaders, however, did not like what accompanied income-generation—a money-making mentality they believed not worthy of a university and course offerings of questionable academic value. The leaders who arrived after Tiananmen were especially annoyed with the situation they inherited. Wu Zewei warned teachers to "properly deal with the relationship between teaching and side-businesses

(*chuang shou*, literally creating income).”¹⁴ Addressing the 1990 staff and teachers representatives conference, the Party secretary said:

We should not deny all side-businesses because they are consistent with state policy. With additional income, we can improve school conditions and staff life. A precondition is that in-plan teaching tasks should be finished first. Some departments go too far and do not even ask for school authorities’ approval. Or they sub-contract side-business classes to teachers. This makes some teachers very enthusiastic about running classes. They neglect the in-plan teaching, paying excessive attention to income and money, and passing over work and political study. Some teachers, to enroll more students, even risk telling lies and making false ads regardless of the effect on the school’s reputation. No future practices like this will be permitted. Out-of-plan courses must be reported to the school authorities; no more random certificates, no more cooperation with outside work-units without school approval or using SZU’s name.

To make his point, Wu used an idiom suggesting deceit: *gua yangtou, mai gourou*, meaning to hang up a goat’s head, but actually sell dog’s meat. To avoid this practice from occurring, the new leaders required that all notices and advertisements for out-of-plan courses be reviewed by the President’s Office and Off-campus Course Department.¹⁵ The Finance Office recommended in late 1989 that the university require its departments to submit quarterly financial reports on off-budget income, but this plan was never enacted into regulation.

Regulations in 1990 on side-business income specified how much income could be retained by departments running “outside and above plan” courses and how much money had to be surrendered to the university. In general, the side-businesses, often referred to as *banban banxue* (offering class school), involved training courses and classes for mature students. The division of income retained and surrendered varied by course type, with the calculations shown in Table 5.4, next page. Ironically, these regulations in effect encouraged departments to run side-businesses on their own, rather than through the open college or *zhuanke* college.

Table 5.4: Income retained by department, by course type (1990) ¹⁶

course type	percentage
<i>daipei</i>	17.5
<i>zhuanke</i> college	40.6
open college	42
other side-businesses	49

Regulations issued in mid-1991 advocated better management of adult education.¹⁷ Although most classes for adults were contracted by the SZU's Adult Education Department to various academic departments, which prepared the curriculum and assigned the teachers, school authorities complained there were still individuals or units that offered short-term courses without reporting to the university. Departments were told that they could teach only courses that related to their academic field. For example, the Math or Chinese departments would not be allowed to teach English courses (which in fact they were still doing in 1994-1995). The new regulations attempted to establish a degree of accountability, requiring each department to assign one leader to take charge of adult education. The rules stated that unreported courses would be canceled and that persons responsible would be seriously criticized and punished, including:

In the case of departments' offering courses without reporting, leaders will forfeit half their reserved salary and course income must be paid to SZU. For courses offered by individuals, one year's salary will be confiscated, the teacher will be denied promotion, and all income will be paid to SZU. To guarantee teaching quality, if courses damage SZU's reputation, then the person in charge will be held responsible.

The leaders' concern about side-courses was shared by provincial officials as indicated by an inspection group that visited in 1991 to assess Party construction. The visitors noted that, while the university should "reduce the teacher's [economic] burden...it should ensure that the relationship between teaching, research and side-business income should be properly handled."¹⁸ Such a message did not come from Shenzhen municipality, or at least such advice was not publicly reported. The municipality was perceived by the campus community as remaining supportive of revenue avenues built by SZU, for self-generated income reduced the city's burden for funding higher education. Many department heads, nevertheless, alluded to the side-course dilemma in their annual reports. Campus Services said it would stress com-

prehensive management of out-of-plan work. The Management Department agreed that part of its side-income should support in-plan work while it attempted to “improve the status and importance of academic work so that staff are satisfied in academic work.”¹⁹ The head of Civil Engineering reported that she and her “young teachers work on structural design until late at night to increase the department’s welfare fund.” She added, “I will never offer random courses that are irrelevant to this major.”²⁰ The Physics Department, one of the university’s poorest, pleaded with the school leaders to

...give the department more favors. Our side-business income came from night school so all our teachers can get a tidy bit of extra money. But a certificate problem arose. When the crisis abated, this source of income stopped. We used to use the labs to do measurement work, but these are small projects with little payment. Next semester, we will run out of staples [*duan liang*, or break staple-food].²¹

Mechanical Engineering stated its policy had been “no random *banxue*.” All the courses it offered were part of certificate programs using national entrance examinations, the income from which “rewards teachers for their heavy workloads.”²² The Academic Affairs Office commented that “department heads spend too much energy on side-business income, rather than solving the existing problems in teaching.”²³ The Finance Office, in contrast, worried that departmental remitted income from out-of-plan courses was being reduced. “If the tendency toward a budget deficit continues...we will not have sufficient off-budget funds to make up for the inadequacy of city support.”²⁴ Foreign Language, the academic department most engrossed in teaching side courses, reported it would²⁵

...properly handle the relationship between in-plan and out-of-plan work. In this sense, so long as we can train useful foreign language personnel [*rencai*, talented people] for socialism and the SEZ, it makes little difference whether it is in-plan or out-of-plan. But our major work is in-plan. As intellectuals are still paid quite low, and the state cannot provide more funds to improve working and living conditions, it is inevitable that we will improve our material conditions by providing paid services to society. However, we should always bear in mind that we are a regular university and invested in by the Party and people. So when practicing out-of-plan school running, we should always put social efficiency first, and economic efficiency second, rather than looking only at the money, thus ruining our reputation.

Ironically, it was the Foreign Language Department that became the focus of a two-year university investigation and audit on improprieties in the depart-

ment's handling of income from side-courses. Its leaders were removed from their positions in 1994 and later criticized for embezzlement, forgery, and withholding remittances due the university.²⁶

The next regulations on side-business income appeared in July 1992.²⁷ The rules were quite detailed:

Thirty-five percent of short-term training classes income [viz. tuition] must be handed back to the school, and 12% of the income must be reserved by the department into the course development fund. For longer term training, 30% goes to the school, 12% into fund. For *benke* courses with *dazhuan* graduates or graduate classes with *benke* graduates, 20% to school, 12% into fund. For training classes offered to those going abroad, 30% to school, 12% into fund. For adult education college side-classes, add 5% to the above figures. For night-school *zhuanke*, 65% is retained by academic departments, 20% for SZU, 12% to fund, 5% to SZU for water and power, 10% to adult education college. For *daipei* students, deduct expenditure per student; of the remainder 20% to SZU for document transfer, 80% to school.

These 1992 regulations re-legitimated the on-going practice of running side-businesses, but they also had a secondary purpose. In differentiating between types of courses, they tried to encourage classes that catered to certain types of students by making these courses more profitable than other types. Departments were thus spurred on to hold advanced classes for *benke* graduates, where they retained 68% of the income. And they were discouraged from running adult education and short-term classes, in which almost half (47%) of the income had to be handed back to the university. The course ordering by percentage of income retained appears in Table 5.5. These percentages reflected gross profit, before a department deducted costs of course materials and expenditures for salaries. They exclude the standard 12% that was earmarked for the department's course development fund, used at the department head's discretion. Special classes for *daipei* students were fully discouraged because these commissioned students were included in the state plan; the department was to exercise no control over it. In other words, *daipei* was the department's duty and should not be profit-generating.

The ordering inversely reflected the difficulty of teaching. The courses allowing the lowest profit were the easiest to teach. In contrast, courses catering to advanced students or lasting for a longer duration reaped the greatest profit. Of course, these courses also required more qualified teachers, who demanded higher salaries. As a result, few departments ever offered these types of courses. Almost all side-business instruction involved adult education or short-term training, despite regulatory profit incentive to the

Table 5.5: Gross allowable profit, side-business courses (1992) ²⁸

course type	percentage retained
<i>benke/zhuanke</i> grads	68
longer-term training	58
training for those going overseas	58
adult education	53
short-term training	53
<i>daipei</i>	0

contrary. Indeed, these regulations had virtually no effect on department decision-making. The difference between allowable gross profits—68% - 53%—was deemed irrelevant. Counterweight came from not only the increased cost of teaching more advanced students but also the greater difficulty in teaching these courses. Higher level students demanded more than canned, packaged courses. They might want personalized instruction and could be critical of teaching material and methods that did not meet their standards. Graduate students, especially, were troublesome. They did not like their abilities underestimated. One associate professor who had taught masters students at another institution said he would never do so at SZU. He explained:

These students require too much attention. They have too many questions. Who wants the headache? Here [at SZU] we are concerned with profit. There is no profit in teaching graduate students.²⁹

The July 1992 regulations were incorporated into the school's work-plan for the academic year beginning that October. They were addressed in the second of Cai Delin's 10 Measures on Comprehensive Reform, in which he advocated de-emphasizing the money-making practices of various departments and increasing teacher/staff payments from school-run enterprises. Cai admitted that each work-unit was making side-money to help its staff maintain a good life in the SEZ. He inaugurated a ¥300 (US \$54) monthly bonus ("on-campus subsidy") for staff and provided them with a new ¥100 book allowance, to go with existing food subsidies. Hoping that these incentives could lessen the need for side-income, Cai said he wanted to repress the practice, but not specifically prohibit it. The subsidy was intended to discourage out-of-plan classes, especially those with poor teaching quality. Ac-

According to Cai, "We do not want the SZU brand name to be crushed." To ensure compliance, the university issued regulations at the end of 1992 that modified the 1991 rules.³⁰ In cases where side-business income was unreported or hidden, all the income from the classes would be confiscated and turned over to the School Fund. Furthermore, the department head would lose his/her on-campus subsidy for six months, and any financial staff involved in the deceit would forfeit their on-campus subsidy for three months. These regulations were apparently not always enforced, as demonstrated in the case of the Foreign Language Department whose leaders were found to have hidden ¥299,000 (US \$27,000).³¹ The leaders were not assessed the proscribed penalties; they were simply required "to write in-depth criticisms."³²

By the mid-1990s income from departmental side-teaching had become a smaller line-item contribution to the School Fund than remittances from enterprises. In 1991 the former was twice the latter; in 1994 the reverse was true. Side-businesses were still important, however. "Without side-businesses the department has no income and even our normal teaching cannot be done," noted the Management Department, which advocated raising course fees to attract teachers with more pay and discourage them from doing outside work. "If students cannot afford the raised fees, then cancel the course."³³ Also, to make up for the revenue shortfall caused by fewer side-courses, SZU initiated programs involving foreign universities.³⁴

Enterprise remittances

Data on remittances by SZU-run enterprises were somewhat more transparent than figures regarding departmental side-business income. Table 5.6 shows enterprise profits returned to SZU. Much of this money did not go into the School Fund, however. In 1991, for example, the budget reported only ¥900,000 (US \$170,000) for this line item, while the entire remittance for that year was reported at ¥4.15 million (US \$780,000). Enterprises were given quotas. They remitted 10% of their after tax income (after also deducting management fees) to the School Fund. Sixty percent of their after tax profit could be retained and 30% should go for welfare, awards or risk reservation, in equal portions. If the enterprise exceeded its profit target, it then paid only 5% of the amount in excess of the quota to the School Fund.³⁵ In 1992 the single largest contributor was the Experimental Foreign Trade Company, which gave the university ¥1.2 million (US \$218,000). In the same year, the Culture and Scientific Technology Company remitted ¥900,000 (US \$163,000), triple its quota. The Architectural Design Insti-

tute, affiliated with the Architecture Department, contributed ¥500,000 (US \$91,000), ¥100,000 (US \$18,000) above quota. These three businesses accounted for over half of the funds SZU received that year from school-run enterprises.

Table 5.6: Enterprise profits remitted to SZU³⁶

Year	US \$ (millions)
1989	.02
1990	.40
1991	.76
1992	.88
1993	1.19
1995	1.20
1996	.42

In 1987 the campus hotel and hostels were permitted to retain an 8% management fee before remitting their profits to the university Finance Department.³⁷ By 1993 a management fee went in the other direction. All enterprises had to pay SZU a fee computed according to the following rules: (1) if the enterprise was established in the name of SZU, it was exempt from fees for two years. In the third year, it would pay a percentage of its turnover to the School Fund (.5% for trading companies; 1% for production companies, 2% for technical services); (2) if the enterprise used any SZU fixed staff quota, it paid ¥6,000 (US \$1,050) per annum for each staff quota; (3) enterprises that used SZU land, premises or equipment, paid annual rents of ¥2-5 (US 35-87) per square meter for land and ¥ 8-50 (US \$1.40-8.70) for roofed space; and (4) if the enterprise was part of the education system, it received a 50% deduction.

