The planning of craft and technician education in Hong Kong 1957 to 1982

This item was submitted to Loughborough University's Institutional Repository by the/an author.

Additional Information:

- A Doctoral Thesis. Submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy of Loughborough University.

Metadata Record: https://dspace.lboro.ac.uk/2134/22096

Publisher: © D. D. Waters

Rights: This work is made available according to the conditions of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) licence. Full details of this licence are available at: https://creativecommons.org/licenses/by-nc-nd/4.0/

Please cite the published version.
The Planning of Craft and Technician Education in Hong Kong
1957 to 1982

by D.D. Waters

Abstract

This thesis examines the planning of craft and technician education in Hong Kong, from the late 1950s, when the Technical College moved to Kowloon, to 1982, when the Department of Technical Education and Industrial Training and the Vocational Training Council were established. The study includes a review of social and industrial developments, and how they have affected technical education, as well as how planning has been undertaken as a joint exercise involving the Government, educational establishments and industry.

The two major approaches to manpower planning are then examined, namely the first system depending largely on forecasting, and the second employing flexible education and training methods combined with the substitution of labour, and reasons are given why a suitable combination of the two methods is usually selected. In addition, international developments and the methodology and techniques of manpower planning are discussed, as well as whether it can be used to stimulate economic growth. This leads to an examination of the manpower planning methods that have been employed in Hong Kong, and how these have been "translated" into a supply of technically educated personnel for industry, and how more thought has been given to social needs and students' aspirations in recent years.

This thesis also examines the planning and problems of growth and change in technical education, with respect to accommodation and equipment, courses and curricula, and staffing. The study then demonstrates how Hong Kong has become wealthier during the period under review, and how much money has been allocated to education. An analysis is then made of how this was spent, in the case of craft and technician courses, in order to compare how costs varied from institution to institution, and from discipline to discipline. The penultimate chapter then derives various conclusions from the foregoing study, and the "postscript" examines briefly the developments from 1983 to 1985.
THE PLANNING OF CRAFT AND TECHNICIAN
EDUCATION IN HONG KONG 1957 TO 1982

by

D. D. Waters

A Doctoral Thesis

Submitted in partial fulfilment of the requirements
for the award of

The Degree of Doctor of Philosophy of the

Loughborough University of Technology

March 1985

© by D.D. Waters 1985
# CONTENTS

Abstract | I
---|---
Acknowledgements | XII
List of abbreviations | XIII
Currency | XIV

## Chapter 1, **INTRODUCTION**

- Scope of thesis | 1
- Definitions | 3
- The general background | 8
- Economic developments as they affected technical education | 11
- Diversification | 15
- The structure of education in relationship to craft and technician education | 18
- Craft and technician education institutions | 23
- The Hong Kong Polytechnic | 28
- The City Polytechnic | 30
- The technical institutes | 30
- Liaison with industry | 31
- The contribution by individuals | 39
- Conclusions | 40

## Chapter 2, **THE NEED FOR A FLEXIBLE MANPOWER PLANNING AND EDUCATION AND TRAINING SYSTEM**

- Introduction | 42
- The rigid manpower forecasting approach | 44
- Flexible education, training and manpower provision systems | 47
- A middle course | 49
- The methodology of manpower forecasting | 53
- Substitution of personnel | 60
- Training and apprenticeships | 67
- Professional associations and unions | 72
- The position in Hong Kong | 73
- International developments in manpower planning | 86
Chapter 3, **MANPOWER PLANNING IN HONG KONG**

- Introduction 108
- Early manpower planning 109
- Manpower planning for technical institutes two to five 113
- Manpower forecasting 123
- The polytechnics 138
- The structure of manpower 139
- Manpower models 142
- Views of educationalists on forecasting 145
- K.W.J. Topley 147
- Conclusions 149

Chapter 4, **THE PROVISION OF STUDENT PLACES IN HONG KONG**

- Introduction 152
- The Morrison Hill Technical Institute 153
- Industrial training centres 155
- The Technical College/Polytechnic 156
- Technical institutes two to five 159
- Views on technical institute planning 164
- How many institutes needed? 165
- The total number of institutes required 170
- The size of technical institutes 175
- Possible roles for institutions 179
- "Institutes of excellence" and monotechnics 186
- The polytechnic/technical institute profile 187
- Levels of entry to technical courses 192
- Alternative methods 195
- Transitional accommodation 197
- Distance-learning 199
- Development plans 202
Social needs and students' aspirations 204
The City Polytechnic 208
The universities and overall co-ordination 211
Sir Sze-yuen Chung 213
K.L.C. Legg 214
Conclusions 215

Chapter 5, THE PLANNING AND PROBLEMS OF GROWTH AND CHANGE 218

Introduction 218
Change 219
Change and the educational institution 222

ACCOMMODATION and EQUIPMENT 226
Establishing a new institution 226
Planning for change 233
Future expansion 238
Equipment 239
The use of accommodation 241

COURSES and CURRICULA 246
Disciplines 246
Courses 248
Curricula and syllabuses 251
Curriculum development 253
A comparison of curricula between Hong Kong, Korea and Singapore 258
Credit-units 260
Liberal studies and extra-curricula activities 263
Other changes 266
Teaching methods 266
The medium of instruction 268
Examinations 270
The student population 272

STAFFING 274
Increase in numbers of technical teachers 274
The planning team 276
Educational advisers 280
Chapter 6, FINANCING AND COSTING

Introduction 303
Hong Kong's economic ranking 306
Money spent on education 307
Financing education and training 310
Costing exercises 310
The cost of running an educational institution 312
Costing of courses 312
Costing of disciplines 316
Buildings and equipment 319
Donations 323
Staffing 325
Numbers of students in a class and student wastage 329
Smaller classes 332
Rationalisation of courses 333
Utilisation of accommodation 334
Materials for students' exercises 336
Administration 337
Students' fees 337
Cost of a student-place 340
A comparison with Singapore 344
Views on money expended on technical education 347
Financial provision 351
Rate-of-return analysis 354
Are detailed costing exercises worthwhile? 359
Conclusions 360
Chapter 7, CONCLUSIONS
The future
Future research

Chapter 8, POSTSCRIPT

BIBLIOGRAPHY

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary sources</td>
<td>381</td>
</tr>
<tr>
<td>Secondary sources</td>
<td>394</td>
</tr>
<tr>
<td>TABLES</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1. Distribution of Workers According to Their Job Levels in the Ten Major Industries Shown by Numbers and by Percentages</td>
<td>6</td>
</tr>
<tr>
<td>2. Gross Domestic Product by Industry in Hong Kong</td>
<td>16</td>
</tr>
<tr>
<td>3. Composition of Domestic Exports in Main Industries</td>
<td>17</td>
</tr>
<tr>
<td>4. Growth in Numbers of Committees Related to Technical Education/Training on Various Industry/Government Committee Complexes</td>
<td>33</td>
</tr>
<tr>
<td>5. Numbers Employed in the Ten Major Manufacturing Industries in Hong Kong, Showing Numbers in Demand, and Numbers Completing In-plant Training Annually</td>
<td>114</td>
</tr>
<tr>
<td>6. Number of Employees in Registered and Recorded Industrial Establishments Based on Labour Department Quarterly Statistics for March Each Year</td>
<td>116</td>
</tr>
<tr>
<td>7. Summary of Manpower Statistics Obtained by the Ten Industrial Committees of the Industrial Training Advisory Committee</td>
<td>118</td>
</tr>
<tr>
<td>8. Correlation Between Industrial Training Advisory Committee Manpower Surveys and Labour Department Statistics</td>
<td>119</td>
</tr>
<tr>
<td>9. Distribution of Population and Industries Based on Registered Workers as at March 1967</td>
<td>122</td>
</tr>
<tr>
<td>10. Comparison of the Annual Demand and Supply of Technical Manpower</td>
<td>128</td>
</tr>
<tr>
<td>11. Estimated Numbers of Building/Civil Engineering Technician Trainees/Apprentices Recommended to be Taken On for Training as Shown by ITAC/Training Council Manpower Survey Reports</td>
<td>129</td>
</tr>
<tr>
<td>12. Estimated Numbers of Building/Civil Engineering Craft Trainees/Apprentices Recommended to be Taken On for Training as Shown by ITAC/Training Council Manpower Survey Reports</td>
<td>129</td>
</tr>
<tr>
<td>13. Estimated Numbers of Technician and Craft Graduates Required from 1986 to 2001 Per Annum</td>
<td>144</td>
</tr>
<tr>
<td>Tables</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>15. A Comparison of the Disciplines Proposed by the ITAC Committee on Technical Institutes with the Actual Courses Run in the Institutes</td>
<td>163</td>
</tr>
<tr>
<td>16. Deficiencies in Technical Education Places for Technician and Craft Students in Ten Major Industries</td>
<td>166</td>
</tr>
<tr>
<td>17. Division of Courses Between the Future Polytechnic and the Technical Institutes Proposed by ITAC in 1969</td>
<td>183</td>
</tr>
<tr>
<td>18. Comparison of Numbers of Students in the Technical College/Polytechnic and the Technical Institutes</td>
<td>189</td>
</tr>
<tr>
<td>19. A Comparison of 1979/80 Craft and Technician Enrolment Statistics in Hong Kong and Singapore</td>
<td>191</td>
</tr>
<tr>
<td>20. Job Vacancies to Graduate Input Ratios in 1981 From the Hong Kong Polytechnic, the Baptist College and the Two Universities</td>
<td>211</td>
</tr>
<tr>
<td>21. Build-up of Student Numbers in the Technical College/Polytechnic from 1947/48 to 1981/82</td>
<td>224</td>
</tr>
<tr>
<td>22. Departments/Institutes/Schools/Centres, as at 1982, in the Polytechnic</td>
<td>247</td>
</tr>
<tr>
<td>23. Departments, as at 1982, in the Technical Institutes</td>
<td>247</td>
</tr>
<tr>
<td>24. Comparison of Ratios of Broad Groupings of Subject Areas on Full-time Mechanical Engineering Technician Courses in South Korea, Singapore and Hong Kong</td>
<td>259</td>
</tr>
<tr>
<td>25. Increases in Numbers of Full-time Academic Staff, Including Principals and Vice-principals/Director and Deputy Director, in Technical Education Institutions</td>
<td>275</td>
</tr>
<tr>
<td>26. Deflators of Gross Domestic Product and Its Components, Government Consumption Expenditure</td>
<td>305</td>
</tr>
<tr>
<td>27. Financial Standing by GNP of Various Countries as at 1981</td>
<td>306</td>
</tr>
<tr>
<td>28. The Percentage of Public Expenditure on Education in Hong Kong Compared to Other Newly Industrialised Semi-Advanced Asian Countries</td>
<td>308</td>
</tr>
<tr>
<td>29. Total Annual Cost of Running an Average Technical Institute at Full Development as at 1979/80 Compared to the Technical College as at 1967/68</td>
<td>313</td>
</tr>
<tr>
<td>Tables</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>30. Typical Example of Costing for a Course at the Technical College in 1967/68</td>
<td>314</td>
</tr>
<tr>
<td>31. The Average Total Cost per Student in Technical Institutes in the Various Groups of Courses in 1977/78</td>
<td>315</td>
</tr>
<tr>
<td>32. Total Cost per Student Enrolled by Department, Mode and Level of Study in Technical Institutes in 1980/81</td>
<td>317</td>
</tr>
<tr>
<td>33. Overall, Average, Direct Unit-Cost Per Annum, as at 1978/79, per Student Place in the Polytechnic</td>
<td>319</td>
</tr>
<tr>
<td>34. Expenditure on Buildings and Equipment for the Five Technical Institutes</td>
<td>320</td>
</tr>
<tr>
<td>35. Cost of Equipment for the Five Technical Institutes</td>
<td>323</td>
</tr>
<tr>
<td>36. A Comparison of Basic Salary Scales (dollars per month) for Some Technical Teaching Posts in the Technical College in 1957 and in the Technical Institutes in 1982</td>
<td>326</td>
</tr>
<tr>
<td>37. A Comparison of the Salary Scales for Teaching Staff in the Polytechnic and the Technical Institutes as at 1978</td>
<td>327</td>
</tr>
<tr>
<td>38. Grades of Teachers in Technical Institutes Showing Typical Staff-Student Contact Hours</td>
<td>328</td>
</tr>
<tr>
<td>40. Comparison of Expenditure (dollars) per Student Place on Diploma and Certificate Courses in the Polytechnic and the Technical Institutes in 1979/80</td>
<td>343</td>
</tr>
<tr>
<td>41. A Comparison Between the Financial Expenditure on Education in Hong Kong and Singapore in 1978/79</td>
<td>345</td>
</tr>
<tr>
<td>42. A Comparison Between the Financial Expenditure on Education in Hong Kong and Singapore in 1979/80</td>
<td>346</td>
</tr>
<tr>
<td>43. Numbers of Students and Academic Staff in the Polytechnics and the Technical Institutes in 1984/85</td>
<td>379</td>
</tr>
<tr>
<td>FIGURES</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1. Map of Hong Kong, Kowloon and the New Territories</td>
<td>10</td>
</tr>
<tr>
<td>2. The Hong Kong Education System as at 1981</td>
<td>19</td>
</tr>
<tr>
<td>3. The Administrative Organisation of the Education Department</td>
<td>22</td>
</tr>
<tr>
<td>4. Locations of the Technical Institutes and the Polytechnics</td>
<td>27</td>
</tr>
<tr>
<td>5. Comparison Between, Firstly, Manpower Forecasting and a &quot;Narrow&quot; Education and Training Approach, and, Secondly, a Flexible Education System with No Manpower Forecasting</td>
<td>45</td>
</tr>
<tr>
<td>6. Typical Theoretical and Practical &quot;Education/Skills Mix&quot; for Technologists, Technicians and Craftsmen</td>
<td>62</td>
</tr>
<tr>
<td>7. Map Showing Locations of Population</td>
<td>121</td>
</tr>
<tr>
<td>8. Manpower Planning Procedure in Hong Kong</td>
<td>126</td>
</tr>
<tr>
<td>9. The Transformation Process of an Educational Institution (viewed as an Open System) as a Result of the Interrelationships of External and Internal Influences Affecting Policies and Decision-making</td>
<td>223</td>
</tr>
<tr>
<td>10. How Utilisation of Accommodation can be Improved</td>
<td>235</td>
</tr>
<tr>
<td>11. The Curriculum Development Process</td>
<td>254</td>
</tr>
<tr>
<td>12. Staff Development in the Technical Institutes</td>
<td>289</td>
</tr>
</tbody>
</table>
Acknowledgements

I proffer my thanks to many people, both in Hong Kong and overseas, who have supplied information, either knowingly or unknowingly, which has been used in this thesis, and written sources and discussions have been duly acknowledged in the text. Special thanks are due to the Director of Education for permission to use information contained in Government documents. I am also grateful to my past colleagues and friends in the Education Department, many of whom are now serving in the Department of Technical Education and Industrial Training, for their willing assistance and for permitting me to draw freely upon their work.