To put SZU's enterprise remittances in perspective, take the cases of two much larger universities. Qinghua University runs 43 technology-related companies and 14 factories and workshops, which in 1992 took in ¥30.37 million (US \$5.5 million) in profits—six times what SZU earned that year.³⁸ Southeastern University, which is about three times the size of SZU, has seen a steady increase in profits from the enterprises it runs—¥6.5 million (US \$1.2 million) in 1991, up to ¥14 million (US \$2.5 million) in 1992 and ¥18 million (US \$3.1 million) in 1993.³⁹

Table 5.7: 1991 budgets (in millions ¥)⁴⁰

budget category	line item	amount
allocated Education Fund		21.490
additional salary adjustment		1.595
total funds from Shenzhen		23.085
<u>expenditures</u>		
individual	(salaries, subsidies, etc.)	6.600
public	public affairs	5.070
	equipment	6.310
	maintenance	1.800
	business	4.170
	others	1.620
	<u>public total</u>	<u>18.970</u>
<u>expenditures total</u>		<u>25.574</u>
Education Fund deficit for 1991		(2.489)
Supplemental Fund		
<u>income</u>		
	tuition from in-plan	1.220
	tuition from out-of-plan	.573
	payments, students going abroad	.154
	rent	.444
	misc.	.156
	<u>income total</u>	<u>2.356</u>
<u>expenditures</u>		
	<i>daipei</i> fee distribution	.513
	special fund	.050
	construction	.168
	miscellaneous	.252
	<u>expenditures total</u>	<u>.983</u>
fund balance		1.373
School Fund		
<u>income</u>		
	from <i>daipei</i> fee distribution	.838
	from enterprises	.900
	from departments	1.755
	<u>income total</u>	<u>3.494</u>
<u>expenditures</u>		
	educational development	.490
	reception	.053
	welfare	.228
	awards	.377
	canteen subsidy	.241
	<u>expenditure total</u>	<u>1.389</u>
fund balance		2,105
School Fund and Supplemental Fund surplus for 1991		3.478
bottom line surplus for 1991		.989

Personnel/non-personnel expenditures

The budget for 1991 is presented in Table 5.7. Looking at the Education Fund budget without regard for the other two budgets often gives an incomplete (and sometimes distorted) picture of university budgeting. The case of salary serves to illustrate. The Education Fund budget was demarcated along the lines of income and expenditures, and the latter category was divided into “individual expenditures” and “public expenditures.” Individual expenditures were personnel costs involving individual teachers and students, for salary and scholarship/stipend, respectively. The budget breakdown along these items for four years is presented in Table 5.9, next page. As expected, these figures show that personnel expenditures accounted for a small (16%) proportion of total operating costs during the early years of the university, as most funds went for equipment purchase. As the school took in more students and staff, personnel costs leveled off at about 60%. These amounts were not exclusively for teacher and staff salaries. In 1991, for example, this line item provided about 45% of the students with aid in the form of performance-based scholarships (*jiang xue jin*), and all students received a ¥30 (US \$5.60)/month basic scholarship.⁴¹ Over ¥3.4 million (US \$590,000), or 17% of the 1993 budgeted personnel expenditure, went for students. Thus, in order to accurately reflect teacher compensation, the amount on the personnel budget line of the Education Fund budget must be lowered by eliminating the payments students receive. Even with this adjustment, the figure did not accurately reflect staff remuneration. University employees received various subsidies from the School Fund. From September 1992 through November 1993, for example, funds in at least three categories in this budget went to teachers. Totals (in millions) were: ¥3.7 (US \$.6) for non-salary income, referred to as on-campus subsidy), ¥1.2 (US \$.2) for book allowance, and ¥.3 (US \$.05) for short-term staffing. The 1991 School Fund budget included line items for awards and welfare; the 1994 budget included ¥3.1 million (US \$360,000) for on-campus subsidy, ¥345,000 (US \$40,000) for welfare and ¥801,000 (US \$93,000) for awards.

Each year the Education Fund budget contained a line item for equipment acquisition, as illustrated for selected years in Table 5.8, next page. Somewhere between one-third and one-fifth of the Education Fund budget went for equipment, and this was supplemented by amounts from the other budgets. A special effort to upgrade equipment was made in 1995 as the university faced the SEdC accreditation. The municipal government earmarked ¥9 (US \$1.1) million in additional funds for teaching equipment, laboratory acquisitions and library books.

Table 5.8: Equipment expenditures (selected years, millions ¥) ⁴²

year	1985	1991	1993	1994	1996
equipment	5.6	6.3	3.1	5.1	13.6
% of non-personnel	64	33	22	23	-

Table 5.9: Personnel expenditures (selected years, millions ¥) ⁴³

year	1985	1991	1993	1994
income	10.4	23.1	-	46.5
expenditures	10.4	25.6	34.8	52.1
personnel	1.7	6.6	20.4	30.2
percent	16	29	59	60
non-personnel	8.7	19.0	14.4	21.9
percent	84	71	41	40

Government investment

In January 1983 when the Shenzhen government estimated the total investment needed to build SZU, it anticipated contributing ¥50 (US \$25) million—70% in construction and the rest in equipment.⁴⁴ Guangdong Province's request to the State Council put a time frame on spending this amount: 1983: ¥5; 1984: ¥15; 1985: ¥20; 1986: ¥10.⁴⁵ These early estimates were quickly revised; by the official opening of the university in autumn 1983, planned investment was ¥100 (US \$50) million. New campus construction had cost ¥103.8 million by 1986, but by May 1987 the school had received only ¥78.6 million from the state.⁴⁶ By September 1988, with construction 91.8% complete, buildings had cost ¥120 million. They had been budgeted at ¥91.5 million; the cost-overrun was attributable to general inflation as well as to increases in building supplies and other construction costs.

Capital investment

Most capital funds that were invested in infrastructure at SZU came from the state (e.g., about 87% in 1990⁴⁷). Some funds came from local or non-government sources. By 1986, the university had allocated ¥10.6 of its own funds for building 30,000 square meters (m²) of a total of ¥103.8 million spent on buildings by 1986.⁴⁸ The total capital invested in SZU had exceeded ¥100 million by 1987. For the years 1983-1989 capital investment

was reported as ¥129.8 million, plus an additional ¥3.85 million put into special campus improvements (essentially a gate, perimeter wall and street lighting).⁴⁹ The accumulated figure for 1990 exceeded ¥150 million.⁵⁰ A sports center costing ¥13 million was the last major construction completed by 1995 and funded in part by a donation from a Hong Kong businessman.⁵¹ Fixed assets in offices and support units were reported to be worth ¥5.8 million in 1990.⁵² In addition, by 1993 the fixed assets of SZU-run enterprises amounted to ¥50 million.⁵³ Fixed assets dedicated for research amounted to ¥16 million in 1991.⁵⁴ Between the years 1986 and 1994 the value of equipment at SZU had grown from ¥3.6 to ¥27 million.⁵⁵

Total investment

By 1997 the total government investment in SZU approached ¥400 million—somewhere in the ball park of U.S. \$40 million—in capital construction and fixed assets, with expected annual contributions of about U.S. \$5 million towards operating costs. President Luo Zhengqi had estimated in 1987 that Shenzhen's investment in SZU by the year 2000 would be ¥450 million.⁵⁶ That amount was probably reached several years before the century's end. By 1993 the total state funding of SZU had risen to ¥317 million, of which ¥155 million had been spent on construction and ¥162 million on educational development.⁵⁷ The latter figure appears to be low, when compared with the published budget allocations. The amounts in Table 5.1 total ¥162.7 million *but this sum excludes data from 1983, 1984, 1986, and 1987*, for which budget data were not publicly reported. Including these years would probably increase the accumulated state recurring support reported in the Education Fund budget to ¥200 million. Total support (recurring plus capital expenses) would be about ¥350 million for the university's first 10 years (and ¥400 million by 1997).

Capital investment in 1995 yuan

The above figures do not take into account inflation, which in the post-Mao reform era has often been aggressive. Given inflation, ¥100 from 1979 would be worth ¥547.7 in 1995.⁵⁸ Controlling for the inflation rates for each year in which capital investments were made between 1983-1993, the value of government capital investment thus becomes ¥495 million, not the accumulated ¥155 million reported by the university. To build SZU in 1995, therefore, would have cost almost half a billion yuan. Adjusting for inflation, total state support would include 10 year's operating costs of ¥475 mil-

lion. As of 1993, total state investment in SZU was ¥970 million, adjusted for inflation.

Table 5.10: Shenzhen higher education recurrent budget allocation (million ¥)⁵⁹

Year	(1) total budget allocation	(2) Shenzhen funding of SZU Education Fund	(3) hidden allocation (1-2)	(4) hidden allocation as percent of total allocation (3)/(1)
1990	31.8	21.2	10.6	33.3%
1991	41.5	25.6	15.9	38.3%
1992	40.3	27.2	13.1	32.5%
1993	63.1	34.8	28.3	44.8%
1994	131.3	46.5	84.8	64.6%

A major hidden subsidy

The above calculations have adjusted figures upward in an attempt to present a realistic picture of state support for SZU. They exclude, however, various welfare benefits that China gives university teachers (and other state workers), especially health and housing benefits. SZU teachers were permitted to purchase flats in the 1990s for an amount that was probably below what the housing actually cost the state.⁶⁰ This subsidy did not show up in the university budget. The welfare line items in the School Fund Budget included monthly housing subsidies, but these did not reflect the fact that the purchase price itself was subsidized. The amount of this hidden subsidy can be determined by a round-about method. Published figures by Shenzhen municipality on recurrent budget expenditures suggest that a large proportion of the funds that the city provides for higher education lie outside the funding that appears in the School Fund Budget.⁶¹ The reported spending for Shenzhen higher education appears in Table 5.10.

Projecting the data for the missing years, adjusting these figures for inflation, and adding in the amounts to the previous computations would result in a much larger amount than the approximately ¥1 billion suggested above. An educated guess as to the total money the citizens of China have spent on SZU in the first dozen years of SZU's history is ¥1.4-1.5 billion. This is consistent with the reported HK \$1.7 billion that Li Ka-Shing has spent on Shantou University.

Table 5.11: Campus construction, 1984-1986 (m²)⁶²

facility	total	1984	1985	1986	notes
classroom buildings A-B-C-D	27,040	27,040			88 @ 35-170 students, 4,000 total, ¥17 million
lecture halls E	4,500				6 with 230 seats; 1 with 538 seats; ¥3.7 million
office building	17,600	17,600			¥14 million
library	23,300			23,300	1,650 seats, 2 million book capacity, ¥20 million; 4 floors for library use (15,000 m ²), top 2 floors for Architecture Dept.
factories	13,400	3,980		9,420	1 4-story, 2 5-story
garage	1,960	1,960			3 stories, 60 vehicles
gym	340		340		
swimming pool	(1,250 m ³)		(1,250 m ³)		
sports field	(14,900)	(6,600)	(6,100)	(2,200)	
student dormitories	48,250	13,250	21,520	13,480	17 6-8 story; 1,921 rooms/3,842 student
canteens	4,000	1,410	2,200	390	2 2-story; 2,500 seats
teacher residences	30,020	11,880	10,770	7,370	1 professors' bldg/ 35 flats; 7 build/ 96 flats; 8 dorms with 479 rooms
shop	210			210	
Yue Hai Men Hotel	7,500			7,500	160 rms/ 400 guests, dining for 200
dorm utility rooms	500	500			
sports areas			(5,200)		4 tennis and 4 basketball
production rooms	480	260		220	
utility facilities	(8,000m)	(5,500)	(1,500m)	(1,000m)	e.g., water tower, pool, pump house
total	179,100	60,280	52,430	66,390	

Campus construction

Buildings with a floor area of 173,825 m² were completed in the period 1984-1986 (see Table 5.11, previous page). The first phase involved building the administration and teaching building and sufficient student dorms, teacher residences and canteens for the semester that began in September 1984. The second phase began in spring 1985 and included an additional 100,120 m² in the library, an additional teaching and office building, factory, dorms and canteens. Most student dorms were built for two students, with individual bookshelves and closets, providing 5-6 m² of space per capita. Over the two-year period eight kilometers (km.) of roads, 9.8 km. of water pipe and 11 km. of drainage pipes and almost nine km. of cable were laid. A transformer held 8980 kilowatt capacity and landscaping of 300,000 m² was completed. A 36-meter water-tower, visible for several kilometers, had a 300 ton capacity.