Finally but foremost, thanks are extended to Schofield Professor Leonard M. Cantor, Dean of the School of Education and Humanities, and Doctor J.R. Hough, Reader in the Department of Education, both of Loughborough University of Technology, England. Their friendly and constructive criticism and advice have been indispensable, and did much to set me on the right path which allowed me to follow this research to logical conclusions.

In accordance with regulations I hereby state that I am responsible for the work submitted in this thesis, and that the original work is my own, except as specified in acknowledgements, and that neither this thesis nor the work contained therein has previously been submitted to this or any other educational institution for a higher degree.

D.D. Waters

1. (140)ED(PR)WATER/D.D./1 IV (7 January 1980); and note from The Honourable Colvyn Haye, CBE, JP, Director of Education (19 November 1984).
LIST OF ABBREVIATIONS

B T E C : Business and Technician Education Council
C E I : Council of Engineering Institutions
C F T C : Commonwealth Fund for Technical Co-operation
C M A : Chinese Manufacturers' Association
C N A A : Council for National Academic Awards
E I T B : Engineering Industry Training Board
F T E : Full-time equivalent
G C E : General Certificate of Education
G D P : Gross domestic product
G N P : Gross national product
I L E A : Inner London Education Authority
I L O : International Labour Organisation
I T A C : Industrial Training Advisory Committee
K C R : Kowloon Canton Railway
M O D : Ministry of Overseas Development
O E C D : Organisation for Economic Co-operation and Development
P R C : People's Republic of China
S I Units : International System of Units
T E C : Technician Education Council
T E T O C : Technical Education and Training for Overseas Countries
U P G C : University and Polytechnic Grants Committee
V T C : Vocational Training Council
Currency

When dollars are referred to in this thesis, unless otherwise stated, they are Hong Kong dollars. The exchange value of the Hong Kong dollar was established in 1935 at 16 to the pound sterling. In November 1967 however the pound was devalued, and the exchange rate of the dollar was later fixed at one shilling and four and a half pence. In 1971 the rate for conversion was HK$14.55 = £1, and HK$5.58 = US$1. In November 1974 the Hong Kong dollar was allowed to float and, at the end of 1974, the middle-market rate was about HK$11.08 = £1, and HK$4.92 = US$1. At the end of 1982 the approximate rate was HK$10.39 = £1, and HK$6.5 = US$1.

1. Hong Kong 1969, pp.44 and 45.
2. Hong Kong 1971.
3. Chartered Bank records.
CHAPTER 1

INTRODUCTION

This chapter commences by outlining the scope of the thesis and by stating that, with the exception of certain instances when it is necessary to present a complete picture, this study restricts itself to craft and technician education in Hong Kong, mainly during the period 1957 to 1982. It then defines various terms such as "industry", the five main levels in the manpower "profile", including "craftsman" and "technician", and "technical education" as opposed to "industrial training".

The chapter then gives a resume of the general background of Hong Kong, followed by an account of its remarkable economic development, leading on to the diversification of industry and how these "shifts" have influenced technical education. A brief examination is then made of the education system as a whole, showing how technical education and the various institutions providing craft and technician courses fit into the overall pattern. The chapter concludes with an examination of the various links and liaison between technical education and industry, and the roles played by various individuals.

Scope of thesis

This thesis sets out to demonstrate how craft and technician education was planned in Hong Kong, and how some of these developments were based on related theory. Chapter 1 provides a general introduction and background information, while Chapter 2 postulates a model of manpower planning, and Chapter 3 chronicles the manpower planning actually undertaken, as it affected technical education in Hong Kong. Leading on from there Chapter 4 concentrates on the overall planning of technical education in the Territory (based on the manpower planning
criteria in Chapter 3), while Chapter 5 deals with the planning and problems of growth and change, and Chapter 6 examines the relevant financial aspects. Chapter 7 then draws logical conclusions from the thesis overall and attempts to anticipate the future. Finally Chapter 8, "Postscript", looks briefly at subsequent developments, namely from 1983 to 1985. It is hoped that by examining both the theory and the history of manpower and educational planning in Hong Kong, and by forecasting possible future trends, that this thesis will be of some use, not only to educationalists and planners locally, but also overseas.

This study covers the 25 year period from 1957, the year the Technical College moved to its new campus in Kowloon, to 1982, although examples are quoted outside that timespan when it is necessary to give a complete picture. Up to 1982, the five Government technical institutes came under the charge of the Department of Education¹, but on April 1 of that year they were handed over to the Vocational Training Council and came under its executive arm, the newly established Government Department of Technical Education and Industrial Training.² In addition Sir Murray (now Lord) MacLehose, Governor of Hong Kong from 1971 to 1982 (see page 40), set the tone for the rapid development that took place during the "MacLehose years".³ Also, with the planning required for a second polytechnic (the City Polytechnic), due to move to its new campus in 1988 (it has operated in temporary premises since 1984), and two more technical institutes expected to open in 1986 and another in 1987, 1982 appears to be the start of another "great leap forward". However, this thesis will be submitted before these new institutions have either opened or have settled down, and it will not therefore be possible to evaluate properly the full fruits of planning, although these new institutions will

---

¹. Education Department Annual Summary 1981-82, passim.
³. The MacLehose Years 1971-1982, South China Morning Post Supplement (April 1982), passim.
be touched on "en passant". This study concentrates on the planning of vocational education for craft and technician students, rather than technological education (degree level or equivalent) and general education, which are dealt with only when it is necessary to give an entire picture or when these impinge on craft and technician studies. (For example, see pages 211 and 212 for information concerning Hong Kong's two universities.)

There seems to be a dearth of books available about craft and technician education, and especially so in relation to the Third World, although a variety of articles and papers may be traced. In a similar way, little research on this subject has been carried out. For these reasons, it would appear that this thesis can serve a useful purpose.

Definitions

In this study the term "industry" is used in a broad sense, to embrace not only manufacturing, but also commerce and the service industries, such as retailing, hotel and catering, and transportation.

While terminology may vary in some parts of the world, there are normally considered to be five main levels in the manpower "profile". At the apex there are the technologists and senior managers, who include the professional (chartered) engineers or their equivalents in the manufacturing industries, and accountants and company secretaries in commerce. Such personnel generally


obtain their education in a university or in a polytechnic and hold degrees, associateships or equivalent professional qualifications. The next level in the pyramid embraces the technicians, who are sometimes referred to as middle level manpower (see Figure 6). Examples include sub-professional staff such as assistant designers and senior draughtsmen; assistant managers, foremen and supervisory staff; chief clerks; science technicians; and nurses. Technicians are normally concerned with the implementation rather than the formulation of policy.

The third band contains craftsmen, often referred to as skilled manpower. This group includes such trades and occupations as fitter, turner, as well as cook, clerk and typist, and many will possess craft certificates. The fourth level is the operative or semi-skilled worker, and comprises not only personnel who undertake semi-skilled process work on conveyor-belts in factories, say textile machine operators, but also crane and tractor drivers, postmen and roundsmen. Operatives are normally trained on-the-job, or they may attend short, off-the-job courses in industry or in a training centre.

The fifth and final category includes the unskilled or general worker, such as building labourers, earth coolies, and the like.

Indeed from the early 1970s onwards, middle level manpower has normally been sub-divided into two; firstly technician engineers, or senior or higher technicians; and, secondly, (lower-level) technicians, or junior or industrial technicians. Many higher technicians possess a higher diploma or a higher certificate, or their equivalents, from a polytechnic or a similar level institution, and their levels of skill and competence often approach those of a technologist. In turn, the (junior) technician often undertakes duties of a more manual

1. L.S. Chandrakant, Methodological Approaches to Planning and Designing Technician Education Systems, Colombo Plan Staff College for Technician Education (Singapore, undated), passim; and Regulations for the Training of Technicians and Technician Engineers, Institute of Metallurgical Technicians (England, January 1981), passim.
or manipulative nature, in some cases not too far removed from those of a highly-skilled craftsman. Appropriate educational qualifications are a (ordinary) diploma or certificate.

It is important to remember when considering these levels of manpower, that they should be seen as a continuum rather than as five water-tight grades: for example, different crafts require different standards of skills. As mentioned above, the various levels apply not only to persons employed in the manufacturing sector, but also to their counterparts in commerce and the service industries. We thus have craft comparative personnel, for example clerks and typists. In spite of there being appropriate educational qualifications for the various levels of manpower, it is not unusual, for older people especially, to have learned their trade or profession entirely on-the-job: for example, as apprentice carpenters. Again a skilled craftsman may, later, be upgraded to become a foreman, that is to say a technician.

When considering manpower, it must be remembered that the ratios between the various levels will vary from industry to industry. Typical ratios in ten of Hong Kong's main industries are given in Table 1. It can be seen that some of the industries, for example printing, and shipbuilding and ship repairs, are heavily craft-based, while clothing and electronics are operative-based. In turn printing, in Hong Kong, employs no technologists. As an industry or a firm becomes more sophisticated with more advanced technology, it will normally engage a higher ratio of technologists and technicians.

For the purpose of this thesis it is also necessary to define the terms "technical education" and "industrial training", as the two are by no means synonymous. Training tends to be more job-specific and materialistic, with a shorter-term approach, although the

---

1. Various Hong Kong Vocational Training Council reports.
Table 1: Distribution of Workers According to their Job Levels in the Ten Major Industries shown by Numbers and by Percentages

<table>
<thead>
<tr>
<th>Industry</th>
<th>Date of survey</th>
<th>Technologists</th>
<th>Technicians</th>
<th>Craftsmen</th>
<th>Operatives</th>
<th>General workers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobile repairs and servicing</td>
<td>June 1982</td>
<td>161</td>
<td>925</td>
<td>10,634</td>
<td>33</td>
<td>1,550</td>
<td>13,303</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.21</td>
<td>6.95</td>
<td>79.93</td>
<td>0.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building and civil engineering</td>
<td>April 1983</td>
<td>5,806</td>
<td>12,331</td>
<td>30,991</td>
<td>15,882</td>
<td>21,139</td>
<td>86,151</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.7</td>
<td>14.3</td>
<td>36.0</td>
<td>18.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing</td>
<td>September 1983</td>
<td>3,527</td>
<td>15,580</td>
<td>9,754</td>
<td>204,469</td>
<td>36,480</td>
<td>269,810</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3</td>
<td>5.8</td>
<td>3.6</td>
<td>75.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronics</td>
<td>February 1982</td>
<td>3,966</td>
<td>12,496</td>
<td>9,985</td>
<td>74,729</td>
<td>2,802</td>
<td>103,978</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.8</td>
<td>12.0</td>
<td>9.6</td>
<td>71.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td>March 1983</td>
<td>2,655</td>
<td>4,539</td>
<td>27,214</td>
<td>20,030</td>
<td>3,792</td>
<td>58,231</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.6</td>
<td>7.8</td>
<td>46.7</td>
<td>34.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine-shop and metal trades</td>
<td>September 1982</td>
<td>1,225</td>
<td>7,299</td>
<td>37,782</td>
<td>64,937</td>
<td>10,891</td>
<td>122,134</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.0</td>
<td>5.98</td>
<td>10.93</td>
<td>53.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastics</td>
<td>July 1983</td>
<td>424</td>
<td>3,545</td>
<td>5,341</td>
<td>56,211</td>
<td>16,610</td>
<td>82,131</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.5</td>
<td>4.3</td>
<td>6.5</td>
<td>68.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printing</td>
<td>March 1982</td>
<td>-</td>
<td>2,689</td>
<td>14,981</td>
<td>2,488</td>
<td>2,343</td>
<td>22,501</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>11.9</td>
<td>66.6</td>
<td>11.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipbuilding and ship repairs</td>
<td>September 1982</td>
<td>398</td>
<td>1,145</td>
<td>5,950</td>
<td>2,682</td>
<td>564</td>
<td>10,739</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.7</td>
<td>10.7</td>
<td>55.4</td>
<td>24.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Textiles</td>
<td>September 1983</td>
<td>1,104</td>
<td>4,530</td>
<td>10,339</td>
<td>29,663</td>
<td>8,424</td>
<td>54,060</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.0</td>
<td>8.4</td>
<td>19.1</td>
<td>54.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>19,268</td>
<td>65,079</td>
<td>162,971</td>
<td>471,124</td>
<td>104,596</td>
<td>823,038</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.34</td>
<td>7.91</td>
<td>19.80</td>
<td>57.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
developing concept is, or should be, that it is a life-long operation. It generally has the organisation in mind rather than the trainee or the community at large. Industrial training is normally on-the-job but can be in an institution; for example, in one of the training centres run by the Hong Kong Vocational Training Council (VTC).

Technical education is wider in scope than training and generally has long-term development of the student in mind.\(^1\) It also usually has a higher theoretical content. It is unlikely, for instance, that, within the field of training, a person would study engineering science or mathematics in depth. Education considers the benefits to both the individual and to the community at large, rather than training a person to carry out a precise - often narrow - task for the specific benefit of a particular firm. Technical education should, however, as far as possible, be integrated with the related industrial training.

Education is, in other words, the acquisition of scientific knowledge and the understanding of theory, combined with basic practical work, which enables the student to benefit more from his industrial training. This provides a long-term foundation over a wide subject area, in the shape of a broad base of relevant science and technology, which enables him to meet future changes as the pace of technological development quickens. Some industrialists expect that polytechnics and technical institutes will turn out "trained" technicians and craftsmen. This is not intended. The main purpose of these institutions is to provide broad-based technical education, and although full-time students may have visited or have been attached to industry on occasions, they lack on-the-job experience. When a college leaver first takes up employment, his immediate value to a firm, before he is properly "trained", will usually be limited, but this will vary from job to job and from industry to industry.

\(^1\) Ibid.
There is however a great deal of overlapping, and misnomers often creep in when education borders on, or overlaps, training and vice versa. For example shorthand and typewriting courses, although often classed as education, are, in fact, really a form of office training. Other examples of technical education programmes which include large elements of training are hotel and catering, draughtsmanship, beauty-culture, management and supervisory studies, and courses for the retail trades. It must not be forgotten, however, that education and training are not mutually exclusive, and they are recognised as complementary aspects of a common aim. This thesis is, as the title implies, concerned with education rather than with training, although the latter is sometimes mentioned in order to complete the picture.

It should also be made clear that, unless otherwise stated, reference material used in this study was published or drafted in Hong Kong.

The general background

Enormous social pressures have been created by the influx of both legal and illegal refugees into Hong Kong since World War Two. These have come, largely, from the People's Republic of China (PRC), but have also included the boat refugees from Vietnam in more recent years. This burgeoning population has exerted considerable pressures on virtually every facet of social and economic planning and development, including the education system. These tribulations that Hong Kong has had to face have often not been fully appreciated, especially overseas, or have been considerably distorted. Briefly, they are as follows.

The population, which is approximately 98 per cent Chinese, increased from 1,750,000 in 1947, to 3,863,900 in 1969, to 5,287,800 at the end of 1982.

1. Ibid.
2. The Hong Kong Education System (June 1981), pp.7 to 9; and J. Winfield, The Hong Kong Background, draft (circa 1981).
4. Figures (rounded) obtained from various Hong Kong Government Year Books and Government Census and Statistics Department.
It has been estimated that there will be over seven million people in the Territory by the year 2001.\(^1\) This is on a land area of approximately 1,060 square kilometres, which consists of 74.9 per cent marginal land with varying degrees of sub-grade character, 9.4 per cent of farming land, and 15.7 per cent built-up areas. This gives a density in the metropolitan districts of Hong Kong Island, Kowloon, New Kowloon and Tsuen Wan of, on average, 28,479 people per square kilometre. It is one of the most densely-populated places in the world.

Because of the rapid increase in population, it has been a constant struggle for the education system to meet demands.\(^2\) This has been accentuated by the fact that the population is, on average, young, with, in 1980, about 37 per cent below the age of 20. However the median age of the population then was 25.1, compared with 21.2 ten years earlier. This change in the age structure has meant an increase in the working-age population and a decline in the dependency ratio. In addition, a redistribution of the populace is being brought about with the development of new towns, such as Sha Tin, Tsuen Wan, Tuen Mun, Yuen Long, Tai Po and Fanling (the last three being the so-called market towns), which will be transformed into small "cities" in the New Territories. These will all help to alleviate, to some degree, the high population densities in the urban areas.

However, while the birth rate declined from 20 per thousand in 1970, to 17 per thousand in 1982, the death rate remained stable at about five per thousand. The high rate of illegal immigration has always, however, been cause for concern, and there is fear that it will reverse the considerable increase in the standard of living that has been achieved since the early 1950s.

---
\(^1\) Eric Ho, Secretary for Social Services, Over 7m by 2001, but 'no need' for population policy, South China Morning Post (19 October 1982).
\(^2\) The Hong Kong Education System, op.cit., passim.
Figure 1

LEGEND
- Built-up Area
- Ferry Route
- Main Road
- Secondary Road
- Country Park
- Railway
- Contour (vertical interval 100 m with supplementary contour at 50 m intervals)

HONG KONG, KOWLOON & THE NEW TERRITORIES

Cartography by Survey Division, Lands Department, Hong Kong Government.
Up until the early 1980s the Government, in keeping with the size and compactness of Hong Kong, was strongly centralised. However, with the establishment of new towns and a redistribution of the population in the New Territories, there has been a move towards some degree of regionalisation. Nevertheless, because of the size and compactness of the Territory, this is unlikely to be extensive. For example, there are no major plans for decentralisation of education, except for the allocation of school places on a local "net" system, and it would appear that central control and deployment of expensive resources will continue to be necessary, especially with regard to technical education. This will ensure that this form of education, which is still in comparatively short supply, provides equitable opportunities, as far as this is practicable, throughout the whole of the British Crown Colony.

Economic developments as they affected technical education

Although not the main purpose of this thesis, the highly successful economic development of Hong Kong provides an interesting case study. As however industry depends, to a degree, upon technical education, it is necessary to give some information regarding economic progress. Largely because of its geographical position, the Territory's originally established role was that of an entrepot. However events in China and Korea, in the late 1940s and early 1950s, adversely affected the Colony's traditional livelihood. As a result, total external trade declined by 28 per cent in 1952 alone. In addition, the gross

2. The Hong Kong Education System, op.cit., p.178.
4. Dr. The Hon. Sir Sze-yuen Chung, Productivity Dimensions and Directions for the 1980s in the Developing Economies of Asia, address to Asia Productivity Congress, 27 to 30 October 1980, Hong Kong Manager, vol.17, no.4 (April 1981); and Government Census and Statistics Department figures.
domestic product (GDP) per capita remained stagnant, at about $1,450, from 1949 to 1954. The 1950s were difficult years for Hong Kong. With the exodus from China there was a significant amount of unemployment (although no Government records were kept at that time), and factory wages for a 70 hour week were, on average, about $4.20 a day, and productivity was low, and there was little mechanisation.¹

In order to create the atmosphere for industrial development, the Government provided a prudent fiscal policy based on a simple, low, direct taxation system, a liberal foreign-exchange policy, and the timely and effective development of the infrastructure necessary for economic growth. Such measures, combined with the determination of the people, rapidly developed the export-oriented industries which relied mainly on low-cost, labour-intensive technology. As a result, by the mid 1960s, unemployment had decreased, and the wages of a semi-skilled worker in a factory had risen to about $10 a day working a 60 hour week.² By the end of the 1960s, Hong Kong had practically achieved full employment, and, by 1970, the average daily wage had increased still further, to about $12.60 for a working week of between 50 to 55 hours, and the per capita GDP stood at $4,850. This represents an increase in wages of about 200 per cent, and an increase in GDP of about 230 per cent, over a 20-year period, compared with a rise in the cost of living of approximately 40 per cent.

The achievements in the 1970s were even more spectacular, and, by 1979, per capita GDP stood at $17,825, representing an increase of 15.4 per cent a year, and the average wage for a factory worker stood at $40.60, an increase of 13.8 per cent per annum. On the above basis, at constant prices, using wages and hours worked per employee, a measure of the growth rate of labour productivity, in terms of net output per man-hour, can be calculated.

1. Ibid.
2. Ibid.
Thus, compared with other countries, for the period 1971 to 1977, figures are: South Korea 9.1, Hong Kong 8.2, Singapore 6.8, Taiwan 5.7, Japan 5.1, the Federal Republic of Germany 3.9, the United States 2.3, and the United Kingdom 1.5 per annum.\(^1\) From the above rates it can be seen that the so called "NICs" (newly industrialised countries) have made outstanding progress. This group, which includes South Korea, Hong Kong, Singapore, Taiwan and Japan, all with their Confucian values,\(^2\) have also been titled the "chopstick brigade". Indeed Edward K.Y. Chen, Head of the Centre of Asian Studies at the University of Hong Kong, says:

... during the period 1955-74 all of the selected economies (Hong Kong, Japan, Korea, Singapore and Taiwan) experienced exceptionally high growth rates of 7.8 per cent to 9.5 per cent in real output and above five per cent in real income per capita. Indeed in the late 1960s and early 1970s growth rates have been above ten per cent in most cases.\(^3\) Indeed because of its economic success, it has sometimes been postulated that Hong Kong could become an industrial model for the great cities of China.\(^4\) It is suggested, however, that there are limitations because of the dubious compatibility of communism with a "free" society and the lack of restrictions generally found in Hong Kong.

It could be argued that these newly industrialised Asian countries have succeeded because of special circumstances. However Sir Philip Haddon-Cave, one time Financial Secretary (now Chief Secretary) in Hong Kong,

---


2. S.G. Redding, Cultural Clues to Success, South China Morning Post (13 May 1983); and Industrialization with a difference: The Southeast Asian Model, The Times (England, 4 November 1980).


4. Audrey Donnithorne, Hong Kong as an Economic Model for the Great Cities of China, Paper presented to Centre of Asian Studies, University of Hong Kong (11 April 1983).
thinks otherwise. He states that the following four lessons can be learned from the Territory's success.\(^1\) The first is that if (as in Hong Kong's case) the economy is externally oriented, then all relevant public policy decisions must pay regard to the need to protect the efficiency of the adjustment mechanism so as to maintain external competitiveness. The second lesson is the need to develop and adhere to a coherent philosophy. In the Territory's case, this has sometimes been titled "positive non-interventionism". This really means that it is damaging to the economy to plan the allocation of resources available to the private sector and to frustrate the operation of market forces.\(^2\) However, where imperfections in the market lead to, say, monopolies, intervention may be required. It may also be necessary to lay down a framework of rules, where markets have grown too fast for convention to take a hold, or when the public's interests need to be safe-guarded.

Thirdly, Sir Philip has put forward the need for public policy to be sympathetic to individual aspirations. This can be construed as fair reward for efforts by a worker and to a company for risk-taking in the free-enterprise economy. The final lesson to be drawn is the containment of the public sector, and that the implications of a sharp increase in the numbers of civil servants need to be carefully considered.

Few people would dispute that these policies have served Hong Kong well, and that industry, in general, supports them;\(^3\) nevertheless, no one would suggest that they would work in every country. However, they were specially suited in the Territory's particular circumstances, where the rapid development of the economy was given priority above everything else.

\(^1\) Sir Philip Haddon-Cave, Public Policy and Economic Success, annual banquet Overseas Bankers' Club (London, 1 February 1982).
\(^2\) Sir John Bremridge, Financial Secretary, Direct Support to any Industry not the Job of Government, Business Standard (31 August 1983).
\(^3\) An Interview with Jimmy McGregor, OBE, ISO, Executive Director, Hong Kong General Chamber of Commerce, Jaycee News (1983), pp.14 to 17 (pp.14 to 15).
Diversification

Nevertheless, while the economy has developed apace over the past three decades, with increasing protectionism being faced by, for instance, our textile and clothing industries abroad, considerable thought has, at times, been given to the broadening of the industrial base, more especially in recent years. This has included the setting up of a Government diversification committee, chaired by the then Financial Secretary, Sir Philip Haddon-Cave.¹ This Committee, which consisted of members from both the private and public sectors, was appointed in October 1977: it reported to His Excellency the Governor in November 1979.

Naturally diversification has always existed, and one can quote the move from sheet-metal vessels to plastic containers in the late 1950s, the rise and fall of the wig industry in the late 1960s and the early 1970s, and the decline of shipbreaking, enamel-ware and rattan-ware, although, in the last example, there has been somewhat of a revival.² In addition, although Hong Kong had in the past a significant commercial sector to handle its entrepot trade, this too, together with its service industries, has greatly diversified and expanded, for example banking and insurance. The various "shifts" that have taken place since 1970 (when most diversification occurred during the period under review) are illustrated in Tables 2 and 3.³

Table 2 shows the continued demise of primary industry, and the further developments of the tertiary

2. D.D. Waters, Initial Thoughts on Diversification and the Upgrading of Industry in Hong Kong (23 August 1978), passim, ED(TE)169/78; and John L. Boyer, The Widening of Hong Kong's Economic Base, Diversification of Hong Kong's Industries (circa 1978), passim; and Susan Yuen, Areas and Systems of Diversification for Hong Kong's Manufacturing Industries, Diversification of Hong Kong's Industries (circa 1978), passim.
3. A Survey on Diversification of the Hong Kong Economy, Harbour Lights, Journal of Hong Kong Junior Chamber of Commerce (September 1983), pp.8 to 12 (pp.10 and 11).
Table 2: Gross Domestic Product by Industry in Hong Kong Dollars (Millions)

<table>
<thead>
<tr>
<th>Sector/industry</th>
<th>1970</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Share</td>
</tr>
<tr>
<td>Primary sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture and fishing</td>
<td>377</td>
<td>2.0</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>27</td>
<td>0.2</td>
</tr>
<tr>
<td>Sub-total</td>
<td>404</td>
<td>2.2</td>
</tr>
<tr>
<td>Secondary sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>5,913</td>
<td>30.9</td>
</tr>
<tr>
<td>Electricity, gas and water</td>
<td>378</td>
<td>2.0</td>
</tr>
<tr>
<td>Construction</td>
<td>806</td>
<td>4.2</td>
</tr>
<tr>
<td>Sub-total</td>
<td>7,097</td>
<td>37.1</td>
</tr>
<tr>
<td>Tertiary sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale and retail trades, restaurants and hotels</td>
<td>3,755</td>
<td>19.6</td>
</tr>
<tr>
<td>Transport, storage and communications</td>
<td>1,458</td>
<td>7.6</td>
</tr>
<tr>
<td>Financing, insurance, real estate and business services</td>
<td>2,855</td>
<td>14.9</td>
</tr>
<tr>
<td>Community, social and personal services</td>
<td>3,440</td>
<td>18.0</td>
</tr>
<tr>
<td>Ownership of premises</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sub-total</td>
<td>11,508</td>
<td>60.1</td>
</tr>
<tr>
<td>Nominal sector (adjustment for financial services)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Activities not adequately defined</td>
<td>110</td>
<td>0.6</td>
</tr>
<tr>
<td>GDP at factor cost (production based estimates)</td>
<td>19,119</td>
<td>100.0</td>
</tr>
</tbody>
</table>

sector at the expense of the secondary sector, although the last two complement each other.\(^1\) This development includes Hong Kong becoming the third largest financial centre in the World and, as the Territory reaches a greater degree of affluence, the rapid growth of service industries.