Vice-president Luo Zhengqi personally oversaw construction. The construction team prided itself on efficiency, adhering to two spirits: that of the exploring ox (*kai huan niu*) and the powerful train engine (*huo che tou*).⁶³ When building began, only five cadres supervised it; 13 cadres were in management positions by completion of the first phase. Construction firms nationwide bid for projects, a competition that the university and municipality acknowledged resulted in increased speed and quality. Nine companies, for example, wanted to bid on the *Ziwei* dorm. University staff went to inspect projects of each potential bidder, ranking them in order. The top three were allowed to bid. The 1985 *Shenzhen City Yearbook* praised SZU construction, which was listed as one of the ten major Shenzhen events of 1984. The construction team used a system of rewards and punishments. For most projects, contractors were given a ¥1,000 (US \$430) bonus for each day completed before the deadline; similarly they were fined likewise for late completion. A municipal building inspection team examined completed projects. If deemed "excellent," the builders were rewarded one percent of the total project cost; if the building were reported as poor in quality, the contractors were fined one percent. Acceptable quality generated neither reward or fine.⁶⁴ The net result was low building costs, averaging ¥674.78 (US \$290) per m².⁶⁵

Table 5.12: Planned and completed campus construction, 1987-1995 ⁶⁶

building	year	m² area	notes
science building	1987-88	15,800	¥12 million
sports field	1988-91	30,000	10 400 m. running tracks, soccer field/6000 spectators; fin. early 1991
academic exchange center		4,000	never built
student dorms	1988	10,450	3 buildings for 1,608 stu., making total 20 dorms, 58,700 m ² / 5,450 stu.
clinic	1988	650	originally 1,000 m ²
non-residential	1984-88	1,050	shops, banks and storage
faculty housing	1988	6,380	6 buildings, SZU total now 40,000 m ² , 24 blocks, 168 flats, 600 singles
amphitheater	1988	4,000	2,200 seats (1650 fixed, 500 movable), ¥2.8 mil., 4 mths construction
utility rooms—physical ed.	1987	1,210	gym and changing rooms
student canteens	1984-87	7,000	3, seating 4,000
school gate, fence, lighting, canteen	1991		¥3.85 million
Futian Shenda Village faculty housing	1990-94	30,000	Piling mid Dec. 1990, fin. April 1991; roofs by Jan. 1992; Jan 1993 move in, 294 res., 17 bldgs. (1,593 piles, total length 29,600 km)
seashore campus faculty housing	1994-97		200 flats; 5-year, ¥8 million 9.6% const. loan by Ind. & Com.Bank, SZ
sports center	1991-93	79,000	¥13 million; funded in part by H.K. \$10 million donation from Yu Yuanping (HK); original design called for 4,000 m ² , ¥3 million.
student community center	1995-97		HK \$5.4 million from Gordon Wu (HK); begun 22 March 1995.
teachers' canteen	1991		2 story
Gaokeli Garden Building	1992-97		33-story, built by Experimental Foreign Trade Co.
Xinghan Culture & Media College	delayed		Groundbreaking 28 April 1995; still incomplete 1998, aborted donation.
New technology research center			¥2 million donation from Yu Pengnian

State-level criticism of SEZ policy led to a general retrenchment of support for the special zones beginning in early 1985. Overall investment in SEZ construction was reduced, and this was reflected in SZU funding. Increases in taxes, the cost of building materials, and unfavorable foreign exchange rates resulted in a funding shortfall. SZU was rescued when the Guangdong #2 Construction Company advanced to the university a ¥6 (US \$1.7) million credit for buildings in 1985-1986.⁶⁷ Despite financial problems, 68 buildings were completed by the end of 1987 and another 13 finished by September 1988. Thus, within four years and seven months of the establishment of the university, 81 buildings covering a floor space of 230,000 m² had been erected. Inflation resulting from China's over-heated economy in 1988 negatively impacted SZU construction. Steel prices went up 80%, cement 80%, bricks 110%, causing the overall cost of construction to rise 30%. Government construction funding did not compensate for inflation. In previous years, contractors would pay for materials and get reimbursed when they completed the projects. But in 1988 with so many competing construction projects, builders were no longer able to pay for supplies in advance. Contractors were not paid until project completion, and banks initiated a tight money policy. There was a ¥4 million shortage in SZU construction funds for 1988, and the university owed ¥16 million to construction companies, which generated an additional cost of ¥4 million in interest.⁶⁸ Still, by the end of that year, 200,890 m² of building were complete, or 91.8% of the five-year plan. By the end of 1988, construction totaled 230,000 m², with 12 km. of road and 26 km. of water and drain pipes.⁶⁹ Of this total area, 192,400 m² had been government-funded.⁷⁰

Having accomplished its job of building the campus, the Capital Construction Office announced in April 1989 that it had changed its name to Hong Ye (Grand Profession) Construction Site Management Company. In subsequent years, however, it still reported as the Capital Construction Office; the name change was never endorsed by the post-Tiananmen leadership. In its first year of operation, the office managed twenty projects for eight work-units.⁷¹ Included among these were the Nanhua Middle School, Baihua Primary School, and the Weideng Villas, built for the Vanke Real Estate Development Company, all totaling 35,000 m².⁷²

From the 1990s, campus buildings were funded out of either the Supplemental Budget or the School Fund. Line items for 1990 included construction funds in both budgets, ¥315,000 (US \$66,000) and ¥455,000 (US \$95,000), respectively. The 1991 budget included ¥168,000 (US \$31,600) in the Supplemental Budget. Major on-campus projects for 1991 included

flower bed construction, toilet conversion (from sit-down to squat), renovation of the *Chaoxi*, the foreign teachers residence, retiling of the floors of Teaching Blocks C and D, expansion of the clinic, and conversion of the library's fifth floor from the Architecture Department to the Library. After that, capital items were not included in any of the three budgets; apparently buildings had their own budgets. Total floor space in 1994 was reported at 240,000 m². Post 1986 construction is listed in Table 5.12, page 137 above.

To put SZU campus construction in perspective, SZU's floor/area ratio (the ratio of building floor space to land area, FAR) computes as .24, compared to the national average of about .57.⁷³ In other words, SZU is less than half as densely built as other universities. Agricultural universities with their various field laboratories are less dense than SZU. From data on university WWW homepages, only the non-agricultural universities of Shantou, Wuhan, Jilin and Huazhong Science and Technology were as similarly spacious as SZU. Regarding student dormitories, SZU provides 5.5 m² per capita or 12.6 m² gross (including dorm common space such as hallways and wash rooms). The SEdC standard for gross dorm space is 6.5 m²; SZU students enjoy twice that.⁷⁴

Fixed assets: teaching support units

Some SZU assets were located in the university's research institutes or scattered around the campus, in academic departments, enterprises and support facilities. Many of the university's fixed assets, however, were found within the three primary teaching support units: the library, computer center and audio/visual center. Although all these units were involved in teaching in various ways, none had students and none held the status of an academic department. Their staff did more than just support teaching, however. Given the university's budget limitations, each support unit generated income, some of which was remitted to the university, the rest retained for the unit's use. Much of the "profit" produced by staff research and other activity went to enhance salaries and benefits. Research, because the units had to generate their own income, was practical, not theoretical. In the early years of the university, research in these units had little to do with the academic aspects of SZU per se. Then, in the early 1990s the university redirected the support units to focus more on classroom teaching and assisting academic research. Before that time, the units had served basic functions: providing books, computers, or audio-visual materials. But by the '90s decade the support units had become involved in pedagogy, providing not only materials but also technologies to influence teaching and learning. The Computer

Center developed e-mail and Internet connections. The Library in the mid-1990s provided CD-rom research databases. The Audio/Visual Center went on a drive to wean teachers away from “talk and chalk” methods, replacing them with more efficient, higher technologies.

Library

When a 19-person delegation from Honduras visited SZU on 17 May 1988, they met with university officials and foreigner handlers. Then, just before they were treated to a luncheon banquet, they were given a campus tour by a vice-president. One of the highlights of that tour was the university library, built in 1987 for ¥20 million. Most visitors to SZU, like the Hondurans, have been impressed with this modern, computerized facility that was generally acknowledged as one of the best library facilities (exclusive of book collection) in China.

The library prided itself on its Four Fullies: fully opened every day, fully opened all year, fully opened shelves, fully computerized management.⁷⁵ It was opened to users for 108½ hours weekly, 365 days per year, even on national holidays and during Spring Festival [Chinese New Year] (By 1991 hours had decreased to 105 per week and days were cut to 360). Total number of library users, as counted by turnstile, has increased over the years, especially right after the library opened in 1987, but visits to the library dropped off in the early 1990s (see Table 5.13.) Library cards also increased in number as the university staff and student populations expanded (see Table 5.14). The SZU library did not publish a budget, but the school administration reported in 1995 that it provided ¥1.5 million (US \$180,000), which included ¥218,000 (US \$26,000) that came from the departments, in other words from departmental remittances into the School Fund.⁷⁶

During the first two years of SZU, books were stored in temporary sites, first at the downtown campus and later in rooms on a floor of Teaching Block A on the new campus. From the school’s beginning, the individual academic units each had small departmental libraries, but these received no funds from the university budgets. Departments bought books with their own funds or relied on donations or library discards. Architecture, the richest department, was unique in having a better collection in its subject than the university library. By 1991 it owned 13,000 books, 20,000 slides, and subscribed to 91 original foreign periodicals, at a cost of over ¥300,000 (US \$56,000). It was reported to be the largest departmental architecture collection in China and praised by a Hong Kong University graduate as having a bigger collection than his own architecture department.⁷⁷ Altogether, de-

Table 5.13: Library turnstile visits, selected years⁸⁰

1984	95,000
1986	122,451
1987	300,000
1988	600,000
1989	773,800
1991	723,000
1994	700,000

Table 5.14: Current library cards, selected years⁷⁹

1987	7,000
1988	10,592
1989	12,025
1994	15,797

partment libraries stored about 67,000 books, less than 15% of the main library's collection.⁷⁸

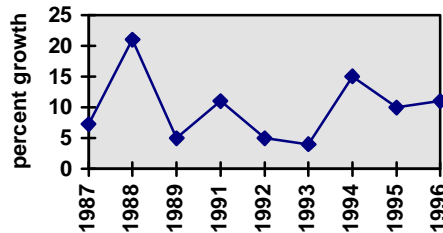
Construction of the six-floor university library began 16 March 1985; it formally opened to users on 25 September 1987 (but it had been in use for about a year before its formal dedication). The new facility provided seats for 1,200 readers, six times what had been available in the earlier locations. The first year's borrowing was five times that of the previous year. In 1991 the fifth floor of the building, which had been used by the Architecture Department, was converted to library use. The library's floor space increased from 15,000 to 18,000 m² and seating increased by one-third, to 1,600. In 1993 the library had 65 fixed staff, up from 51 in 1986. An additional 15-20 night school *zhuanke* students held down full-time jobs in the library during the day, and a variety of regular undergraduates worked as part-time staff during the evenings. The night-school students did their homework while serving as reading room monitors during daytime. They received no training as librarians and were not able to help readers or accomplish tasks like properly arranging books or periodicals. Many Chinese libraries, according to an informed American academic librarian who specializes in China, are "unfortunately all too often the dumping ground for unemployable personnel."⁸¹ Because SZU was built from scratch, it somewhat avoided this problem and did not inherit non-productive staff who serve little more than permanent fixtures awaiting retirement.

The university library stood as the focus of the campus site plan. It was the center structure, facing the sea, flanked by the administrative buildings on its right shoulder and the teaching buildings on the left. In overseeing the site design, Luo Zhengqi believed that “the heart of any institution of higher education should be the library, not the administration building.”⁸² Thus, the library was purposely located within a few minutes walk of student dormitories. Luo further believed that the library should serve its users and not copy the style of other Chinese libraries where “the book storage rooms are large and reading rooms are small.” The library adopted the motto: “readers are primary” and its 105-108½ opening hours per week were 70 more hours than the minimum required by the SEdC for the institutions it oversaw. The library administrators noted with pride that this greatly exceeded the average for universities in Hong Kong, reported as 78 hours per week.⁸³

As a result, most shelves, including bound periodicals, were open to users. The only restricted areas were those containing Hong Kong and Taiwan newspapers and periodicals and foreign magazines such as *Time* and *Business Week*. These rooms were open to faculty and staff, not students (Ironically, these same periodicals were available to all readers at the Shenzhen Public Library downtown). The relative openness of the SZU library vis-à-vis libraries at other Chinese institutions, was further reflected in its layout: six floors around a center courtyard, with almost all rooms windowed and open to outside light. Its architecture won several design awards and received the label of exemplary project at both the city and provincial level. Small wonder that the library generated praise from foreign visitors, like the comment attributed to the visiting president from Connecticut State University: “I have visited many libraries in China and yours is the best. You have reason to be proud of it.”⁸⁴ The SZU library was, in fact, one of the most spacious university libraries in China, with 28 books per square meter of floor space. On average, Chinese university libraries had 91 books/m², over three times SZU’s ratio.⁸⁵

The library subscribed to about 2,000 individual Chinese language periodicals, excluding duplicates.⁸⁶ It housed a large collection of foreign periodicals, but subscriptions were not steady. In 1994, 868 foreign periodicals were received, compared with 685 the previous year and 652 in 1997. For the most part these were, literally, copies of foreign magazines, provided by a central government duplicating house. Original foreign periodicals numbered 116 in 1991, 83 in 1995 and 66 in 1997.