**Table 3: Composition of Domestic Exports in Main Industries**

<table>
<thead>
<tr>
<th>Product groups</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textiles</td>
<td>10.3</td>
</tr>
<tr>
<td>Clothing</td>
<td>35.1</td>
</tr>
<tr>
<td>Electrical/electronics</td>
<td>10.5</td>
</tr>
<tr>
<td>Precision instruments</td>
<td>1.8</td>
</tr>
<tr>
<td>(including watches and clocks)</td>
<td>(1.1)</td>
</tr>
<tr>
<td>Toys and dolls</td>
<td>8.5</td>
</tr>
<tr>
<td>Plastic products</td>
<td>4.1</td>
</tr>
<tr>
<td>Metal products</td>
<td>2.8</td>
</tr>
<tr>
<td>Travel goods, handbags etc.</td>
<td>1.4</td>
</tr>
<tr>
<td>Footwear</td>
<td>2.5</td>
</tr>
<tr>
<td>All other manufacture</td>
<td>23.1</td>
</tr>
<tr>
<td>Total export value (millions)</td>
<td>$12,347</td>
</tr>
</tbody>
</table>

Turning to Table 3, it can be seen that while textiles and clothing, together, still claim the largest share of the market, textiles has contracted, although it is going through technological improvements, and new machines and processes are being introduced, and the garment sector has become more sophisticated.\(^3\) Conversely, there was growth in such areas as precision instruments (including watches and clocks), toys and dolls, travel

---

1. An Interview with Jimmy McGregor, op.cit., pp.14 to 17 (p.17).
2. Government Census and Statistics Department figures.
goods, and in electrical/electronic products, in the last case, in the first part of the 1970s. This expansion was at the expense of plastics, metal products, footwear and other manufactured items.

Other "shifts" include lower-skilled work being taken over by less developed countries, such as the Chinese Shenzhen Special Economic Zone and Macau. For example the making of plastic flowers, which was common in Hong Kong in the 1950s, is now done in Macau. In addition, there has been some expansion into capital-intensive industries, and some firms, such as W. Haking Marketing Ltd which makes cameras, are now selling to the difficult to penetrate Japanese market. Hong Kong has also become a printing and publishing centre. However industry continues to be dominated by small firms, and establishments numbering fewer than 50 workers have consistently constituted over 90 per cent of the manufacturing enterprises and have employed over 40 per cent of the manufacturing labour force.

The structure of education in relationship to craft and technician education

Hong Kong's education system is illustrated in Figure 2. This commences with two or three years of kindergarten, which is voluntary, followed by six years of free primary education, which has been available to all in the age cohort since 1971. This extends to three years


3. An Interview with Jimmy McGregor ... op.cit., p.16.


5. HK Has Developed into a Major Publishing Centre, South China Morning Post (5 April 1983).


8. The Hong Kong Education System (June 1981), passim.
Figure 2: The Hong Kong Education System as at 1981

Kindergarten

Primary

Junior Secondary

Senior Secondary

Tertiary

Full-time course

Part-time course

Possible linkage

Special route for prevocational school students in relevant discipline

Selection point

(a) Secondary School Places Allocation

(b) Junior Secondary Education Assessment

(c) Hong Kong Certificate of Education Examination

(d) Hong Kong Higher Level Examination

(e) Hong Kong Advanced Level Examination

Notes: (1) In addition to the Assisted Approved Post-Secondary Colleges, there is one Shau Sam College which offers 4-year courses, the minimum entry requirement of which, in terms of the Post Secondary Colleges Regulations, is successful completion of Form V.

(2) 1st degree in medicine requires 5 years of study.

(3) M.B. (Bch.) requires 4 years of study while B.A. (Scch.) and M.B.B.S. require 5 years of study.

(4) Student with crafts certificate may enrol in the Technician Course after the completion of a bridging course which lasts for a minimum of one year.
of free, compulsory, junior secondary education, which was made universal and phased in, commencing in 1978, which in turn leads to form-four and form-five in senior secondary school, and, later, to forms six and seven (lower and upper sixth forms).

In March 1982, there were 213,480 pupils in kindergarten, 549,140 in primary and 472,225 in secondary schools, plus 35,817 in forms six and seven. At the same time, 12,299 were studying in special education classes. Returning to Figure 2, Anglo-Chinese schools teach mainly in English, while Chinese middle schools teach in Chinese (usually Cantonese), except for English which is taught as a second language. However, this division is becoming more blurred with the greater use of Chinese in lower forms in Anglo-Chinese schools, especially for the less able, with the introduction of three years of secondary education for all.

From Figure 2, it can be seen that form-three leavers can proceed to technical institutes (craft courses), and form-five leavers can also go to technical institutes (technician programmes) or to the polytechnics, (The City Polytechnic commenced classes in 1984), to the colleges of education (including the Technical Teachers College), or to a post-secondary college. In turn, form-six leavers can progress to the Hong Kong Chinese University, and form-seven leavers to the University of Hong Kong. Form-six and form-seven leavers can also further their studies at the polytechnics.

As at March 1982, there were 3,118 students in the colleges of education, 32,048 in technical institutes, 11,318 in post-secondary colleges, and 71,562 in the Government part-time adult education classes. This gives a grand total of 1,401,007 students in day and evening classes. In addition there were 6,494 students at the Hong Kong University (excluding extra-mural classes), and

---

2. The Hong Kong Education System (June 1981), p.16.
5,160 at the Chinese University of Hong Kong (excluding extra-mural classes), and 24,718 at the Polytechnic.\(^1\)

By mode of financing there are three main types of schools: Government (in which staff are civil servants), Government-aided, and private.\(^2\) Private schools are either non-profit-making or independent (profit-making). In March 1982 enrolments in secondary day schools were: Government 27,096, Government-aided 168,184, and private 230,948 (total 426,228).\(^3\) It can thus be seen that the majority of children are in private schools, although of these, in 1982, 146,124 were occupying "bought places", where the Government pays the tuition fees of the pupils who have been sent there because there are insufficient places in the Government and Government-aided sectors.

Schools in Hong Kong are responsible to the Director of Education (see Figure 3), who is supported by a deputy and two senior assistant directors, one for schools and services, and the other for planning and development.\(^4\) In addition to administration, accounts, registration, and information and public relations sections, there were, up to 31 March 1982, six divisions each headed by an assistant director. These comprised schools, services, further education, advisory inspectorate, planning and building, and technical education. The last named division included the five Government technical institutes, the Technical Teachers College, and technical education for the disabled. However a Deputy Director of Education (Technical), A.J. Kingwell, served as adviser to the Director from 1973 to 1977, after which the post lapsed.\(^5\)

On April 1, 1982, the technical institutes were transferred from the Education Department to the newly

---

1. Ibid., pp.52 to 61.
2. The Hong Kong Education System (June 1981), pp.18 and 19.
3. Education Department Annual Summary 1981-1982, p.34.
4. Ibid., p.81.
5. Director of Education 1975-76 Annual Summary, Figure III.
Figure 3: The Administrative Organisation of the Education Department

Director
  Deputy Director

Senior Assistant Director (Schools & Services)
Senior Assistant Director (Planning & Development)

Administration Division
Accounts & Public Relations Section
Registration Section
Assistant Director (Schools)
Assistant Director (Services)
Assistant Director (Further Education)
Assistant Director (Chief Inspector of Schools)

Schools Administration
Special Education
Colleges of Education
Technical Institutes
Central Advisory Inspectorate
Planning

Secondary School
Television
Places Allocation

Specialising Director
Approved Post
Secondary for the
Colleges
Disabilities

Students & Scholarships
Approved Technical Education
for the Colleges

Careers

Statistics

Junior Secondary Education Assessment

Training

Board of Education
formed VTC. In addition, the Technical Education Division from the Education Department, and the Industrial Training Branch (including the Training Council Division and the Apprenticeship Division) of the Government Labour Department were merged to form the new Government Department of Technical Education and Industrial Training (see Chapter 8). This department is now the "executive arm" of the VTC.

Craft and technician education institutions

In Hong Kong, up to the late 1950s, vocationally biased technical education was provided in the Salesian run Aberdeen Trade School (renamed the Aberdeen Technical School in 1957), and in the Government Junior Technical School (renamed the Victoria Technical School in 1959). In the late 1950s and the early 1960s however, in keeping with other secondary technical schools, the objective became to provide a five-year, general, secondary education (some schools have sixth forms) which includes technical subjects taught with a non-vocational bias. In 1982, there were ten Government and 11 Government-aided secondary technical schools.

A similar transformation took place with prevocational education, which really commenced in 1970 with the recommendation by the Industrial Training Advisory Committee (ITAC) that prevocational schools should be established. Also K.G. Lavender, the Principal of Wandsworth Technical College in Britain, visited Hong Kong in 1973 to advise on prevocational education and on secondary technical schools. As a result of the ITAC Report, the Holy Carpenter Practical Training Centre in

4. K.G. Lavender, Report on Visit to Hong Kong (February 16 to March 10, 1973), passim, ED(TE)(5) 4468/73.
Hung Horn, which was established in 1965, and the Saint Godfrey Vocational Training Section in the Caritas Community Centre in Aberdeen, which had been in operation since 1967, were later converted to prevocational schools. In addition, a number of new prevocational schools were built. The curricula aim to provide broad-based technical education, covering at least three major industries, as well as general education, and, although throughout the 1970s they were only three-year schools, form-four was established in 1981, and form-five in 1982, for a limited number of pupils.

During the 1970s these schools gradually became less vocational in nature, and, from 1977, they were administered by the Schools Division in the Education Department, instead of, as in the past, by the Technical Education Division. Like technical schools, prevocational schools now provide a general secondary education, including some technical subjects, and the intention is not to turn out skilled craftsmen or technicians. However, a form-three prevocational school leaver is normally admitted direct to the second year of an apprenticeship and to the second year of a part-time day technical institute course when he has already studied a related trade in some depth (12 prevocational schools existed in 1982). Likewise form-five leavers, from any type of school, are normally given credit for any technical subject, which they have studied in sufficient detail, on entering a technician course.

Another development concerned the Trade School Section in the Salesian Tang King Po Secondary School complex. This was, firstly, transformed into a prevocational school in the mid 1970s, but it has now

1. D.D. Waters, Induction Course for Newly Appointed Teachers in Prevocational Schools (30 August 1979), pp.14 to 34 (pp.18 and 19).
2. Ibid., pp.20 and 21; and Marden Foundation Caritas Prevocational Schools Caritas Social Centres (December 1982), passim.
4. (50)ED(TE)110/22 (1 May 1979).
become part of the technical school section (The complex also includes a Chinese Middle School). The Practical Training Centre of the Churches, which closed in 1979, and the Lutheran Kwun Tong Vocational Training Centre also run (in the former case "ran"), among other programmes, basic craft and commercial courses. Again, many of these institutions' leavers are fed into technical institute courses. A number of other private institutions also run craft courses although, as these are expensive to organise with workshops and equipment, and often difficult to staff, commercial courses are usually found to be more remunerative.

Turning now to technician education. A number of institutions provide (or claim to provide) courses of post-secondary standard, although some have been exempted from the Education Ordinance on the grounds that they offer lectures only in a particular subject. The qualifications obtained by students of such colleges, however, normally have limited currency. There are three post-secondary colleges, namely Baptist College, Shue Yan College and Lingnan College, which are approved and registered under the Government Post-Secondary College Ordinance.2 However, while a few courses such as commerce, secretarial studies, law and business are available, the three colleges have often been likened to liberal-arts colleges, as found in the United States, rather than to technical colleges, as most of the programmes offered are in arts, social sciences and natural sciences.3

The Baptist College, for example, was established as a private post-secondary college in 1956.4 However, in addition to arts and science subjects it also runs courses

---


in business management, communications and civil engineering, although the last programme is being phased out, as it is felt it can be better provided in the Polytechnic which has superior practical facilities. As a result of an invitation by the Government, in 1982, the Baptist College is now a public-funded institution of higher learning under the auspices of the University and Polytechnic Grants Committee (UPGC).2

As at 1979/80, there was a total of 275,474 students engaged in adult (evening) education activities, excluding enrolments in private evening schools.3 These included such organisations as the extra-mural departments of the two universities, the Polytechnic, the technical institutes, the Government Adult Education Section, The Management Association, The Baptist College, the British Council, the Productivity Centre, Caritas4 and similar organisations.

In addition, some private day and evening schools offer post-secondary technical programmes.5 A few of these, such as the Far East Flying and Technical School Ltd (1934)6, have been in operation for many years, while the Hang Seng School of Commerce, which is run and financed by the Hang Seng Bank Ltd,7 was established in 1980. The latter is a well run, modern, educational institution. The 15,000 square metre site was provided at nil premium by the Government. The institution is well staffed and equipped.

4. Information on Caritas Continuing and Adult Education Service, Caritas - Hong Kong.
5. The Hong Kong Education System (June 1981), pp.39 and 40.
6. The Far East Flying and Technical School Ltd, prospectus (undated), passim.
7. Hang Seng School of Commerce Official Opening by His Excellency the Governor Sir Murray MacLehose, GBE, KCMG, KCVO (12 February 1981), passim.
Figure 4: LOCATIONS OF THE TECHNICAL INSTITUTES
AND THE POLYTECHNICS

Yuen Long
元朗

Castle Peak
秀山

Tuen Mun Tech. Inst.
屯門工業學院

Tuen Mun 屯門

Tai Lam Chung
大欖涌

Kwai Chung
葵涌

Kwai Chung Tech. Inst.
葵涌工業學院

Tsuen Wan
荃灣

Haking Wong Tech. Inst.
黃克興工業學院

Kowloon Tong
九龍塘

Kowloon Tong Tech. Inst.
觀塘工業學院

Lee Wai Lee Tech. Inst.
李惠利工業學院

Sha Tin
沙田

Sha Tin Tech. Inst.
沙田工業學院

The City Polytechnic

The Hong Kong Polytechnic

Morrison Hill Tech. Inst.
摩理臣山工業學院

Sai Ying Po
西營盤

Wanchai
灣仔

North Point
北角

Shau Ki Wan
青衣灣

Chaiwan
柴灣

Kowloon Tong View
觀塘

Tsing Yi Island
青衣島

Tsing Yi
青衣
with a computer room and good sporting facilities including a swimming pool. The school concentrates on a two-year, full-time, diploma course and, in 1980, there were 7,340 applicants of whom 220 were offered places.

Because the private vocational education sector is so fragmented, and because standards can vary so considerably, the 1977 Working Party on Senior Secondary and Tertiary Education took the view that such institutions, ... can be considered as a low-cost fringe addition to technical education.1

This means that the main source of craft education is the technical institutes, and the main purveyors of technician education are really the polytechnics and, again, the technical institutes.

The Hong Kong Polytechnic

The predecessor of the Hong Kong Polytechnic (As there was only one polytechnic during the period under review, it will generally be described as The Polytechnic, in this thesis, whereas the City Polytechnic, which commenced classes in 1984 (see page 30), will be titled in full), the Government Trade School, first saw the light of day in 1937, when it was situated in Wood Road, Wanchai.2 (Since 1981, this building has been an annexe of the Morrison Hill Technical Institute). In 1947 it changed its name to "Technical College", and from November 1957 (when it moved to Hung Hom, Kowloon) to 1972 it expanded rapidly. Up to the mid 1960s, it did little other than the running of technician courses, but, from then on, it became "all things to all men", and craft, technician and technologist (Associateship) courses were all mounted. In 1969, the craft courses were transferred to the newly opened Morrison Hill Technical Institute, and, on August 1, 1972, the Board of Governors assumed responsibility for the new autonomous Polytechnic, taking over the former Government

---


2. Opening Ceremony of the Polytechnic's First New Building (26 October 1976), pp.1 and 2.
run Technical College to form the nucleus. The UPGC then brought the two universities and the Polytechnic under the same administrative and financial control. The build-up in student numbers may be seen at Table 21.

It was always intended that craft courses should be run in the technical institutes, as opposed to the Polytechnic, although it has always been the policy that the latter would run some technician (Diploma and Certificate) courses. This was emphasised in the 1978 White Paper which stated that,

... a substantial proportion of the Polytechnic's work will remain at the ordinary Diploma and Certificate level.

That is, in spite of a large number of technician courses being transferred to the technical institutes in the first half of the 1980s. There are, of course, a number of disciplines in the Polytechnic which are not provided in the technical institutes, such as nautical studies, environmental studies, and medical and health care (see Table 22). That means that, if technician courses are to be run in these fields, the courses have to be mounted at the Polytechnic. The Polytechnic Triennial Academic Plan 1981 to 1984 recommended that the annual student output should be, approximately, degree or equivalent 1,200, Higher Diploma 2,400, Higher Certificate 3,200, and others (including Diploma and Certificate in special areas) 1,200.

---

4. Hong Kong Polytechnic 10th Anniversary Supplement, South China Morning Post (30 July 1982), p.3.
The Polytechnic commenced running degree programmes in 1983/84, for which the British, Council for National Academic Awards (CNAA) advises the UPGC. In the first year, degree courses were offered in computing, electronics, mechanical engineering, social work, and mathematics and science.  

The City Polytechnic

A second polytechnic was first formally proposed in the "Topley Committee" Report in 1981 (see page 208). The Director, David Johns, was appointed in the summer of 1983, and courses commenced in transitional premises, the Argyle Centre, a commercial building in Mongkok, Kowloon, in 1984, largely in disciplines such as commerce, computing, languages, mathematical studies and social work (see Chapter 8). It will commence running "heavy" engineering courses when it moves to its permanent site, in Tat Chee Avenue, Kowloon Tong, in 1988. It is expected that the new Polytechnic will house about 8,000 full-time equivalent students by 1994, the majority of whom will be at professional and higher technician levels, with not more than 30 per cent on degree courses. The City Polytechnic comes outside the time-span covered by this thesis, as it will not be possible properly to evaluate the progress it has made, however it will be referred to in the following pages.

The technical institutes

The first technical institute, at Morrison Hill, was established in 1969, and, owing to the delay in the completion of its new building, it spent the first year in borrowed premises at the Technical College. Kwun Tong and Kwai Chung Institutes commenced classes in 1975, Haking Wong Institute opened in 1977, and the Lee Wai Lee Institute in 1979, although it was not fully completed

---

1. Hong Kong Polytechnic Prospectus 1983/84, pp.76 and 77.
3. Technical Institutes Prospectus 1981-83, passim; and The Hong Kong Education System (June 1981), pp.33 and 34.
The technical institutes run a wide range of courses (see Table 23) on a full-time, part-time day, evening, and short course basis. These include basic craft courses (after nine years of general education), and basic technician courses (after 11 years of general education), as well as more advanced and specialist programmes. Bridging courses (General and Pre-Technical Courses) are also mounted, which provide general education in a limited range of subjects, such as mathematics, science and English, with some technical bias, in order that a student may raise his general education standard to form-five and, later, enter a technician course. Most of the students attending part-time day courses are registered apprentices, and some handicapped students are integrated into normal day and evening classes. (See Table 18 for build-up of student numbers).

It can thus be seen that the counterpart to the technical institute, in the United Kingdom, is the college of further education or technical college, except that an institute in Hong Kong concentrates on vocational type courses and does not generally run the cultural, social or recreational type course commonly found in a British college.

Liaison with industry

A Commonwealth Regional Seminar entitled "Technical Education and Industry", held in Hong Kong in 1976, came to the conclusion that;

The partnership between educational institutions and industry must be achieved through joint responsibility at all levels.

1. Ibid.
2. Ibid.
Indeed various seminars have been held to try and improve still further such co-operation.\(^1\) Also, in the specific case of Hong Kong, Sir William Houghton, then Education Officer to the Inner London Education Authority (see page 280), said that a quality further education service could only be developed if both industry and the Government were prepared to play their full parts.\(^2\) All these comments are, obviously, sound, and it is true that educationalists cannot plan in isolation, and that such work can only be as reliable as the information it is based upon.

Taking formal contacts first, the non-statutory Industrial Training Advisory Committee (ITAC) was appointed by the Governor in 1965.\(^3\) It replaced the then Standing Committee on Technical Education and Vocational Training set up in 1951.\(^4\) In turn, ITAC was later replaced by the also non-statutory Training Council, which was established in 1973.\(^5\) This committee complex was superseded by the Vocational Training Council (VTC), a statutory body, which came into being in February 1982 (see Table 4).\(^6\)

From Table 4 it can be seen that there was a significant increase in the numbers of committees established over the years. This amounted to one committee in 1964, when planning commenced for the first technical

---

1. Ibid., and Training - The Key to Economic Survival, seminar, 4 May 1978, Hong Kong Polytechnic, passim.


Table 4: Growth in Numbers of Committees Related to Technical Education/Training on Various Industry/Government Committee Complexes

<table>
<thead>
<tr>
<th>Type of council/committee/board</th>
<th>Standing Committee on Technical Education and Vocational Training</th>
<th>ITAC</th>
<th>Training Council</th>
<th>Vocational Training Council</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main committee/council</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Executive committee</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Industrial committees/boards</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Commerce and service industry training boards</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Functional committees</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Committees/sub-committees</td>
<td>-</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>12</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

Note: In addition, working parties and ad hoc sub-committees were set up as required.

Institute, to 17 in 1971, shortly before detailed planning got under way for the additional four institutes, to 26 in 1982. In 1966, the only industries covered were electronics,

1. A Report on Apprenticeship Systems by a Sub-committee of the Standing Committee on Technical Education and Vocational Training (1963); and A Report on an Enquiry into Apprenticeship and Other Similar Forms of Training in Hong Kong, 1962 by an Ad Hoc Sub-Committee of the Standing Committee on Technical Education and Vocational Training.


engineering, clothing, textiles, building and plastics. By 1971, automobile repairs and servicing, electrical, printing, shipbuilding and ship repairs, apprenticeship, technical institutes, vocational training, and translation had been added. 

ITAC's successor, the Training Council, established further committees during the 1970s, and, by 1980, the following fields were also covered: accountancy, banking, insurance; hotel, catering and tourism; journalism; wholesale/retail, and import/export; instructor-training; management and supervisory training; and technical training in institutions. In the 1960s and the first half of the 1970s, the planners often lacked information and had to rely on informal contacts or on ad hoc working parties. This applied especially in the field of commercial education and technical education for the service industries.

The terms of reference for the Training Council included advising the Governor on measures to ensure a comprehensive system of training, to exercise direction and control over the training boards and committees, and to advise the Government, including on the allocation of funds. In turn, the training boards were required to determine the needs of industry, to design training programmes, and to liaise with managements, training centres, educational institutions and Government departments on all matters pertaining to manpower planning and training. The Training Council's boards also prepared job standards and conducted surveys (see Chapters 2 and 3) and made recommendations to run new courses or to change existing ones.

1. Industrial Training Advisory Committee, interim report (circa 1966), Appendix E.
3. 6th Report of the Hong Kong Training Council, op.cit., p.36, Appendix A.
4. Ibid., p.37 Appendix B1, and pp.40 and 41 Appendix B3.
Membership of the Training Council complex was made up of Government servants, industrialists and representatives from other bodies, including the universities and the Polytechnic. In most cases the committees were a "happy combination", with industrialists offering industrial and micro-training experience, and the staff of the educational institutions possessing both micro and macro experience. Other Government servants not working directly in education, sitting on committees, would tend to take a broader view.

During the April 1979/March 1980 year, the total membership of the Training Council complex amounted to 353, and, of these, 112, or fewer than one-third, were civil servants. In this way the committees were more independent, especially as the policy is to appoint non-government chairmen and vice-chairmen. In addition, most industrial members represent trade associations, and are not sitting in their own capacities. Thus, the "multiplier effect" is brought to bear and the views of a whole trade is presented at meetings. For example the Chinese Manufacturers' Association (CMA), the General Chamber of Commerce, the Federation of Hong Kong Industries, the Polytechnic, and the Chinese University of Hong Kong were represented on the Committee on Technical Training in Institutions of the Training Council in 1980. In the same way the Journalists' Association and the Newspaper Society, among others, were represented on the Journalism Training Board. The Director of Education, up to 31 March 1982, was represented on all Training Council committees and boards, usually by technical institute or Technical Education Division staff.

There were 429 trade and industrial associations and unions in Hong Kong, as at December 1982, and many of

---

1. Ibid., pp.54 to 92.
2. Ibid., p.89.
3. Ibid., p.72.
4. Ibid., pp.54 to 92.
these were represented on the Training Council's Committees.¹
A number of these associations would be contacted when information was required for the planning of technical education.²

In addition to ITAC and, subsequently, the Training Council, the Director of Education was also represented on the Hong Kong Council of Social Service Committee on Education, the work of which frequently dealt with technical education. (In the late 1960s and the early 1970s this Committee was known as The Vocational Training Committee of the Hong Kong Council of Social Service.³)

The recommendations of the Advisory Committee on Diversification (see page 15) also drastically affected technical education. For example, these resulted in the setting up of the Department of Technical Education and Industrial Training, in 1982.⁴

The Hong Kong Polytechnic has its own Advisory Committees, for each department/school/centre/institute, which are chaired by industrialists or professionals, usually from the private sector.⁵ There are of course, in addition, the Polytechnic Council and its various committees covering estates, conditions of service, finance, staffing, and the General Purposes Committee. These again are usually chaired by industrialists or professionals from the private sector.⁶

---

1. *Hong Kong 1983 ... op.cit.*, p.55; and *Hong Kong Trade and Industrial Associations*, a list compiled by the Industrial Support and Liaison Division of the Trade, Industry and Customs Department (October 1979), passim.
5. *Hong Kong Polytechnic Prospectus 1983/84*, pp.27 to 29.
6. Ibid., pp.18 to 23.
Formal contacts between technical institutions and industry, however, only present part of the picture. Informal contacts are also important. They range from academic staff giving talks at Lions' and Rotary Clubs, for example, or by inviting industrialists to institutions, on both informal and formal occasions, such as open-days and exhibitions, and by teachers visiting industry. The last item can be of considerable importance. Not only does it keep staff in touch so that they do not develop an "ivory-tower" attitude, but also it builds up a rapport with industry and thus they better understand its needs. Indeed it was estimated, in 1979, that some heads of departments in technical institutes were spending up to six hours a week visiting industry, although the average figure was less.

J.R. Clark said that the development of technical education depends on the co-operation of industry in various ways. Few informed people would dispute this. And, during the years under review, many industrialists spent countless hours sitting on education and training committees. Could more have been done? The Advisory Committee on Diversification was inclined to think so. In its report it said:

We recommend a closer and more direct form of liaison between the technical institutes and industrialists on a regional basis ...