Figure 5.1: Library collection growth



The library's book collection grew steadily over the years, at an average rate of 10% per annum. As the university has aged, the growth in library collection slowed down (see Figure 5.1). Foreign books, which accounted for 13% of the total collection, were acquired at an even faster pace than Chinese books, 23% and 9% average annual growth rates, respectively, from 1986. The concentration on acquiring foreign books was a criticism that the school leadership once addressed in a report to the Shenzhen government.⁸⁷ Books from the areas that are referred to as compatriot territories (Taiwan, Hong Kong, and Macau) had their own shelved reading room and accounted for about 9% of all Chinese-language books. Statistics for the library's book collection for the years 1987-1995 appear in Table 5.15, next page.

The library was more than just a book storehouse and reading room. It served also as a teaching facility. Although there was no academic department of library service, the night school's part-time *zhuanke* program added a major in library information in 1985, just as the new library was completed. A collection of several thousand books was arranged as a mini-library in its own room that served as a classroom and laboratory for night school library majors. A general course on library use was arranged for undergraduates, and from 1995 a 60-page users' manual was distributed free-of-charge to all freshmen.

Table 5.15: Library collection and growth over previous year (in '000s) ⁸⁹

year	1986	1987	1988	1989	1991	1992	1993	1994	1995	1996
Chinese books	226	239	289	291	324	338	351	393	439	491
% growth		6%	21%	7%	11%	4%	4%	12%	10%	12%
(including	(26)	(37)	(39)	(31)	(33)	(35)	(36)	(37)	(38)	(46)
HK/Taiwan)										
% growth		42%	6%	-20%*	6%	6%	4%	1%	2%	21%
foreign books	13	17	21	36	40	43	44	60	63	62
% growth		31%	24%	67%	11%	9%	4%	34%	5%	-1%
total	239	256	310	326	363	381	396	454	497	553
% growth		7.3%	21%	5%	11%	5%	4%	15%	10%	11%

Figure 5.2: Student per capita library circulation⁸⁹

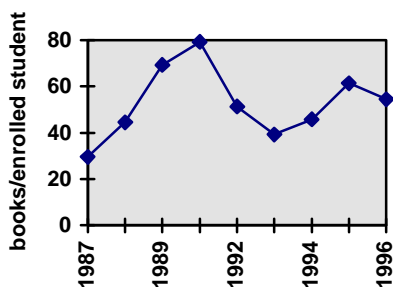
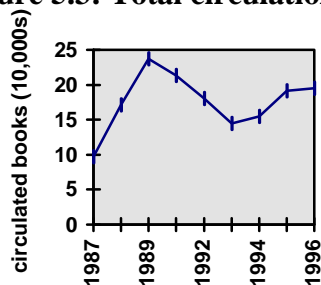


Figure 5.3: Total circulation



Another major feature of the library was its automated system of book and periodical management. SZU was the first library in China to possess completely computerized systems. The circulation system was put into effect December 1986. Borrowing took as little as 2-3 seconds, returning 1-2 seconds. An indexed cataloguing system for books and periodicals became operational over 1987, and the entire system passed an evaluation a few months after the new library building formally opened. The center of the library's work over its first few years was computerization. Staff were trained so that 40% could independently use the systems. Over 100,000 books were catalogued over four months, with staff working overtime—*jia ban jia dian* (literally, add office hours, add working hours) and *fei qin wang can* (sacrifice sleep, forget meals), and *bu ji bao chou* (not counting payment).⁹⁰ The management information system (MIS) staff of the library developed a computer index system for information on over 6,000 of Shenzhen's industrial and commercial enterprises in 1989 that listed information by enterprise name, legal person, nature of business, name of product and registration number.⁹¹ The library's computer management systems received numerous awards, including one by the SEdC, the Guangdong Higher Education Bureau, and a prize given at the Second National Electronic Information System Application convention.

The SZU library marketed its information systems to other libraries as well as to enterprises. By 1989 it had sold library software to 14 work-units, including Zhongshan University and the Chinese University of Hong Kong. In that same year it set up the Guangdong universities library automation

network coordination group, which included the Yueshen document processing center. Thirty percent of the profits from the library's side-businesses had to be remitted to the School Fund. Consequently, this aspect of library operation was tolerated by the various university administrations. Only in 1991, when the school cracked down on side-businesses, was the library reprimanded, then only implicitly. The library and other teaching support units were told to "stick to the principle of serving the school first and to guarantee normal operation of teaching and research."⁹²

The library's MIS served as its pride, once the focus of a special program on the province's television station. The systems have been constantly upgraded, moving from D-base3+ to Foxbase software on Novel network. By the time the second generation of the system was in place, it had been sold to over 30 work-units in 1991, 50 by 1993, and 70 by 1994. The library MIS system was used by 95% of Guangdong universities; the MIS staff served as computer consultants to a Utah-based family association. Staff still found time to publish, including 27 articles/books in 1994 and 34 in 1995. Staff presented 20 papers at academic conferences in 1995 alone.

The SZU library was at the forefront of library database design in China. Most Chinese libraries lacked sufficient resources to get into this area and about a half dozen libraries control the field. Included among them were Beijing University, Shanghai Jiaotong University, Qinghua University, and SZU. The SZU library produced the Guangdong MARC for indexing currently published books. "Started in 1991, data could be transmitted both on disks and through dial-in access. About 50 libraries (mostly academic) shared the database, which contained about 30,000-35,000 records."⁹³ In 1994 the SZU library contracted with the Guangdong Higher Education Bureau to develop a provincial education and research computer network with the purpose of allowing Guangdong institutions to share library resources. The project was funded over three years at a cost of ¥7 million, the largest research project in SZU's history. In 1995, to confirm its leadership position in library management information systems, SZU library hosted an international seminar on Chinese document management, with 80 domestic and international attendants.

In 1987, the university was given complete sets of microfilm for various academic publications for use on three microfilm readers it had purchased. The collection was never updated, and the film readers themselves deteriorated to the extent that they were finally removed and hidden in a closet. By the mid-1990s the library was slowly expanding into CD-rom and international index systems, most of which were English-language based. The slug-

gish move in this direction was due to the fact SZU remained primarily a teaching rather than a research university. Without graduate students and research fellows, and with a general disinterest in research among the academic staff, the library has not been confronted with a user demand for types of technology researchers find useful. The entire automation system was not geared to research, lacking relevant search procedures (e.g., Boolean by topic, contents index, etc.) or specialized databases prepared on CD-rom. According to a leading librarian at one of China's most prestigious research institutions, the "SZU library is a good one among Chinese university libraries, especially in library automation (it ranks among the top ten in this field)." Yet, the expert notes, "since the university is affiliated to the local government and is not at a very high research level, I think it cannot be taken as a research library generally."⁹⁴ SZU constructed the largest province-wide data base in China, but the librarian found the quality of the index records especially deficient, "not very strictly in accordance with the national and international standards and there is some 'garbage' in the database." Ironically, although the SZU library has been technologically advanced, technology in this case has not greatly served academic research.

The SZU library was important in another regard. For students it served as a large study hall, a refuge from the dormitory room desk, and the sometimes noisy and non study-conducive environment. When built, the library included 1,200 seats at tables for students. The full occupation of seats suggested responsible students, faithfully executing their duties to the educational system. Library use thus was often taken as a surrogate for student diligence and was used to support arguments concerning student behavior. Students who went to the library immediately after supper and stayed until the doors closed were held up as models.⁹⁵ "Fully occupied library seating" was used as evidence by the post 4 June leadership that their administration had improved study atmosphere.⁹⁶ Similar points were made by other school officials and spokesmen in published reports in Shenzhen's official newspaper and China's education newspaper.⁹⁷ Two years later, however, an investigative report on SZU in the Shenzhen *Fazhi Bao*, the zone's legal newspaper, commented that the library was "80% underused." To make its case, the article included a photograph of ten study tables, with no student sitting at any of the seats.⁹⁸ Criticizing the *Fazhi Bao* investigators for misreporting the facts, a SZU student retorted that the library was indeed used.⁹⁹ In a sense, both views were correct. When students had no classes—at night and in the late afternoon—the study tables were occupied. During class time, however, the library was generally devoid of students. In preparation for the

exams students were to take as part of the 1995 SEdC accreditation, the library added seats and prolonged study hours.¹⁰⁰ Students were also advised that the accreditation team would look at number of books borrowed from the library.¹⁰¹ Despite *benke/zhuanke* student population's declining 8% from 1994 to 1995, library circulation rose 23% over the same period. It then declined in 1996 (see Figure 5.2 and Figure 5.3). The precise effect of accreditation-motivated borrowing is unknown, but several students reported they were instructed by their political tutors to take out more books in an effort to support the university's goal of passing the evaluation. The evaluation team, in its report, was impressed with the library collection and with the fact that many students went to the library in the evening to study.¹⁰² (Some students reported they were advised to go to the library during the time the inspection team was on campus).

Computers and the computer center

Shenzhen University attempted to establish a reputation for being a modern, computerized university. In 1996 it was one of the first two dozen Chinese universities to open a homepage on the Internet, with the address <http://www.szu.edu.cn>. Its most renown alumnus, Shi Yuzhu, became one of China's most famous computer entrepreneurs and largely because of him, SZU was dubbed "the cradle of entrepreneurs." The president of the Zhuhai Giant High-tech (Group) Corporation, Shi had been recruited as a graduate student in Mathematics in 1986 by statistics professor Yang Jike from Anhui. Shi quit his government job in Hefei, Anhui, and with fellow alumna Cai Wei started a company with only ¥4,000 (US \$1,050) in capital, none of it from state grants or bank loans. The Giant group had become famous overnight for its invention of the Chinese character computer writing pad and had come to the attention of national leaders including Zhu Rongji and Li Peng. By 1993, when Shi spoke at SZU's tenth anniversary celebration, the Giant Group had hundreds of employees and assets of ¥200 (US \$35) million, with 38 sub-companies in China and Hong Kong. The company ran into management problems, however. In 1993 it had boldly predicted assets of over ¥10 (US \$1.7) billion by the year 2000, but in the late 1990s it hit hard times. Due to bad investments and over-extension, it went bankrupt in 1997.¹⁰³ Shi and Cai were no longer featured in university publications; SZU's most successful alumni became its most infamous.

The university's use of computers in teaching impressed the SEdC group that visited the campus during the 1995 accreditation exercise. It reported:¹⁰⁴

Shenzhen University encourages modern teaching methods, including audio/visual. In regards to micro-computer training, SZU students have access to many computers. Many students have their own computers, some of which have been linked to the school network. Students are very capable in using micro computers.

From its beginning SZU had emphasized the teaching of computers and had employed computers administratively to manage information. When the university was situated at its temporary site, the 212 freshmen had access to only about 20 computers for their required course on data base management. In 1984, the computer center was established at the new campus with three staff and only seven micro-computers, in a space of about 20 m². By 1987, there were 99 IBM PCs and XT's (a PC with a hard drive) in the computer center as well as a networked IBM 3032 with 70 terminals (55 short-distance, 15 long-distance).¹⁰⁵ The center was opened for 14 hours a day, every day of the year, and it was free-of-charge to students or faculty. SZU's night school, located downtown, had another 30 computers. All non-computer major freshmen *benke* students were required to take a weekly three-hour course entitled "applied computer fundamentals" in their first semester. In the spring semester another course among three—Data Base Language, Cobol and Fortran—was required according to the student's major. Other optional courses in computing were also available for non-computer majors.