Also, in response to a questionnaire prepared by the Education Department and circulated by the Training Council

1. (75)ED(TE)108/8/13 (22 October 1979); and (20)ED(TE)8/18/6704/77 (22 June 1977).
2. (69)ED(TE)110/23 (23 May 1980).
3. (75)ED(TE)108/8/13 (22 October 1979).
in 1978, some employers felt that:

There should be closer liaison between technical institutes and employers so that courses can be planned to meet the needs of industry.¹

Principals were not generally in favour of each technical institute department having its own advisory committee.² For example, with all five institutes running courses in mechanical engineering, this could mean six similar committees, including the Training Council board, in a relatively small place like Hong Kong. Difficulty could also be experienced in finding sufficient industrialists, of the right calibre, who would be willing to sit on these committees, and some might end up sitting on both a Training Council board and a similar technical institute advisory committee. A proliferation of committees would not only be time consuming, but could also increase the red-tape with proposals having to be approved by all the relevant bodies.

One advantage, however, of closer links with industry is not only to seek its views, but also to obtain its support for various proposals, including the running of courses. In this way, on their completion, it is easier to place students in employment. Various attempts have been made to involve employers in the work of the technical institutes. One example was the sending of circular-letters to industrialists, in 1979, seeking their views on Technician Education Council (TEC) programmes.³ A total of 179 letters was sent, by the institutes, in the following industries: mechanical, production and automobile engineering; shipbuilding and ship repairs; building

¹. Summary of a Survey on Employers' Views on Technical Institute Courses, Committee on Technical Training in Institutions, Hong Kong Training Council, conducted August 1978, p.5., para.8(iii) and (v) (28ED(TE)108/8/13.
². Technical Institute/Technical Teachers College, 42nd Policy Committee meeting (3 March 1980), minute 1109.
³. ED(TE)110/22 (17 October 1979); and M.10, ED(TE)110/22(1) (24 August 1979).
The reason for the poor response was probably because employers usually consider such tasks as production and marketing (their main source of livelihood) more important than technical education. They are also sometimes wary of giving information to the Government as they feel, quite wrongly of course, that this may be used, in some way, against them. Many industrialists too feel that they lack the necessary knowledge about education to be able to make intelligent comments.

Taking an overall view then, it would appear that a great deal was done in the 1970s to forge closer links with industry. It is doubtful whether much more should have been done, especially bearing in mind that, even if considerably more time and money had been spent, one gets to the point when limited improvements are seen. One also has to accept that when relationships do break down, these are often caused by personality clashes or by misunderstandings and not by the system.

The contribution by individuals

There is no doubt that the planning of technical education in Hong Kong has been very much a team effort, involving countless persons, both outside and within the Government. However a glance at the bibliography of this thesis, where names keep re-occurring, will reveal that some people played central roles. Among those in the private sector are Doctor the Honourable Sir Sze-yuen Chung, CBE, JP, a prominent industrialist and, another industrialist, Doctor the Honourable Francis Yuan-hao Tien, OBE, JP, has chaired the Training Council from 1975 to 1982, when it was superseded by the Vocational Training Council which he also chairs.

Most of the senior posts in the Government, in such areas as the Finance Branch and the policy branch for education (the Social Services Branch until it was replaced by the Education Branch in 1981), are staffed by Administrative Officers. Such staff are transferred at intervals so that few have remained in post long enough to have made a significant contribution to education. An
exception however was Kenneth W.J. Topley, CMG, JP, who became Director of Education in 1974. Topley was replaced as Director of Education by The Honourable C.H. Haye, CBE, JP, a professional officer, in 1980. Another person, outside the Government, who made a major contribution to technical education was Doctor Keith L.C. Legg, OBE, JP, who was Director of the Hong Kong Polytechnic from 1975 to 1984. The above, and others who played active parts in the planning of technical education, will be referred to in the following pages.

However one person who should be mentioned here is His Excellency the Governor, Sir Murray (now Lord) MacLehose, GBE, KCMG, KCVO, who during his term of office (1971 to 1982) placed emphasis on, and gave full support to technical education. To quote an example: in early 1972 the then Public Works Department said that owing to pressure of work it would not be possible to complete Kwai Chung and Kwun Tong Technical Institutes by 1975. After a meeting in Government House, in the summer of 1972, attended by staff from the Education and Public Works Departments and the Government Secretariat, Sir Murray gave the directive that the two institutes would be completed by September 1975. They were subsequently finished by the due date.

Conclusions

Hong Kong's entrepot status continued up to the threshold of the 1950s, when there was a change of government in China, and a United Nations embargo was placed on trade with the People's Republic of China owing to the outbreak of the Korean War. Then, with their

---


3. Dr. the Hon. Sir S.Y. Chung, Hong Kong: a Springboard into Asia, The Hong Kong Manager, vol.19, no.12 (December 1983), pp.17 to 21 (p.17).
traditional means of livelihood sapped, and with a large influx of immigrants, the Hong Kong people with no indigenous material resources found themselves with their backs to the wall. As a result entrepreneurs established factories, imported raw materials, furnished them into saleable products, and exported them to world markets.

From then on the economic developments of the Territory have generally been a success story, with the GDP and the standard of living of the people improving considerably over the last three decades. However, during this period the Government's role was to provide the necessary infrastructure - such as technical education - and a stable framework in which industry could function efficiently with the minimum of interference.\(^1\) In other words the Government, normally, only intervenes in response to the pressures of economic and social needs and does not subsidise entrepreneurs. Thus, to a large extent, industrialisation got underway with little overall planning, it was not premeditated, and the Government's role was of restricted importance.\(^2\)

In a similar way, Hong Kong has relied upon a large number of its schools and colleges being provided by private enterprise, although technical education of the "heavy" kind has mostly been available in Government run or Government subvented institutions. Also, most of the craft education has been provided in the Government technical institutes, and technician education was available either in the institutes, the Government subvented Polytechnic, or its predecessor the Government Technical College.

Liaison between technical education institutions and industry has been of considerable importance. Such cooperation was, in the late 1950s and early 1960s, largely of an informal nature, but a complex committee structure has been built up, including the formation of the VTC in 1982.

---

CHAPTER 2

THE NEED FOR A FLEXIBLE MANPOWER PLANNING AND EDUCATION AND TRAINING SYSTEM

Introduction

Some degree of scepticism has on occasions been expressed as to whether a theory of manpower planning really exists.¹ This chapter, which has been written after a study has been conducted of a wide range of relevant literature, postulates a theory on which a manpower plan may be formulated. This theory is illustrated in general terms, although it is sometimes placed in the Hong Kong or, to a lesser extent, in the British setting, or in the context of another country. This thesis is largely concerned with macro-planning for a country, a region, or an industry, rather than micro manpower planning for, say, one firm, or for a group of firms.

It is assumed that two alternative methods exist. At one extreme we have planning where almost total reliance is placed on manpower forecasting. The second method is the polarised version where forecasting forms no part, and where total reliance is placed on a flexible education and training system, and on an adaptable labour force. After an examination has been made of the two extremes outlined above, a view is taken of combinations of the two systems and what places various countries occupy on such a continuum. The different methods of manpower forecasting are then analysed, and the effects of substitution of labour, apprenticeships, various alternative forms of training,

trade-unions, closed-shops and professional associations, and the degree to which they promote or mar a flexible labour force, are then scrutinised.

The position of Hong Kong is then examined, namely the proportion of students receiving education, the types of "sieving" devices used, and the different kinds of schools. These topics, together with the type of technical education provided, are then analysed to see to what degree "compartmentalisation" exists in the education system, and what effect this has on planning. Substitution is also examined as well as the changes that are taking place on the local labour market.

The general trends in manpower planning on the international scene are then considered, and a section follows which shows how flexible planning may be carried out. The need for more reliable data is then stressed. Following this is an attempt to answer the question whether economic growth can be stimulated by manpower planning.

Economic growth in developing countries means far more than the building of roads, reservoirs and other civil engineering projects, and the construction of power facilities, steel mills and factories. In addition, it is necessary to educate and train people, and to develop in them an appropriate set of skills, values, attitudes and work habits so that, possibly with the help of expatriates in the early stages, they are able to build the factories, to operate and maintain the equipment, and to provide the multifarious ancillary services that an industrialised state demands. And in this context a country has to be satisfied, as far as is possible, that the development of the economy and the social services will not be impeded by manpower shortages. Indeed especially since the Second World War, planners have devoted considerable

---

time to what has been described as investment in people, who, it is sometimes said, may be educated, trained, refurbished and updated, and who have a monetary return which may be likened to that of any other resource. The cost of educating people however is high, and this is a major reason for trying to match the manpower output to the actual requirements, especially in a developing country where funds are generally in short supply.¹

Manpower forecasting has been defined as an intelligent attempt to anticipate employment needs and trends, in order to be able to estimate the size and type of labour force that a country will require in the future.² While this may be left to the vagaries of market forces, there is then the danger that, in the event of shortages, the territory is not able to react quickly enough to correct the discrepancies and the shortfalls will impede economic growth. There is also the danger of poor utilisation of expensively educated personnel and of their being unable to find suitable employment. Indeed in most countries one finds dedicated planners, who have little faith in the free play of market forces that are suppose to bring the supply and demand of labour into equilibrium.³

The rigid manpower forecasting approach

Let us now examine an extreme theoretical case of forecasting, where little reliance is placed on a flexible education system or the free play of labour market forces (see Example "A", Figure 5).⁴ Here, attempts are made to

² A MacLennan, Educating and Training Technicians (England, 1975), pp.1 and 2; and P.R.C. Williams, Manpower Forecasting as a Basis for Educational Planning in Hong Kong, paper I (11 March 1978), p.1.
³ Blaug, op.cit, p.140.
⁴ Ibid., pp.214 to 224.
Figure 5: Comparison Between, Firstly, Manpower Forecasting and a "Narrow" Education and Training Approach, and, Secondly, a Flexible Education System with no Manpower Forecasting

Example "A"

1) **Exact forecasts are made of numbers and types of personnel required "X" years from now.**

2) **Attempts are made, by means of rigid and specialised education and training schemes, to be able to fill the above estimated future vacancies.**

3) **Little career guidance.**

4) **Long "narrow" apprenticeships and unions are "closed-shops".**

5) **Little or no transfer between trades or occupations or other forms of substitution.**

Example "B"

1) **No manpower forecasts.**

2) **A broad general education scheme with no specialisation at an early age. Broad-based technical education using modules and credit-units.**

3) **Students well advised on careers.**

4) **Rigid apprenticeships and "closed-shops" avoided.**

5) **Generally free movement between trades or occupations and various forms of job mobility and substitution available.**
ascertain the exact numbers of different types of personnel that will be required, possibly by using the "asking industry method" (see pages 54 and 55). In addition, job standards are prepared. Such an activity analysis classifies all jobs according to their functions and lists the work content. It also specifies the type of education, training and trade-testing that people need to fill adequately each of the various posts, such as mechanical fitter, textile mechanic, building estimator and so on. The United States Dictionary of Occupational Titles lists as many as 20,000 different jobs, although many occupation-education matrices do not go above 75 titles. However, even if a three-digit classification is used, it usually takes into account no more than about 200 jobs. In this regard Hong Kong had, by 1982, classified about 400 different occupations in the ten major manufacturing industries (see Table 1), and job standards for other sectors were under preparation.

Returning to Figure 5: the education system, in Example "A", tends to be restrictive, and specialisation starts at an early age. Technical education courses are long and "narrow", as are apprenticeships, and trade-unions and professional associations are run as "closed-shops" impeding movement from one industry or profession to another. This extreme approach also assumes that manpower is a relatively inflexible resource, and that there is a limit to retraining, redeployment and substitution.

With the above system, there is an attempt to shape and fit a given number of pegs (people), albeit of various diameters and types, into a given number of holes


3. Training Council and Vocational Training Council publications.
of various sizes (jobs) in a number of years from now, assuming always that the economy develops at an even rate. Colleges too are planned and run in an inflexible manner (see Chapter 5), with buildings being designed with the present in mind and with limited thought being given to change.

**Flexible education, training and manpower provision systems**

There are two distinct aspects to manpower planning. 1 These are, firstly, forecasting the demand for manpower by industry, trade or whatever, and, secondly, planning the supply of manpower. The latter depends on the output of education and training institutions (see Chapter 4) and such other factors as on-the-job training and manpower wastage.

Hong Kong's socio-economic structure is characteristically fast changing, and it has been said that shifts which can take up to 20 years in other countries can be effected in Hong Kong in one quarter of the time. 2 The demand for labour can also change rapidly. Viewed in this context, a school of thought exists which feels that limited accuracy can be achieved with any form of manpower forecasting, and that any shortages, surpluses and imperfections in the labour market can be overcome by giving people a broad-based education, so that they are adaptable, and by the extensive substitution of "flexible" workers. In other words, it is wrong to assume that there can be no manpower planning without forecasting, and a great deal can be achieved by an active and responsive (as opposed to a passive) education system.

In our examination of theory, we can now go to the other extreme (see Figure 5). Here, in Example "B", no attempt is made to forecast the numbers and types of

---


jobs that will be available in so many years time. Instead, all young people are given a broad general education, and they are not allowed to specialise until the second or third year of further education, as a solid broad academic programme is considered by many as having the most currency for ensuring a wide choice to a range of vocations.¹

(Indeed many United States colleges provide a wide selection of units for students themselves to choose from, and these can include a liberal mix of science, technology and the humanities in the same programme, thus producing well-rounded graduates, with a better base for later specialisation or movement from one profession to another.)²

Even at that stage, technical education should be as broad-based as practicable, employing a module or credit-unit system (see pages 260 to 263), and it should be viewed as a continuing life-long process with adults going back to "school" in order to update themselves or to be able to transfer into another job. All instruction should be as flexible as possible, and mobility should be provided so that craftsmen can upgrade themselves to technician level or move to other similar crafts. No student should be without a second chance if, for example, he is a late developer or has left school at the earliest opportunity.³

In addition, educational institutions should employ the latest teaching methods, with flexible class groupings varying from, say, 200 or so to one for lead-lectures, for team-teaching, to one to one for tutorials (see page 243). If it is possible for educational

---

2. Various prospectuses of USA colleges.
technology to replace the teacher (and the traditionalist will tell you it is not), then this should be done, as it makes the task of planning the supply of teachers easier. In order for flexible teaching to be provided, and so that educational institutions can adjust to changing lifestyles and modern development, they should be specially designed and built to accommodate change (see Chapter 5).

Assume also that an efficient system of counselling is provided. In this way, students are fully aware of the openings available, the qualities demanded, and job prospects. Rate of return analysis is also important when considering what livelihood to take up (see Chapter 6), although this should not be allowed to overshadow suitability and interest in a particular career. In other words, school and college leavers should be dissuaded from giving preference to high starting wages rather than long-term job prospects. So often people lack information about skill shortages, and how they can train to fill vacancies, and, even if they eventually do know, there are usually delays in their receiving the details. There is also a need for colleges and schools to keep personnel officers informed about the input of the education system into industry.

A middle course

While it is sometimes said that there is nothing so practical as a good theory, those of us who have been involved in manpower planning appreciate that the theory just outlined (see Figure 5), and represented by the two extremes, may be portrayed as black and white. But, as related in the "Doctrine of the Mean", in the practical


situation, black or white are often not appropriate. In other words, a suitable shade of grey is usually more germane to the real world of planning.\(^1\)

For example, does the dedicated forecaster really believe that it is possible to foretell the actual numbers and types of personnel that will be required in the economy in 20, ten or even five years from now (the longer the period the more difficult the task becomes (see page 90)) with any degree of accuracy, with methods that are often considered suspect by the forecasters themselves even in a relatively stable world? Moreover, if technological change and economic progress are rapid but irregular (as one finds in Hong Kong), which are affected by recessions and booms, one begins to appreciate the difficulties in extrapolating production and manpower trends. This means that relying on forecasting alone is not realistic.

Or, as an alternative, do the advocates of the other extreme (Example "B", Figure 5) really believe that forecasting serves no useful purpose, and that it is possible to educate Mr average man so that he is sufficiently flexible to move from one job to any other with a minimum of retraining? And do advocates really believe that it is possible to establish an education system that is sufficiently flexible to be able to achieve this end? The complexity of our lives today makes the division of labour inevitable. Without it we should never achieve control of our scientific and technological world. Because of this, a point is often reached when specialisms become so esoteric that they are incapable of being understood by the policy maker and the administrator. However, one also finds that unnecessary boundaries are sometimes erected.

While Examples "A" and "B" (see Figure 5) illustrate basic principles, countries will generally be positioned somewhere on the continuum between the two extremes. Moreover, in the case of these two examples, there is no real ambivalence, as the two are not in

\(^1\) Blaug, op.cit., pp.216 and 217.
conflict. For instance, the USSR with her considerable experience in comprehensive economic manpower forecasting is well over to the left of our continuum, as it relies a great deal on forecasting. ¹

This policy may be compared with the United States. Here, 12 years of full-time general education is available for all without any real degree of specialisation. At college too the first year of study is broad-based, and a greater attempt is made to educate the "whole man" than in Hong Kong or Britain. The Finniston Report makes the same point about the United States, and says that a broad first degree in engineering is a useful qualification providing options to enter industry with a clear and quick route into management, or to move into other disciplines by taking a master's degree in, say, law, accountancy or business administration. ² This really means that, in the United States, it would be theoretically possible to adjust the supply of future engineers, scientists or other areas of manpower in 1985 (or even in 1986), for a 1988 outturn from a first-degree, four-year course on to the labour market. A similar position exists with the education of technicians and craftsmen. And yet with limited specialisation, free choice, and an open-door educational policy, the United States is probably the most advanced technological nation in the world. Taking the above facts into consideration, this places her well over to the right on our continuum. ³

In Japan too a degree course is normally of four years' duration, and the first two years are biased towards engineering science, foreign languages and the humanities. The final two years is the so called "professional 

education" period, and the aim is to build up knowledge in a particular subject area with study in some depth.¹ Nevertheless, such a curriculum has not escaped criticism from industry, which, on occasions, has expressed the view that such programmes are too basic, with insufficient detailed engineering being taught. To this criticism the universities response has been that they provide a firm foundation with maximum flexibility and responsiveness to prepare students for change.

In Britain, limited reliance is placed on manpower forecasting, and projects in this field have mainly been on an ad hoc basis. For example, we have the various manpower studies conducted by the Ministry of Labour,² and, later, the forecasting of the demand for craftsmen and technicians, up to 1986/87, for the Engineering Industry Training Board (EITB) conducted by the University of Warwick.³

Educational specialisation in Britain also starts earlier than in the United States, and a tripartite system of secondary grammar, technical and modern schools, and the "eleven plus" grading examination, were introduced after World War Two.⁴ Since then, comprehensive schools with streaming for different ability groups have largely replaced them. Alongside these exists a public-school system. Further specialisation continues, in lower and upper sixth-forms, and a student normally studies either arts or science subjects for two years. By the time the student arrives at college, polytechnic or university, real specialisation commences.⁵ It can thus be seen that

---

³ The Engineering Industry Training Board Annual Report and Accounts 1981/82 (England), p.27.
Britain's position on the continuum is considerably more to the left than that of the United States.

From the above examples it can be visualised that the positions of different countries vary, often considerably. Indeed this is necessary, to some degree. For instance, if a developing country is affected, to a lesser extent, by technological change, and there are thus more rigid links between outputs of students and jobs, and between jobs and education, then the more justifiable some form of forecasting may be (see pages 83 to 86). Similarly, the longer it takes to produce specific skills, the more desirable manpower forecasting may be. On the other hand, in a country where changes take place rapidly, less reliance should be placed on forecasting.

The methodology of manpower forecasting

Let us now look at the basic ways in which manpower forecasting may be carried out. With all methods it is necessary to start with a manpower survey, in order to establish a "base-line" showing details of the existing occupational structure. This data base will provide information on the existing distribution of the work force, by occupational category, qualifications, age and experience. It will also give some indication of present labour productivity, if output data are available, and will enable the planners to calculate the numbers of replacements required annually to maintain the work force at its present levels.

Hong Kong has been conducting manpower surveys, on a regular basis for its main industries, since the second half of the 1960s. Indeed without these data, its manpower forecasting programme (see Chapter 3) would not have been possible. By contrast Finniston says:

There are no comprehensive and up-to-date data on
the numbers and distribution of engineers in this
country (Britain). ¹

And this appears to be the case for most industries in the
United Kingdom. Finniston goes on to recommend that future
official censal surveys should be structured to collect
the information for the keeping of an inventory on
engineering manpower on a continuing basis. ²

While the conducting of surveys and the
establishing of a data base is, however, relatively straight
forward, the main difficulty with forecasting is in making
projections of the composition and volume of future man-
power needs, based on the expected or planned future
structure of the economy. ³ In other words, the main
problem is to translate future economic output into labour
requirements. ⁴ Moreover, although forecasting has become
more common and more sophisticated over the years, no
consensus appears to have emerged as to the most suitable
system to employ. Blaug has listed forecasting under five
headings, although there are variants and they may be used
in combination. ⁵

The first of these is the "employer's opinion
method" which involves asking how much and what kind of
labour they expect to require in a given number of years' time. ⁶ While this may sound like a pragmatic solution, it
is unfortunately true that experience has shown employers

¹. Engineering Our Future, op.cit., p.45.
². Ibid., pp.75 and 163.
³. Williams, Paper I, op.cit., paras. 10 to 12.
⁴. H.S. Parnes, Planning Education for Economic and Social
   Development, eds. Carolyn Baxter, P.J. O'Leary and Adam
   Westoby, Economics and Education Policy: a reader
⁵. Blaug, An Introduction to the..... op.cit., pp.146 to
   153.
⁶. Williams, Paper I, op.cit., para.12(c).
are notoriously bad at estimating their requirements more than about one year ahead.\(^1\) This is because their demands depend largely on economic conditions, which are mainly outside an individual firm's control. As a result George Brosan, Director of North-East London Polytechnic, said in 1972,

> I am now extremely sceptical about the ability of industry to say anything on which I can rely in planning forward growth in view of past experience.\(^2\)

Nevertheless this method has been used in Britain, the United States, Canada, Sweden and France, and in a number of emerging countries.\(^3\) It is frequently used where there is a direct connection between personnel with specific educational qualifications and the posts that are to be filled, and where numbers or ratios are fairly firmly established by licensing agreements or by professional traditions. Examples are teachers, where teacher/student ratios are fixed, or doctors in the National Health Service in Britain.

Because the average industrialist does not have the information to be able to forecast how many workers he will require "x" years from now, he is likely to fill in any questionnaire largely by guessing. Also, unless employers are asked to estimate their production levels and their relationships to future labour, it is not possible to check the figures for accuracy. However, the "asking industry method" should not be condemned outright, and, with limited data available, Hong Kong has probably done right in combining this system with the trend analysis method in order to make judgments on future manpower needs (see Chapter 3).\(^4\)

---

Before going further it should be stated that "demand" and "need", in connection with manpower, are not construed as being the same. "Demand" is normally used with respect to the requirements of industry, and, in particular, to the employer's ability and willingness to engage staff; while "need" is the objectives of a community, in other words, a normative judgement which will benefit society. It is usually said that "need" is ahead of, or greater than, "demand", although employers can sometimes be "educated" or persuaded to alter their views. For instance in Hong Kong, during the 1960s, there was a limited "demand" for technologists in construction firms, management standards were often low, and large sites were normally managed by foremen (technicians). However, staff at the then Technical College and the University of Hong Kong felt there was a "need" for technologists. As a result, by the mid 1970s, courses for building technologists had been run, both in the Polytechnic and in the University of Hong Kong, by which time there was a "demand".

The second method of manpower forecasting is the "comparison method". This works on the premise that reliable comparisons can be made between states. For instance, a poorer semi-developed country plans to follow in the path of a more advanced one, and, as a result, it is assumed, usually wrongly, that similar output to labour ratios are likely to develop. It also means to say that


3. Recollections of past Technical College staff; and Technical College and University of Hong Kong prospectuses, passim.

4. Blaug, An Introduction to..., op.cit., pp.149 to 150.
the planners recognise, to some degree, the existence of a unique manpower growth path that countries follow in the course of their development.

Indeed a rule of thumb method has been suggested by the late Frederick Harbison, Professor of Economics and International Affairs at Princeton University.\(^1\) This says that if the GDP is to grow by \(X\) per cent per year, the number of top-level manpower should increase by \(2X\), second-level manpower by \(3X\), and total employment by \(\frac{5}{2}X\) per cent per annum. While this rule appears to be over-simplified, and the formula should, it is suggested, vary from country to country, it is understood that it has been used in the Third World.

It has even been suggested that Hong Kong might derive its future manpower profiles and other planning data from Japan's past economic records.\(^2\) The idea of an emerging country following in the footsteps of a high-flying "trail-blazing" country, such as Japan or the United States, is obviously attractive, but, on closer examination, it is not really practicable. Obviously all economies differ. For instance some will be based on agriculture, others on light manufacturing industries, while others will have few natural resources. However, again the comparison method should not be rejected outright, and it can be used in conjunction with (or as a check against) one of the other systems (see pages 140 to 142).\(^3\) Similar international comparisons can also be made of educational systems and numbers of students compared to populations. For example a useful comparison has been made, regarding engineers, between North America, Europe and Britain, and how similar developments could affect Hong Kong.\(^4\)

---

The third way of forecasting is the, so called, trend analysis or extrapolation method, where past and present trends of such economic parameters as the ratio of labour to volume of output, and/or national income, and other ratios, norms and coefficients, are analysed and projected into the future, and assumptions are made.\(^1\) As an alternative, GDP targets can be broken down into sectors, and then into occupational requirements, and assumptions can then be made on increased productivity and labour force ratios. Various forms of expenditure, such as investment and growth, can also be analysed and extrapolated in the same way, in order to ascertain how the economy will develop. The difficulty with using the extrapolation method in emerging countries is that the detailed statistics required are usually lacking (see pages 97 to 100). However, a simplified version of this method may sometimes be used in conjunction with one or more of the other methods. Although Hong Kong has been using a kind of trend analysis for manpower forecasting, as we shall see later, it is only very tenuously linked to an output base, as the Territory did not have the detailed data regarding production per worker, by sector, occupation, and educational qualification, to be able to employ a refined version.\(^2\)

The fourth method is known as the "density ratio method" or the "ratio of saturation method". This consists of projecting past employment and production trends, and estimating stable fractions of qualified manpower in a sector of the economy, and then adjusting these in accordance with planned and estimated variations in production and improvements in technology, and applying these fractions to demographic forecasts of the future labour force.\(^3\) One could assume, for example, that the

---

1. Blaug, An Introduction to ... op.cit., p.148.
2. Williams, Paper One, op.cit., para.12(a).
staffing of the superior firms with their higher densities of better educated personnel, in 1985, will become the standard pattern in most firms by, say, 1996. The density ratio method is commonly used in the almost totally planned economy of the USSR, and, on a lighter note, it is interesting to record that Mr Rudnev, who was the minister responsible for manpower planning in Moscow, said:

In Russia we have an extremely complicated system of planning; we try to decide the optimum size of universities and to distribute the students among the different courses so that industry will have the right people in ten years' time. We always get the answers wrong . . . You don't seem to make any plans in England and you get your answers wrong too.\(^1\)

The ratio of saturation method has also been used in the United States and Britain.