Academic use of computers, of course, were not restricted to the Computer Center. The Electronic Engineering Department offered a major in applied computer and had its own computer laboratory. Other science/engineering departments as well as research institutes also used computers in teaching and research. Computer courses (e.g., computers in international trade, computerized banking, computer-aided design [CAD]) were being offered in the majority of departments. The Math (literally, Soft Science) Department abandoned theoretical courses in favor of computer education, and eventually renamed the Math major to Management of Economic Information. One-third of the required courses for *benke* Math students were in computer, the rest in math and economics. SZU's institutes also utilized computers. For instance, the Communications Technology Institute, founded in 1986 with six researchers, was given the mandate to combine communication technologies with computers and to apply the automation and communication technologies developed in foreign countries for Chinese use. All academic departments in the sciences used computers and developed their own computer laboratories. The Architecture Department purchased five per-

sonal computers (four 386-type state-of-the-art machines) in 1991 alone. Since its inception, that department had developed a CAD center on the par with those in world class universities. An American academic, who in 1985 served as a visiting professor in Architecture, had set-up the center at the behest of Luo Zhengqi. Following his recommendations, Architecture spent some US \$250,000 on hardware and software and developed China's premier CAD facility, with equipment which "I wish I had here in our own department," according to the American professor.¹⁰⁶

Computer skills were emphasized for all students. From summer 1986, a score of exam-exempt freshmen came to campus two months early to receive special training in computers and English. Over the spring semester 1987, the Computer Center, whose staff had the prime responsibility for teaching basic computer courses, arranged 37 classes for 2,309 students, totaling 45,920 person/hours. During their free time, students used the center's computers 10,771 times for 30,000 hours. With the arrival of 1,000 freshmen in autumn 1987, the Computer Center received no additional computers but was given a heavier workload—2,800 students in 55 classes, for 60,000 person/hours. Also, 330 students in five classes learned Fortran and a compiling language. In the second half of 1991, 2,415 students (1,825 *benke*, 590 *zhuanke*) used the Computer Center, over 80% of the student population. The lab expanded to 200 PCs. Teaching hours during that period had increased to 62,140, up 35% in four years, and total computer usage rose to 315,560 hours, three times what it had been in 1987. Statistics reported for the following semester, spring 1992, showed 114,572 teaching hours (up 84%), and 600,000 hours of total use (up 90%).¹⁰⁷ Statistics for 1993 indicated 120,000 teaching hours and 800,000 total hours of usage.¹⁰⁸ Queues outside the Center formed fifteen minutes before the doors opened, and often only half the students who wanted computer time could be admitted.

By the time of the SEdC accreditation in 1995, more computers had become available at the department level. This factor, along with a decline in student numbers, meant that the Computer Center was less crowded. The Computer Center itself upgraded its equipment, which in 1995 included 259 micro computers. The fixed staff quota remained at 26, but with new equipment the staff was better able to keep the computers operational. The Center also managed a CAI (computer-aided instruction) lab and converted a classroom in Teaching Block A into an auxiliary laboratory. These two new rooms provided a staggering 441,950 teaching hours in 1995.¹⁰⁹ Free-time computer use in the main student computing room was reported to be

140,817 person/hours, which was down from previous years. This probably reflected the fact that many students owned their own computers or used the computers in the laboratories run by their academic departments. In its self-evaluation for the accreditation, SZU reported that *benke* students during their university education used free computer time about 140 hours, the equivalent of about one hour per week. It also reported that the senior *benke* science majors used computers on average for over four hours each week, and arts tract majors a little over two hours a week.¹¹⁰

SZU students performed well on the province-wide unified computer examination for non-computer majors given for the first time in 1994. Students from International Finance and Trade, the most prestigious department, had the highest score, followed by Economics. Eighty percent of the over 700 students who took the test passed, compared to a 61% average for Guangdong universities. The following year *zhuanke* students also took the test, the largest scale test given in SZU's history, requiring 51 classrooms for the written test and 102 computer rooms for the hands-on test. Because *zhuanke* were included, the passing rate fell. Only 574 of the 953 students who took the test passed. Still, the 60% passing rate compared favorably with the Guangdong average of 48%. The university sought Guangdong approval for naming Pascal Programming a key level course at the provincial level. Certification of this nature was given only if a course was a guaranteed part of the curriculum, with sufficient teachers and a legacy of instruction. The application was rejected and the course was listed as simply a school level key course.

Maintenance problems

Heavy demand meant that all computers were either in use or broken during most of the Center's long opening hours. Inadequate maintenance proved to be a problem early on. In its 1987 annual report, the Center complained about too few computers and inadequate maintenance of the existing machines.¹¹¹ In fact, by 1988 machines had decayed to such an extent that very few completely worked. A diagnostic test of a random sample of computers in 1989 (N=25) found that fewer than 20% operated according to manufacturer's specifications. Most problems involved faulty floppy drives which were not given the required routine cleaning and hard drives that could not boot. About one-fifth of all keyboards in the sample were not working properly (as attested to by one student's term paper that had not a single letter "r," and another that had no capital letters). No computer lab staff worked as full-time technicians. The heads of the labs were often busy on consulta-

tion or working in the Computer Center's side-businesses. The Center had developed enterprise management software that it was busy marketing in Shenzhen and Hong Kong. The Center's rank-and-file staff who were required to be on duty in the student center often felt overwhelmed; they spent much of their time cannibalizing discarded computers for spare parts to keep as many computers operational as possible. The student computer lab employed part-time *zhuanke* students, but these served only as gatekeepers to ensure students checked their bags at the entry hall. The student helpers were not trained to do even basic maintenance; they spent much of their time idle, reading newspapers, drinking tea, and chatting. The maintenance situation became so severe that in 1993 the Computer Center reported to the university.¹¹²

Lack of funds restricts us from upgrading equipment. Many computers have been in use for over nine years and their covers have become yellow with age. They cannot meet our teaching needs. Students and teachers complain a lot.

Over two years, the center reported, 530 machines required maintenance. But this number was only a small fraction of the number of actual malfunctioning computers over the course of even a single week. The Center did not operate a maintenance log on computers, except to note when machines were de-commissioned. Thus, it was likely that 530 computers over two years were actually removed from their locations and taken to the back room (referred to as the graveyard) for repair. In its 1993 report, the Computer Center pleaded for new staff (the 1992 quota was 25) and equipment "to guarantee the normal operation of the Computer Center." It recommended renewing the equipment every 4-5 years and even suggested that students be charged for computer time "as in Shanghai, Beijing, Guangzhou and foreign schools."

Computers in individual departments generally fared better. Maintenance and upgrading of equipment depended on a department's finances, but generally department labs in the engineering/science departments were better equipped and maintained than the student computer center. The quality of computers in administrative offices relied on the computer skills of individual office staff, as Computer Center staff were rarely available to make site visits. Staff were forced to maintain their own equipment.

Some departments were computer dysfunctional, unable to keep their computers operational or, as in the case of the Foreign Language Department, out of harm's way. In the early 1990s, Foreign Language assigned part-time *zhuanke* students to manage the department's computers. The

leaders and most English teachers were not themselves computer literate and were not familiar with the basics of computer maintenance. The department's small computer room was dusty and lacked functioning air conditioning; the staff never ran the dehumidifier, which filled up in four hours; computers were never covered. In less than a year, all the department's computers had deteriorated. The student helpers ate, drank and smoked around the computers, all factors that probably hastened their decay. On an expert's recommendation, the department had purchased a UPS (uninterrupted power supply), an electricity-powered battery that can run computers and hold the machines harmless in the event of power surges or failures. A UPS is continually-charged if connected to a wall outlet, but the staff only turned it on if the FLD computers were actually being used. Since the battery was never properly charged, the UPS did not serve its intended function and was labeled "broken." The students rigged up a by-pass that had the computers and printers running off a loudly humming transformer which was designed to keep electrical current at a constant voltage. The transformer was connected to the wall outlet by a thinly wired and semi-insulated extension cord. After a full day's use, the transformer would generate so much heat that touching it would produce a skin burn. The department heads were informed by several computer technicians of the safety problems in the computer room and had even received a memo warning them of the dangers associated with replacing the UL-certified UPS with the locally made noisy transformer. The leaders admitted they did not understand enough about computers, UPSs or transformers to make an informed decision; they preferred to rely on the students' judgment. During the 1992 semester, the students forget to turn off the transformer when they left for the weekend. At around 3 p.m. the transformer overheated, igniting the curtains and causing a fire that destroyed all machines in the room. The glass of the monitors cracked and the keyboards melted. The damage was estimated at ¥10,000 (US \$1,900); the students responsible retained their jobs and continued to be in charge of the department's computers until the leaders themselves were removed from office.

Computerized management and MIS

The university's 1984 reform proposals advocated computerized management, and computer literacy was one of the criteria for staff promotion. In that year the school complained to the municipality that it had insufficient funds and too few technicians to ensure campus computerization.¹¹³ From 1985 computers appeared in virtually every administrative office. When the

General Affairs Office was given a PC by the university, however, the head admitted that none of the staff knew how to use it. Similar situations existed in other offices. Once given the equipment, staff then acquired the necessary computer skills either by teaching themselves or taking training classes offered by the computer center. By 1987 most financial and academic work was computerized and the university's Management Information System (MIS) was in place. Computers were intended to ensure integrity in managing students records; the Academic Affairs office in 1990 had ¥100,000 (US \$21,000) worth of equipment.

The use of computers, such as in financial auditing, was believed to "strengthen anti-corruption efforts."¹¹⁴ Recruitment of 1988 freshmen used computers for the first time, and the school reported that this would help "block the back-door."¹¹⁵ Computers also assisted in the distribution of meal tickets to monitor sales and prevent recipients from selling large quantities to outsiders who could take advantage of the canteen's low prices.¹¹⁶ Computers were also employed in SZU's fight against crime. Concerned over previous years of slack security, the post-Tiananmen administration allocated ¥240,000 (US \$45,000) to develop an automatic anti-theft computer system.¹¹⁷ It was tried first in the administration and lab building and then installed in the laboratories operated by the computer and audio/visual centers.

The year 1988 was labeled the "year of the computer" at SZU. Thirty staff from ten work-units were involved in developing the campus-wide MIS. The system required six dedicated machines, two transshippers and over 50 PCs located in departments and offices. The system permitted for two-way communication, allowing the center and periphery to communicate in a quick fashion. The MIS was designed so that routine notices could be sent down to departments as necessary. Several notices went out every day as well as items from the bi-weekly handout *SZU News in Brief*. Although the system was designed for use by all offices (especially Academic Affairs, Student Affairs, Security, General Affairs, Personnel and Finance), only Academic Affairs put it to use for periphery-to-center communication. Other offices preferred to communicate through documents or personal contact. Academic departments fed in student course plans at the beginning of term and grades at term's end. One of the reasons for the system's lack of use was that the individual terminals in departments were subject to frequent breakdown, making transmission of information through the system highly unreliable. From about 1990 the presence of virus infections wreaked havoc. In some offices, the system was disinfected for viruses only at the beginning and end of the semester, when student data had to be transmitted to Academic Af-

fairs. Most campus news was passed by word-of-mouth, something quite easily done because of the university's compact nature and the fact that most teachers and staff commuted by university-run busses, a 30-minute ride that provided ample time for exchanging news and gossip.

E-mail and internet

In 1992-1993 the student computer center began to network its computers, as did many of the smaller teaching labs. At the same time, electronic mail (e-mail) became available to several dozen selected subscribers. The system was not actually connected to the Internet (or what was eventually to become the World Wide Web). Rather, mail was sent and collected at an electronic post-office at Hong Kong University. SZU e-mail account addresses ended with "@szumis.hkucnt.hku.hk." SZU, as well as the University of Macau, had an agreement with Hong Kong University for the latter to serve as an e-mail switching station. Once or twice a day, the SZU e-mail technician would place a long-distance phone call through a modem to the HKU computer and pick up and deposit mail. This system was the first e-mail operational in a Mainland university, but it proved highly unreliable, as there was no schedule for posting and collecting mail. The e-mail system, to which only a few staff were allowed access, was operational only during work hours, actually only during the hours when a particular staff person worked. When this person was sick or otherwise absent, the system was down. On at least one occasion the entire system was erased because of human error. Since the staff person had not backed up the system before the error occurred, the system had to be rebuilt from scratch. Subscribers who tried to access their e-mail found no record of their existence. Many contacted the staff person, who re-subscribed them, with a new password. There were no rules on who was allowed e-mail access. Originally, the staff in charge had wanted to charge users for each mail sent out, but the Computer Center was unable to devise a rational accounting system. This flawed e-mail system remained until 1995, almost a year after other Chinese universities had already joined the Chinese Internet. In this case, technological advancement had passed SZU by. Once at the frontier of Chinese e-mail technology, SZU dropped back to become one of the pack. This phenomenon of "jumping out ahead, then lagging behind" characterized other uses of electronic technology at SZU. For example, when it established the Netware network system, the Computer Center was reported to have the first campus network of its kind in China. According to one participant, "After that, no significant improve-

ment in either machines or network technologies occurred.”¹¹⁸ Technology at SZU, according to another observer, “is all for show, not substance.”

In 1996 SZU hooked onto the Internet, and all staff at associate professor level or above were permitted an e-mail account. The addresses ended with “@szu.edu.cn.” Other staff could request accounts through their department heads. Students, through the student computer society, were also allowed e-mail accounts and were permitted to construct their own homepages, and update them as necessary. The university’s homepage went online in 1996. To a large degree, it remained unchanged, except for inclusion of additional issues of *SZU News in Brief*. Departments were not allowed access to update their individual homepages. Rather, all input was done centrally by the homepage team. The most notable changes to the pages in 1996 reflected the arrival of a new president and Party secretary in July.

In 1994 *Zhujin* dormitory, which housed students from Electrical Engineering, was connected to the university server by one kilometer of optical fiber cable. Access for students was free (they provided their own computers). Students were charged according to information flow, at ¥.01 per 1,000 bites of data downloaded. Students realized these charges would prove more expensive than using computers connected by modem to the Shenzhen net, for which fees ran about ¥12 (US \$1.43) per hour for phone chargers, with no charge for downloaded data. In any case, students could use the computers in the Computer Center or departmental laboratories without charge, so few students chose to go on-line from their dormitory rooms.

Research and donations

The computerization of the campus was aided in no small part by the fact that Ying Qirui, one of the vice-presidents, was himself a computer technician, having worked at the Bank of China, Hong Kong branch, between 1977 and 1984. He was a leading proponent of computers on campus and helped obtain outside funding. As head of the *ad hoc* computer group, Ying oversaw the spending of ¥1.2 (US \$320,000) million on computers in 1988, the year in which the IBM 3032 was purchased. Around that time, the Epson Corporation had given 22 computers and 38 printers. (The university went on to buy hundreds of items from Epson). All administrative staff underwent compulsory computer training. Computer operators received 10 hours of class and 10 hours in the laboratory. Office programmers got 25 hours of class and 15 in the lab. They were taught Chinese Wordstar and Dbase-III and were instructed on simple hardware maintenance. In 1993 the Center received another gift from Epson. Over the years it had purchased scores of

Epson dot matrix printers, and the Japanese company rewarded it with 50 computers that were used to build the first SZU computer classroom. At least ten courses used the classroom. By 1993 the Center still had no laboratory for teaching UNIX, and the IBM 3032 after five years of continuous operation finally broke down and had to be discarded. The Computer Center lobbied for a 4,000 m² building to be built east of the Library in the open space north of Teaching Block D, but even Vice-president Ying could not push this proposal past school and municipal finance officers. The Center would continue to occupy the second floor of the Administration Annex, off the breezeway that connected the Administration and Library buildings.

In 1994 and 1995 SZU set up a CASE (computer aided software engineering) teaching laboratory with funding provided by IBM. SZU and South China University of Technology in Guangzhou each received US \$500,000 as part of an overall US \$25 million, multi-year IBM package that was to benefit 12 Mainland universities.¹¹⁹ Under an agreement IBM signed with the SEdC, the American multi-national established a number of university-related programs in the area of advanced computer technology. The money went for computer equipment, staff support, scholarships and grants. IBM China also gave SZU and its other supported universities complimentary licenses of the Chinese version of OS/2 Warp for faculty members. OS/2 Warp is the third version of IBM's 32-bit operating system with a Mainland ¥2,350 (US \$280) per copy list price. Students completing a certified course on OS/2 Warp or registering as users of the China Education and Research Network (CERNET) also qualified for a complimentary license of OS/2 Warp P3.0. IBM planned to train hundreds of university professors in 1995-1996 with the expectation that these certified Warp instructors would be able in turn to provide training to other institutions, schools, businesses and offices. Another donation came from the Shenzhen Investment Management Company, a city-run company, which gave ¥1 million to the Economics Department to set up a computer accounting laboratory.

University research involving computers was intended to be very application-based, with an emphasis on developing software applications for business and industry.¹²⁰ One project, jointly undertaken by Electronic Engineering and Qinghua University, involved developing a micro computer hotel management system, and it received awards from Beijing City and at a Shenzhen computer application convention. All departments were bitten by the computer bug. The Foreign Language Department paid students to computerize an entire Chinese-English dictionary; three books on American idioms were word-processed, printed and mimeographed for class use. The

Chinese Department faculty developed an index system for the Chinese classic, *The Dream of the Red Chamber*, a labyrinthine novel which includes dozens of major characters. With the assistance of the Computer Center, developing the *Red Chamber* index system took 20 teachers and 70 students some 17 months. The final product, on 79 floppy diskettes, included 200 index functions, allowing for searches by word, idiom, phenomenological descriptions (e.g., love, appearance), interior decoration, operatic music, riddles and jokes. The task was considered parallel to putting the works of Shakespeare onto a computer. The department also computerized works of Tang Dynasty poetry (26,000 hours of computer time) and started a project on the history of 25 dynasties (By 1986 Ming was completed, and Qing was being input). In 1992-93 SZU received three national level “863” research grants.¹²¹ Two of these involved computers: ¥400,000 (US \$70,000) computerized control system in buildings (Vice-president Ying named as principal investigator) and computerized decision-making in securities/stocks. Research projects in 1995 brought in ¥400,000 (US \$70,000) in another 863 project for financial computing and ¥40,000 (US \$7,000) in municipal funding for the development of a luminescent computer display terminal.¹²²

International software development company

International Business Machine Corporation’s links with China date back to the 1930s. The first IBM machine was installed in Beijing in 1934, while its first China office opened in Shanghai two years later. After an interruption of almost 30 years, IBM resumed business in the country in 1979, resulting in the installation of the first IBM commercial data processing machine in Shenyang the same year. IBM China Corporation was established in 1984, and by the mid-1990s IBM had six joint ventures in China.¹²³ One of its first joint ventures was International Software Development Company (ISD), set up on 22 June 1991 between IBM China/Hong Kong, SZU, and the Bank of East Asia. With a total cash and in-kind investment of US \$2.2 million, ISD was to develop “software solutions” for customers in China, Hong Kong and other parts of the world.

As SZU’s contribution to the ISD joint venture, the university provided two floors in Teaching Block B, sealing them off from the rest of the building and redesigning the classrooms into office space. Several computer staff, including the developer of the Management Information System, transferred to ISD. Vice-president Ying, who was a founding director, redirected his energies away from SZU affairs to oversee ISD. The loss of staff and expertise hit the university Computer Center especially hard and created a tal-

ent vacuum that was not filled for several years. In 1992 alone six of 35 center staff left, and the center by its own admission was forced to employ part-time students. The joint venture hired a few graduates from SZU, but most of its recruits held graduate degrees from “the finest universities in China.”¹²⁴ One of the attractions for working at ISD was the opportunity to go abroad. ISD established internship programs with the Toronto Laboratory, Canada, and the Yamato Laboratory in Japan. Employees were sent overseas for “periods of three, six or twelve months on a variety of high-level projects and then returned to Shenzhen to share their new expertise with colleagues...”¹²⁵ The joint venture also hired consultants from Canada, Hong Kong and the U.S. Only about half of the staff sent abroad came back to ISD, Shenzhen. Several staff who returned complained that the technical and language skills that they had acquired overseas were not put to use in ISD. Several quit after returning. Interviews with several former staff, including expatriate consultants, paint a picture of staff under-employment. In the first year, management banned the playing of video-games (an offense would result in automatic termination) in an effort to increase productivity. Staff had resorted to playing video games because they experienced a large amount of idle time. Work was often slowed because of faulty equipment. For example, computer printer cables rarely worked. The manager of ISD refused to authorize the outside purchase of printer cables, insisting that they could be produced cheaper in-house. But ISD lacked the proper equipment to produce quality cables, so the printers often malfunctioned. Faulty equipment meant that the expatriate staff would be sent weekly to the Hong Kong ISD office to do routine chores that the SZU office should have been able to handle. Other employees were under-employed. One *zhuanke* student who worked at ISD as part of the work-study program reported that he was given no assignments during the entire six months he worked there. He spent his work hours word-processing complete newspapers and was able to input 100 Chinese characters/minute. Upon graduation he was able to secure employment as an expert Chinese typist.

From the time of its founding ISD had secured a market niche by converting and translating software for use on the Mainland. For example, Software AG, a German-based company, released in March 1996 a simplified Chinese-language version of its Production Information System (PRODIS) software, based on ISD’s localization of the product.¹²⁶ The company also contracted to produce management software for enterprises, banks and hotels, similar in nature to the work done by staff of the Computer Center and the Electronics Engineering Department. Despite problems of

low efficiency, ISD possessed institutional support and infrastructure that individual teachers lacked. It could still produce products cheaper than its international rivals. This was partly due to low staff costs (they earned about one-fourth as much as their North American counterparts) and the generous subsidies provided by SZU to school-run enterprises. In 1995, its fifth year of operation, ISD reported its first profit, about 1% of production value. That year it paid ¥100,000 into the School Fund.¹²⁷ It also paid ¥8 million for an office and factory, located about 1 km. away from SZU, where it moved in August 1996. Since its inception, ISD had been determined to pass ISO-9001, an international commercial standard of operation. By mid-1996 it was still struggling to achieve ISO-9001 status.

Audio/visual center

Another teaching support unit was the Audio/visual center. Founded in SZU's first year, by 1986 A/V operated six language labs, two audio labs and four video labs. The Center housed 1,500 hours of audio cassette tapes, including 300 foreign radio programs, and 3,000 hours of video tapes. By the following year, these had increased by one-third to 2,000 and 4,000, respectively. Many of the video tapes were copied off Hong Kong television, where the four major stations (2 English, 2 Cantonese) each showed about ten full-length feature films per week, along with numerous documentaries and news programs. Through its central control room, A/V could play as many as three different programs to over 100 classrooms. In its first three years of operation, A/V played over 1,000 hours of video programs for students; in the first ten months of 1987, A/V played 820 videos in class, to 45,736 viewers. Over the same period, its language labs served 92,534 students over 3,080 hours and 48 teachers used overhead projectors and slides. The usage rate of A/V equipment was reported to have increased 20% from 1987-1988. Students spent 5,256 hours in language labs in 1988. The center employed 22 fixed staff, including four just for maintenance, and about ten part-time *zhuanke* students. The A/V 1987 inventory included 216 tape players, 46 video players, 3 video cameras, 64 color televisions, 3 film projectors. Its eight language labs provided 276 seats used by 560 students daily. It operated several darkrooms, including one for making transparencies. By 1990 the video rooms on average each showed 44 hours of video per week (a 10% increase over the previous year), and each of the 7 language labs was open for an average of 40 hours per week. Other statistics on A/V activities appear in Table 5.16.

Table 5.16: Audio/Visual Center activity¹²⁸

year	language lab usage hours	video hours shown in class	duplicated audio tapes (hours)	duplicated video tapes (hours)	transparencies made
1983-85	925	1,350	12,000	560	3,799
1986	2,379	1,289	7,496	725	2,943
1987	4,110	2,061	17,893	773	5,154
1988 (Jan-Sept)	10,106	6,273	49,251	3,249	13,535
1995	9,640	733	6,027	892	4,100

Just like other teaching support units, A/V ran side-businesses. By 1987 it operated recording and video studios. It also manufactured and marketed a sound equalizer and speaker system. In 1988 it offered a three-year training course in audio/visual technology. Much of A/V's cash flow came from copying tapes for students and staff. In 1986 it duplicated 30,000 cassette tapes, charging ¥1.50 plus the cost of a new tape. By 1993 only 10,000 tapes were duplicated since by then most students either owned or had access to double-tape players. The center also marketed various products and services to the public, as indicated by its color four-page advertisement in the *1987 Yearbook*.¹²⁹ Equipment was sold in ten provinces. An acoustics system for use in cinemas (SU8800) was sold to 20 movie houses. It was deemed "very successful" by SZU's Research Office, and A/V's foray into the business world was held up as a model of "double harvest" involving both social and economic efficiency.¹³⁰ In other words, the Center was getting paid for doing good work for public use.

The center also served SZU's public relations needs. Its first videos in 1985 were entitled "Singing Praise of SZU" and "Going down the Experimental Road." Its moral education video "Time, Life, Strength" was shown to students in several departments. "Take a Walk on Campus" appeared on central television. The video "The Never-ending Search" discussed Party construction at SZU. "SZU Marching Forward" described the university's military training for freshmen. Other videos presented the SZU arts festival, the library, and the "second classroom." Marketing within the university did not fare so well. Teachers did not know which videos were available. The center had printed a list of its video inventory in 1988, but the list was not updated for four years, and was not electronically available even by the mid-1990s.

The A/V Center did not suffer the maintenance problems that plagued the Computer Center. The televisions and VCRs were all Japanese-made imports and were operated only by A/V staff. In contrast, A/V language laboratories were in poor shape. During the semester about one-fourth of the booths in language labs were not operating correctly, but this posed no problem to either students or teachers. Language classes usually had no more than 30 students, but the larger labs were equipped with almost one hundred seats. As one instructor noted, "Even if half the units are broken, we can always find enough that work." A student, speaking through an interpreter because of his low English proficiency, took quite a different position: "I always try to find broken equipment, so when the teacher tries to listen in on me, she can't hear my mistakes. That way, I can sleep during language lab." Each term, just before exam week began, the A/V staff tested the headphone and console of each booth in the language labs to ensure there would be no problems when examinations were given. During the rest of the term, only the master console equipment was maintained.

The year 1991 marked an abrupt turn in the A/V's focus. The "double harvest" praised in 1988 was in effect condemned in 1991. New leaders were appointed and the Center was instructed to produce "more video and audio materials with SZU characteristics."¹³¹ SZU's implementation of its Eighth Five-year Plan that coincided with the state-level plan also called for improving audio-visual activity,¹³² and the center was listed by SZU as one of eight offices to receive priority in funding.¹³³ Improving and utilizing A/V technology was encouraged as a legitimate use especially for funds for key courses.¹³⁴ The new leadership wanted to restore an academic focus and noted that "after 1987 its operating direction had become derailed" and that this "caused a painful result." The new leader were critical of his predecessor and produced a litany of complaints:¹³⁵

During those several years, the center's main task was to produce big scale TV programs or profit-making commercials. None of the staff was making programs relating to teaching. Four to six engineers or technicians stopped doing teaching work, and instead did academic research projects that brought no economic efficiency. A/V equipment worth ¥2 million was not properly maintained. Imported language labs sat for years 'handicapped.' The slide studio was closed. Some equipment donated by foreign countries at the end of 1986 was warehoused like rubbish.

The center adopted a policy of the Three Deeps: go deep into teaching, go deep into subjects, and go deep into the classroom. Academic departments were urged to replace "chalk and blackboard" with A/V technology. The

center recommended that 30% of teachers should be using A/V technology and that 30% of all courses should employ these methods. According to the new leader, accomplishing these objectives was made difficult by eight-year old equipment and under-staffing (18 staff in 1991 compared to 26 in 1988). The Center relied on part-time night school students, who were permitted to spend one-third of their workday on their own study. By 1992 only two technicians were maintaining A/V equipment; three more were hired. The annual budget for equipment replacement and maintenance was ¥100,000 (US \$18,000). The entire staff was overhauled: nine transferred out, two retired, eight transferred in; by 1993, A/V employed 22 fixed staff. In prior years much equipment was reported as having been stolen, due to slack record keeping. Equipment that had been broken for two years was fixed; ¥200,000 (US \$35,000) was spent on renovations, “bringing in sunshine to dark rooms.” Two CAI (computer-aided instruction) classrooms were equipped with computers and big screens. By 1993 A/V was running about 100 hours of video classes each week, and had 12 hours of moral education tapes for instructing students. New regulations were implemented, less money was spent on entertaining and receiving visitors, and equipment “that one can live without” was not purchased.

The center did not restrict its activities to teaching. It also assisted in up-dating the auditorium used for formal occasions, located in the Science Building, with wireless simultaneous translation sets; satellite dishes in the new downtown teachers’ residential complex; and a PA system which was built for the sports center. A/V continued to operate classes on the side, in conjunction with the Foreign Language Department. A/V’s contribution to the course was providing classrooms (the FLD had no classrooms to spare) and the teaching was assigned to part-time staff who were recent graduates.

In an effort to improve the language labs, doors were not opened until after the teacher arrived. Whether this procedure helped to maintain equipment is unknown; but hallways crowded with waiting students became bottlenecks, which caused classes through-out the building to start late. Teachers were required to sign contracts with A/V and were instructed to assign seats to students and to check that earphones worked.

A/V intensified its new direction toward academics with a new leader, formerly deputy head of the New Energy Institute, who was appointed in 1994. The province listed two SZU courses—computer applications and chemical analysis—as experiments using audio-visual technology. The Center began working more closely with academic departments, including Physics. It desired to offer the latest technology to teachers and used

¥900,000 (US \$104,000) to upgrade equipment, including two multi-media computers. Not restricted to teaching work, A/V continued to make videos concerning SZU, including 10 of which were broadcast on Shenzhen television. In 1994-95 about one quarter of SZU's teachers used A/V technology in 103 courses, instructing students 5,560 times. Audio-visual equipment covered 11,592 hours of student instruction. The center's service to society (a term that reflects outside business) included providing acoustics to karaoke halls.

As part of the effort to pass the 1995 SEdC accreditation, over ¥1 million (US \$120,000) was spent on re-equipping two language labs. In that year, 35.5% of all courses used audio-visual technology (SEdC self-evaluation grade B), and SZU had 10 special CAI courses (grade C). The center expanded its staff, bringing in seven people in total, five of whom were graduates of "famous" universities and four of whom held masters or doctorates.¹³⁶ The Center's production for 1995, as reported in Table 5.16, suggests it was no longer taking jobs from outside the university, as it had in 1988. In 1995, in addition to duplicating materials, it purchased 55 CD or VCD disks (120 hours) and 80 video tapes (170 hours). Its public relations videos included "Information Highway in the Dorms" and "Fulfilling the Dream," concerning Chen Cuiting, the Olympic champion gymnast who came to SZU in 1990 as a freshman in the International Finance & Trade Department.

Conclusion

This chapter has explored budgeting and finances at SZU. By piecing together data from published narrative reports, it has presented a sketch of how money at the university was handled, despite the fact that the university itself never released a financial report adhering to international accounting standards. Shenzhen University was a wealthy institution. It built an entire campus within two years, most of the construction occurring in a nine-month period—probably the fastest campus-building in history. The university received most of its funds for recurring expenses from the municipal government. It was able to purchase an abundance of high-tech educational support material including computers and audio-visual equipment. Much of the material, however, was not maintained and did not function properly. The university also had sufficient funding to build and stock a library that was adequate to meet the needs of a teaching institution, although not adequate for most areas of academic research. Since public funds were earmarked for specific purposes, certain areas became underfunded. Major deficiencies

existed in terms of personnel. Few funds were set aside for research, and salaries were inadequate. The constant outflow of staff (one-third of fixed staff left university employ within the schools' first ten years) can partly be attributed to insufficient remuneration. In the late 1980s staff needed to accumulate sufficient funds to meet downpayments for subsidized housing that was being offered for sale. Staff turned away from research and pursued various avenues for increasing their incomes. The university itself was short of funds. It ran deficits annually, overspending the budgeted amounts allocated by the municipal government in the Education Fund budget. SZU balanced the books, so to speak, with tuition funds from fee-paying (*zifei*) and contract (*daipei*) students, as reported in SZU's Supplemental Budget. The university also developed its own sources of revenue, including profits from school-run enterprises and remittances from academic departments which offered training courses that were outside those authorized by the plan approved by the upper levels. These funds went into the School Fund budget.

The university's financial situation and the personal financial pinches felt by staff caused a certain disengagement from education (both teaching and research) by rank-and-file teachers. The lack of transparent accounting led to persistent rumors from the late 1980s that large amounts of money were being embezzled by university *lingdao* at the *chu* and *ting* levels. Indeed, the data reported in various yearbooks failed each year to account for several million *yuan*. To what extent these funds were embezzled is unknown, but the campus community commonly accepted the notion that leadership paved the road to riches. Corruption is discussed in Chapter Eight.

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1. Min Weifan, cited in Zhang Huaizhi, "Establish a high-efficiency system of higher education investment," 1995.
 2. Sources: SZU yearbooks. In all years Supplemental Funds and School Funds subsidized the deficit of the Educational Fund. Thus, the first row of the table uses expenditures while the latter two use income in order to compensate for the intermingling of budgets.
 3. Source: Calculated from Table 5.1.
 4. *Daipei* students were under contract with *danwei* which would be their future employers. *Zifei* students, who paid tuition, scored below the admission score line set for regular *benke* students. Out-of-plan students refer to those who enrolled in training courses that were not part of the *benke* (undergraduate bachelors track) or *zhuanke* (short-term specialized) programs.
 5. "Meeting minutes on speeding up the whole university's management information system, 23 February 1988," 1988 Yearbook, p. 77.
 6. Liao Hanguang, "Report on Adult Education Department," 1988 Yearbook, p.

- 170.
7. Liang Beihan, "Open College report," *1988 Yearbook*, p. 86. It paid ¥394,916.90 (US \$106,000) into the School Fund in 1988, which included the loan and possibly interest and remittance.
 8. Source: *1987 Yearbook*, p. 147. Departments were responsible for paying utilities and arranging library cards for students out of their income from teaching night-school classes.
 9. The main job of the Finance Office was to manage funds from the Education Fund budget and the School Fund and to collect and manage funds taken in from department side-businesses. Su Nugeng, "Financial management work," *Shenda Tongxun*, no. 6 (1988/89), p. 10.
 10. "New proposals on SZU's reform and innovation, 25 September 1984," *1986 Yearbook*, p. 168.
 11. "Provisional financial management regulations, 6 August 1987," *1987 Yearbook*, p. 132.
 12. "Academic research minutes, 17 March 1988," *1988 Yearbook*, pp. 103-4.
 13. Deng Jingtong, "On the management mode of higher education universities' research," *1988 Yearbook*, p. 101.
 14. Wu Zewei, "Strict requirements starting from every teacher himself; further correct teaching attitude, speech at teachers conference, 26 June 1990," *1989-90 Yearbook*, p. 39.
 15. "Notice on strengthening management over printing and publications, 27 November 1989," *1989-90 Yearbook*, p. 239.
 16. Source: "Provisional measures managing out-of-plan generated income, 20 February 1990," *1989-90 Yearbook*, pp. 187-189.
 17. "Better management of adult education, 17 May 1991," *1991 Yearbook*, p. 242.
 18. Liu Xizhen, "Report of Guangdong university work-union committee party construction inspection group, 18 December 1991," *1991 Yearbook*, p. 51.
 19. Chen Guoquan, "Management Department report," *1991 Yearbook*, p. 97.
 20. Yu Pingjing, "Civil Engineering Department report," *1991 Yearbook*, p. 119.
 21. Wang Jiansheng, "Physics Department report," *1991 Yearbook*, p. 123.
 22. Gao Lisheng, "Precision Machinery and Instrumentation Department report," *1991 Yearbook*, p. 129.
 23. Chen Guangang, "Academic Affairs Office report," *1991 Yearbook*, p. 137.
 24. Su Nugeng, "Finance Office report," *1991 Yearbook*, p. 155. The Finance Office continued to advocate centralized management of side-businesses (*1992-93 Yearbook*, p. 66), a policy finally adopted in late 1996.
 25. Tan Zaixi, "Foreign Language Department," *1991 Yearbook*, p. 100.
 26. See discussion of corruption, Chapter Eight.
 27. "Provisional regulations on salary system and on-campus subsidy, July 1992,"

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- 1992-93 Yearbook, pp. 352-3.
28. Source: "Provision regulations on salary system and on-campus subsidy, July 1992," 1992-93 Yearbook, pp. 352-3.
 29. Associate professor, 1993.
 30. "Financial management regulations, 23 December 1992," 1992-93 Yearbook, pp. 358-59.
 31. "Audit Office report," 1995 Yearbook, p. 220.
 32. "A Circulated notice about the result of the auditing of the Foreign Language Department's financial affairs from January 1990 to July 1993, SZU, Document # 121 (24 May 1995)."
 33. "Management Department report," 1992-93 Yearbook, p. 165.
 34. These were regulated, respectively in "Emergency notice about rectifying those outside units working with SZU to offer various post-graduate courses, 3 April 1995," 1995 Yearbook, p. 276; and "Regulations on managing joint courses with foreign universities, 9 November 1994," 1994 Yearbook, p. 214.
 35. "Provisional regulations on SZU-run enterprise contributions to School Fund," in *Selected Collection of Administrative Regulations for Shenzhen University*, 1993), pp. 400-1.
 36. "Major points of SZU work report, 30 April 1992," 1992-93 Yearbook, p. 26; "Report of the Enterprise Management Office," 1992-93 Yearbook, p. 237; Cai Delin, "Unify and strive forward for a first rate university, speech at SZU second party conference, 19 October 1994," 1994 Yearbook, p. 57; 1995 Yearbook, p. 50, 61; 1996 Yearbook, p. 173. Dollar equivalents are computed based on year-end exchange rates.
 37. "Provisional financial management regulations, 6 August 1987," 1987 Yearbook, p. 132.
 38. _____, "Developing technological industries benefits the nation," 1995, p. 53.
 39. *Ibid.*, p. 58.
 40. Source: Su Nugeng, "Finance Office report," 1991 Yearbook, p. 156. Columns do not add up due to rounding. The ¥4.1 million deficit for 1991 was offset by several sources: ¥1.6 million special municipal funding for 4-months of salary, ¥2.1 million surplus from School Fund, and ¥ 1.4 million surplus in the Supplemental Budget.
 41. 1991 Yearbook, p. 256. Performance scholarships were given by four ranks: rank #1: ¥70; #2, ¥50; #3, ¥40; #4, ¥30. From 1988 a basic scholarship (initially ¥25) was given students to compensate for increased canteen prices. It was believed that many outsiders were enjoying low prices at the canteens; so prices were raised and students subsidized.
 42. Source: SZU yearbooks.
 43. Source: SZU yearbooks.
 44. Shenzhen Municipality and Party Committee, "Report to Guangdong Province

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- on creating Shenzhen University, 22 January 1983," *1986 Yearbook*, p. 154.
45. "Guangdong report to State Council on the founding of SZU, 26 February 1983," *1986 Yearbook*, p. 159. In 1983 and 1984 investment totaled ¥28.4 and ¥35 million, respectively, according to Li Zhonghao, "Modernization of capital construction," in Tang, *Searching for Shenzhen University's Reform Path*, 1988, p. 350.
 46. "Comprehensive Report to Shenzhen municipality, 5 May 1987," *1987 Yearbook*, p. 164;
 47. Peng Naixing, "Report on capital construction," *1989-90 Yearbook*, p. 110.
 48. *1988 Yearbook*, p. 21. Given the multi-year nature of the figures in this and the following paragraph, a US dollar conversion has not been attempted.
 49. "President's work report," *1991 Yearbook*, p. 26. The main campus gate is a collapsible, slinky-like structure on tracks that is remote-controlled from the guard station. This type is commonly used in Shenzhen. When it breaks down, moving it manually requires the strength of several men.
 50. ¥150 was given by Peng Naixing, "Report on capital construction," *1989-90 Yearbook*, p. 110, but ¥200 provided in "President's work report," *1991 Yearbook*, p. 26.
 51. This project was budgeted at ¥13 million (Liu Fuchuang, "Capital Construction Department work report," *1992-93 Yearbook*, p. 231). A HK \$10 million donation came from Hong Kong entrepreneur Yu Yuanping, director of the Kumagai Group (HK branch) that built and owns Diwang, the tallest building in Shenzhen. The exchange rate difference between Hong Kong dollars and Chinese *yuan* when the gift was converted to *renminbi* produced ¥333,500 (US \$39,000) in income for the 1994 supplemental budget (*1994 Yearbook*, p. 175).
 52. "President's work report," *1991 Yearbook*, p. 26
 53. Cai Delin, "Deepening reform, strengthening management and promoting development, report to the teachers and staff representatives conference," 17 December 1993, *1992-93 Yearbook*, p. 56. The corresponding figure for 1991 was ¥20 million.
 54. *1992-93 Yearbook*, p. 294.
 55. *1994 Yearbook*, p. 57.
 56. Luo Zhengqi, "Welcoming speech at 1987 opening ceremony," *1987 Yearbook*, p. 15.
 57. Lin Zuji, "Several issues on further improving SZU, speech to teachers and staff representatives conference, 17 December 1993," *1992-93 Yearbook*, p. 18.
 58. *1996 Shenzhen Statistical Yearbook*, p. 294.
 59. Sources: Column (1), Zeng & Zhang, *Research Report on Vocational/Technical*, 1995, 93; Column (2), SZU yearbooks.

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60. A flat in the Shenda Village in 1991 cost teachers around ¥100,000. The fair market value of the flat was three times that amount. By 1998 the property rights held by a flat owner in China were still unclear. Some believed that an owner could sell the flat to a state worker who was eligible for state housing benefits, but whether the seller could pocket the profit was unclear. No faculty flats had been put up for legal sale by 1998.
 61. Zeng & Zhang, *Research Report on Vocational/Technical*, 1995, p. 93.
 62. Sources: *1986 Yearbook*, pp. 21-22; *1987 Yearbook*, p. 118.
 63. Li Zhonghao, "Report on campus construction," *1987 Yearbook*, p. 115.
 64. Li Zhonghao, "Modernizing capital construction," in Tang, *Searching for Shenzhen University's Reform Path*, p. 350.
 65. "President's work report," *1991 Yearbook*, p. 26.
 66. Sources: *1986 Yearbook*, pp. 21-2; *1987 Yearbook*, p. 118; *1988 Yearbook*, pp. 21-2; "Take a walk on campus," video by the audio-visual center, transcript, *1988 Yearbook*, pp. 22-4; Liu Fuchuang, "Capital Construction Department work report," *1992-93 Yearbook*, p. 231; Liang Hongwen, "The architecture of Shenzhen university," pp. 117-24.
 67. Li Zhonghao, "Capital construction report," *1988 Yearbook*, p. 173.
 68. *Ibid.*, p. 175.
 69. Li Zhonghao, "Report on campus construction," *1988 Yearbook*, pp. 21-2.
 70. "President's work report," *1991 Yearbook*, p. 26.
 71. Peng Naixing, "Report on capital construction," *1989-90 Yearbook*, p. 110.
 72. Peng Naixing, "Capital construction report," *1991 Yearbook*, p. 161.
 73. Data were retrieved from the WWW homepages of all Chinese universities which provided sufficient statistics (N=57), December 1997.
 74. Liu Renjing, "College and university admissions," 1995, p. 9. Actual dorm space was 6.4 m² per capita in 1993 and 6.9 m² in 1992.
 75. "Library," *1988 Yearbook*, pp. 80-1.
 76. "Self-evaluation report, 12 October 1994," *1995 Yearbook*, p. 53.
 77. "Architecture Department report," *1991 Yearbook*, p. 107. At Hong Kong University most architectural materials are housed in the main library.
 78. "Self-evaluation report, 12 October 1994," *1995 Yearbook*, p. 53.
 79. Source: SZU yearbooks.
 80. Source: SZU yearbooks. Data have been converted to calendar years.
 81. Personal correspondence, 4 May 1992.
 82. Luo Zhengqi, "People, environment, efficiency, style: design and building SZU from the point of view of both president and an architect," *1988 Yearbook*, p. 18.
 83. "Library report," *1989-90 Yearbook*, p. 159.
 84. "Library," *1992-93 Yearbook*, p. 197.
 85. Data retrieved from WWW homepages of Chinese universities that provided

- sufficient statistics (N=29). The only university library more spacious than SZU's is the University of Petroleum (Beijing) which has only 100,000 volumes for 14,000 meters (7 books/m²); the most congested is Ningxia University with 243 books/m².
86. Data for 1991, the only year that separated out duplicates. 1993 data listed 3,633 Chinese and 1,312 foreign periodicals, some of which were duplicates.
 87. "Report to Shenzhen municipality concerning adjusting leadership work, 15 April 1987," *1987 Yearbook*, p. 177.
 88. Source: Previous figure; student population data from SZU yearbooks. Data published in SZU's self-evaluation report that was prepared for the 1995 accreditation reports per student circulation as 37 books for 1992-94. This figure may include night-school students computed as full-time equivalents.
 89. Sources: *1986 Yearbook*, pp. 14-5; *1987 Yearbook*, p. 206; *1988 Yearbook*, pp. 81-95; *1989-90 Yearbook*, pp. 163-4; *1991 Yearbook*, pp. 207-8; *1992-93 Yearbook*, p. 376, 382; *1994 Yearbook*, p. 300; *1995 Yearbook*, p. 337, *1996 Yearbook*, p. 298. Figures do not sum due to rounding. Decrease in 1989 due to recategorization. 1997 data indicate 11% growth, but they provide no further breakdown (e.g., foreign, Hong Kong/Taiwan): *1997 Yearbook*, p. 349.
 90. "Library report," *1989-90 Yearbook*, p. 159.
 91. "Report of Scientific Research Department," *1989-90 Yearbook*, p. 97. This system was not updated and, because of the mobility and expansion of Shenzhen firms, became of little value after a few years.
 92. "Key of 1991-92 workplan," 10 October 1991, *1991 Yearbook*, p. 19.
 93. Jia Zhang & Qiang Zhu, "Chinese information market: building Chinese bibliographic information networks," retrieved September 1996, <http://www.asis.org/Bulletin/Jun-95/zhang.html>.
 94. Personal e-mail correspondence, April 1997.
 95. Library study played a major part in changing a Chemistry major from being a exam cheater into an excellent Three Good student. See Wang Songrong, "Speech at 1993 awards ceremony," *1992-93 Yearbook*, p. 129.
 96. "Opinions regarding strengthening SZU party construction, 30 October 1990," *1991 Yearbook*, pp. 72-7; "President's work report," *1991 Yearbook*, p. 26; "1991 work summary, 14 January 1992," *1991 Yearbook*, p. 32; "Academic Affairs Office report," *1991 Yearbook*, p. 137; "Student Affairs Office report," *1991 Yearbook*, p. 145.
 97. Zhang & Wu, "Shenzhen University remodels a new image," 1990; Yang & Yang, "Shenzhen University strengthens Party construction," 1991.
 98. Tang et al., "Will Shenzhen University be as shining as before?," 1993.
 99. He Jun, "What Shenda needs is sincere care: an open letter to *Shenzhen Fazhi Bao*," *Shenda Tongxun*, 1993, no. 4, pp. 26-7.
 100. Wang Songrong, "Speech to mid-level cadres," *1995 Yearbook*, p. 25.

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101. Liang Guilin, "Report to students," *1995 Yearbook*, p. 33.
 102. "Accreditation result report by expert group," *1995 Yearbook*, p. 41.
 103. "Giant: what is wrong with you," *Shenzhen Tequ Bao* (27 January 1997), p. 1. Shi Yuzhu and Cai Wei purchased a full-page advertisement in SZU's tenth anniversary book, *Shenzhen University: Its First Decade*, p. 84.
 104. "Accreditation result report by expert group," *1995 Yearbook*, p. 41.
 105. *1988 Yearbook*, p. 16, 45; *1987 Yearbook*, p. 164.
 106. Personal e-mail correspondence, 30 January 1995.
 107. "1991 work summary, 14 January 1992," *1991 Yearbook*, p. 38.
 108. Huang Yunsheng & Lin Qiang, "Computer Center report," *1992-93 Yearbook*, p. 198.
 109. *1995 Yearbook*, p. 151.
 110. "Self-evaluation report, 12 October 1994," *1995 Yearbook*, p. 56.
 111. "Computer Center," *1987 Yearbook*, p. 70.
 112. "Computer Center report," *1992-93 Yearbook*, p. 198.
 113. "1984 work summary," *1987 Yearbook*, p. 161.
 114. "Opinions on strengthening anti-corruption construction, 20 October 1991," *1991 Yearbook*, p. 78.
 115. "Academic affairs report," *1988 Yearbook*, p. 58.
 116. Ou Jianhua, "Life service general company," *1988 Yearbook*, p. 109.
 117. "President's work report," *1991 Yearbook*, p. 26.
 118. E-mail correspondence, April 1997.
 119. IBM announces OS/2 Warp education, certification programs with Chinese universities, <http://www.austin.IBM.com/pspinfo/chinacertif.html>, retrieved September 1996. The 12 universities were: Beijing University of Aeronautical Aviation, Qinghua, Beida, Northern Jiaotong University, Shanghai Jiaotong, Fudan, Shanghai, Nanjing, Southwest, Huadong, South China University of Technology, and SZU.
 120. Ying Qirui & Deng Jintong, "Development strategy of SZU's science and technology 1995-2001," *1995 Yearbook*, p. 156.
 121. "863" grants take their name from their date of origin, March 1986.
 122. *1995 Yearbook*, pp. 163-64.
 123. IBM Hong Kong Corporation, <http://www.IBM.com.hk/IBMHK/Intro>, retrieved Dec. 1995.
 124. *International Software Development (Shenzhen) Co. Ltd.* [brochure], n.d. c. 1993], p. 9.
 125. *Ibid.*
 126. News brief, <http://www.idgchina.com/news/jan96/newsjan.htm>, retrieved March 1996.
 127. ISD work report, *1995 Yearbook*, p. 197.
 128. Sources: *1988 Yearbook*, p. 167. *1995 Yearbook*, pp. 153-4. Transparency

figures for 1995 include 783 slides.

129. Between pp. 74-75.
130. Deng Jingtong, "On the management mode of higher education universities' research," *1988 Yearbook*, p. 101.
131. "President's work report," *1991 Yearbook*, p. 30.
132. "Ten-year development plan and eighth five-year plan," *1991 Yearbook*, pp. 11-8.
133. "1991 work summary, 14 January 1992," *1991 Yearbook*, p. 34.
134. "Regulations about funds for key courses, 30 June 1992," *1992-93 Yearbook*, p. 290.
135. Li Xiangchen, "Audio-visual department," *1991 Yearbook*, p. 177. See also *1992-93 Yearbook*, p. 201.
136. "Audio-visual center," *1995 Yearbook*, p. 154.