The final system is the so-called "Parnes M R P (Mediterranean Regional Project) method".\(^2\) This was originally used by the Organisation for Economic Co-operation and Development (OECD) to produce an educational plan for Portugal, Spain, Italy, Greece, Yugoslavia and Turkey, in the early 1960s, within a common conceptual framework. This method progresses from an initial projection of a target GNP to a future year, determined by an economic plan, to the supply of educated manpower required to achieve it. The target GNP is broken down into the various major industrial sectors, and allowances are made for manpower wastage due to deaths, retirement, emigration etc. An average labour-output coefficient, the reciprocal of the familiar concept of the average productivity of labour, is then applied to the industrial or sectorial GNP targets, yielding a forecast of the labour required in the various exclusive occupational groups. This occupational matrix


\(^2\) Blaug, An Introduction to . . ., op.cit., pp.150 to 153.
is then converted into a structure of educated manpower to achieve the targets. Singapore uses a variant of this method.¹

Further refinements of this system have also been developed, such as the "Cambridge Model" in Britain.² This commences with a detailed social accounting matrix for 36 sectors of the economy, and finishes allowing for different trends in technical progress in various industries, with a sectorial distribution of the future manpower required by occupations.

Hong Kong has not employed the Parnes M R P method or the density ratio method partly because it did not have the data available and because of the volatile nature of the economy.

Substitution of personnel

When dealing with aggregates of manpower, one should not always think of there being fixed stocks, and that the only way of adjusting them means long gestation periods. There may be some "reserves" of talent. One of the functions of an efficient labour market is to shift manpower from areas of less productive application to those of more productive application.

(a partial exception is in the case of Japan where life-time employment with one firm is common, although there is still naturally movement from job to job within a firm itself.)³

It can thus be seen that, in order to have a flexible planning system, and to cope when production has to increase spasmodically, substitution, where personnel are substituted for workers in another job, is important. This means that in Example B (Figure 5), at one end of the continuum, it must be assumed that employers' demands for different types of personnel are highly elastic. In other words, there are several different groups of people in the

¹. Ong Wee Hock, Harmonization of Technician Education and Training with Actual Manpower Needs in Singapore (8 November 1976), pp.6 and 7.
workforce who can perform a hypothetical job.

Indeed it has sometimes been said, in this rapidly changing age, with many jobs becoming more technologically advanced and sophisticated, that there is only a limited range of occupations for which suitable educational preparation can be defined with any degree of accuracy, and that many jobs can absorb people with quite diverse qualifications and experience provided their general education has been taken to an appropriate level. In other words, we often tend to under-estimate human adaptability and resourcefulness. It is generally agreed that being able to carry out a task depends upon a suitable mix of native intelligence, general and technical education, possibly psychomotor skills (for a skilled worker), on-the-job and off-the-job training, and work experience. For example, the technologist will require a higher level of general and technical (or rather technological) education than the craftsman, while the latter will require more advanced psychomotor skills (see Figure 6). There is thus a fairly close connection between a job and the level of education required to carry it out.

For instance, in Hong Kong before the introduction of six years of primary education for all, in 1971, a large number of school leavers entering industry to be trained, on-the-job, to become skilled or semi-skilled workers, had only received a few years of education. In a similar way, while completion of form-four or form-five was required by the Technical College for entry to a technician course in the 1960s, many technicians in industry, who were often up-graded craftsmen or up-graded semi-skilled workers,

2. Blaug, An Introduction to..., op.cit., p.141.
Figure 6: Typical Theoretical and Practical "Education/Skills Mix" for Technologists, Technicians and Craftsmen.
had low educational standards. With the introduction of nine years of universal education, in 1978 (see page 20), this has led to a better educated labour force which is necessary as Hong Kong's industry becomes more advanced.¹

There has also been a strong move for more students to receive secondary education beyond form-three, and while in 1965, of 1,000 pupils who entered primary-one, only 293 completed form-five in secondary school, this figure had increased to 849 in 1981.² However, while the full effects of a better educated work force will not be felt for some years to come, there appear to be few, if any, ill effects so far (see pages 192 to 195). Moreover, with a better educated labour force, job mobility and the possibility of substitution from one job to another should be substantially increased.

However a transfer, from one job to another, is obviously often not straightforward, and may involve a period of retraining. Under such circumstances, a heavy-current electrical engineer might not find it too difficult to move to light-current work, and even a mechanical craftsman should, after a period of accelerated training, be able to become an electrical craftsman if he has completed a broad-based general engineering course. However, obviously, it would not be so easy for a clerk to become a carpenter, or a bricklayer a plumber, although one does meet general handimen who can turn their hands to a smattering of trades. There are thus limits as to what degree transfers can actually take place, although much depends on the adaptability of the person concerned. There appears to be little empirical evidence concerning substitution possibilities among the various types of labour.³

¹. Director of Education 1977-78 Annual Summary, p.5.  
². A Perspective on Education in Hong Kong, Report by a Visiting Panel (November 1982), Appendix VI.  
In certain cases, regulations exist forbidding persons not qualified to work. An obvious example is a medical doctor. In Hong Kong the waterworks regulations state that, to become a licenced plumber, a person must hold a relevant certificate awarded by an appropriate body such as a technical institute, the Polytechnic, the City and Guilds of London, or the Institute of Plumbers in Britain.1

An alternative arrangement to provide for easier substitution is known as "deskilling", when there is a shortage of labour, and some jobs may be "re-jigged" and carried out in a different way, possibly by substituting partially-skilled for skilled labour.2 Deskilling was common in the West during World War Two, a time of maximum employment.

As we have seen, if a person possesses a good general education, then it is normally easier for him to move from one type of job to another. In such cases, it should not be too difficult to provide accelerated courses to help overcome shortages of skills. However, upgrading workers can be a relatively lengthy process.

It is important to bear in mind that there are knowledge and skills which are not necessarily products of formal education or training. For example in Hong Kong, up to the late 1960s, most craftsmen learned their trade on-the-job.3 While such a system has its drawbacks, in that the theoretical knowledge that a youth learns in a college is valuable, nevertheless learning on-the-job is cheaper, and this has advantages especially for a poor developing country. In fact, a great deal of economic progress can often be made by a government persuading (or compelling) industry to undertake more training. This may involve financial incentives. For example in Hong Kong's

case, certain trades are "designated" and apprentices under 19 years of age must, by law, receive appropriate training. 1 Various other expedients exist which help to promote job mobility. For instance in a purely competitive and responsive market, shortages of skills can be met by a firm raising its wages, and by introducing bonus schemes, allowances, pension rights and other fringe benefits, to encourage people to change employment. Conversely, in cases of over-supply, the opposite would apply and wages would fall. Overtime may also be resorted to in order to increase production suddenly. A further alternative is to encourage retired people or women who were not employed to work either on a full-time or part-time basis. 2 Another alternative is to recruit expatriates, such as Filipino maids or British engineers, as commonly happens in Hong Kong.

A further possibility, when labour is in short supply or not of the right type, is by increasing mechanisation, or by employing a different management style in order to ease production difficulties.

Indeed if perfect substitutions were possible, then even if it takes four years to plan and establish a college, and a further four years to turn out a class of technician graduates (total eight years), if they had not received the "correct" type of education, possibly because of advancing technology or because of changes in the pattern of industry, with perfect substitution there would still be no bottlenecks to development. In fact with a perfect system of substitution, it would mean that, in theory, forecasting is unnecessary. The Finniston report records that the committee did not attempt to quantify future engineering manpower requirements. It goes on to say:

... it is not realistic to anticipate with any confidence any specific future industrial scenario .... Our scepticism of such forecasting is strengthened by the lack of any adequate data base for assessing current demands and requirements.¹

At this stage, it is relevant to look at labour shortages in west central Scotland (the district is thus described in the report) and how they are normally handled, as the problems met there are, in many ways, similar to those encountered in other large industrial conurbations.²

It has been suggested in the report that a major contribution to labour shortages, in Britain, is the highly structured occupational system.³ Nevertheless, it is generally agreed that there is no unique optimal plant or employment ratio, and the best level of manning is one which is flexible according to the product or the service provided.⁴ It has been stated, however, that conventional organisations often tend to employ more labour than is actually necessary for efficient production, and they therefore contain a certain amount of "fat" which helps to tide firms over during peak manpower requirements.⁵

For technicians the most common method, in the case of a labour shortage, is to increase in-service training, followed by the use of overtime, increased apprentice intake, offering better working conditions, and sub-contracting.⁶ Greater investment (to purchase additional equipment, for example), to allay labour shortages, the increasing of wages, and the use of part-time workers are not commonly employed at this level. The foregoing, in

---

¹ Engineering Our Future, op.cit., p.68.
³ Ibid., p.6.
⁴ Ibid., p.18.
⁵ Ibid., p.85.
⁶ Ibid., pp.43, 44, 46, 66, 67 and 72.
Scotland, differs somewhat to the various methods used at craft level. Here, the use of overtime is the most common single factor, followed by in-service training, employing better working conditions, subcontracting, and increased apprentice intake. Limited use is made of taking on retired, seasonal or part-time staff, or transfers from other branches. For semi-skilled and unskilled (as for skilled) workers, overtime emerges as the most common way of increasing production, followed by increased in-service training, the use of part-time, seasonal and temporary workers, and improved working conditions to attract new staff. Subcontracting and transfers of personnel are not commonly resorted to. It is interesting to note, however, that, in Scotland, few firms had any clear idea of the comparative costs of the different solutions to substitution, and the general view was that the overriding considerations were to speed up production and the need to satisfy the client so that goodwill would not be lost.1

Training and apprenticeships

Apprenticeships, in some form, have stood the test of time in many countries, including Britain, China2 and India3. Indeed in the last case, they date back more than 2,000 years. Although apprenticeships have been common on a limited scale in Hong Kong for a long time, it was not until 1970 that a registered apprenticeship scheme was started by the Government. In 1976, the Apprenticeship Ordinance was enacted.4 This system expanded rapidly and it has done a great deal to improve the standards of craft and technician training.5

1. Ibid., p.48.
However, while a well organised apprenticeship system can provide sound training, which is often held in high esteem by employers and trade-unions alike, with regard to manpower planning the possibility of inflexibility needs emphasising. Thus, there is often a need to provide alternative avenues for people to become craftsmen, other than through apprenticeships, so trades do not become closed-shops.

At the start of the century, in Britain, apprenticeships were usually for a period of seven years. Learning was, to a large extent, by "sitting by Nellie", and often the first year consisted of little more than "fetch and carry", sweep the floor and make the tea. During World War One, with the necessities of war production, apprenticeships proved inadequate to provide the skilled workers required and wide-spread "dilution" took place. However, a large number of dilutees left industry at the end of the war. An enquiry conducted in 1925 and 1926 revealed that, in engineering, only about 75 per cent of boys learning a trade were apprentices. Also less than one-third of these had written, as opposed to oral, agreements. Between the two World Wars the duration of apprenticeships was reduced, and, in Britain, the normal period was five years.

During the Second World War, with a further heavy demand for skilled labour, an agreement was reached between employers and unions for the temporary relaxation of customs to enable semi-skilled workers to be employed to do skilled jobs. The post-war period saw an extension of such practices in many trades, in most areas of Britain,

4. Ibid.
to allow for greater flexibility of labour. Prior to the Industrial Training Act, in 1964, although the apprenticeship system was the main method by which youths entered skilled occupations, such as the engineering trades, there was no guarantee that an apprentice-trained craftsman had done more than serve five years or so with an employer.\(^1\) There was also no compulsory system of registration, no requirement that an apprentice should be indentured, or that he must attend related instruction in a technical college.

The aims of the 1964 Industrial Training Act were to ensure an adequate supply of properly trained people at all levels in industry; to secure an improvement in the quality and efficiency of training; and to share the costs of training more evenly between firms.\(^2\) This Act had far reaching consequences. However, while the duration of apprenticeships was reduced to three or four years, and more modern methods of training (such as attendance at a technical college on a bigger scale than hitherto, and module training) were introduced, nevertheless it was generally considered that the training boards had limited success in improving the quality and quantity of training.\(^3\) Since then, Britain established the Manpower Services Commission, in 1974, to promote more and better training.\(^4\) Two executive bodies, namely the Training Services Agency and the Employment Services Agency, were also created in 1974. All these have helped to promote a more flexible training and employment system.

Because of inflexibility and some of the drawbacks outlined above, many firms have discontinued engaging apprentices.\(^5\) Indeed it is estimated that since about 1978,

---

1. Ibid., p.327.
2. Ibid.
3. Cantor and Roberts, Further Education Today, op.cit., p.3.
4. Ibid., pp.3 and 4.
5. Labour Shortages and Manpower Policy, op.cit., pp.48 and 100.
the numbers in Britain have fallen considerably, although this is also due to the decline in economic activities and to changes in the pattern of training.¹ For example, standards-based skills training and assessment have tended to replace time-served training (where a young person, irrespective of ability, has to serve a set number of years). The Manpower Services Commission too has introduced youth training schemes.² The recession has also had a severe impact on engineering training, with the lowest apprentice recruitment on record, in 1982, at 10,500, which included 2,000 trainees supported by the Manpower Services Commission.³ However, in spite of more and better opportunities in further education⁴, there is evidence to suggest that some young people still want to become apprentices, as this helps to ensure that they receive a thorough training together with a certificate on its completion. The main problem, however, is too few industrial opportunities.⁵

Since World War Two, the length of apprenticeships has also been reduced in Europe, where, in some countries (Germany for example), they are common not only in manufacturing but also in commerce and the service industries, and durations generally range from two to four years.⁶ In the United States, apprenticeships normally commence after a period of 12 years of full-time schooling. Compared to most countries, the United States system is more flexible with appropriate credits which a boy has obtained in college being recognised.⁷ Also the time served

² The Youth Training Scheme, Engineering Industry Training Board, information paper 1P/68/283 (England, 1983), passim.
⁴ Labour Shortages and Manpower Policy, op.cit., p.87.
⁵ G. Pryer, loc.cit.
⁷ Ibid., pp.80 and 81.
can vary, depending on ability, with the bright youth completing his apprenticeship earlier. Generally, however, times vary from two to five years.\footnote{1}

Having given typical examples of apprenticeships, it is necessary to reiterate that they do have demerits which can adversely affect manpower planning.\footnote{2} These include a limited theoretical and sometimes practical foundation, especially where all learning takes place on-the-job. In other words, people are not brought up to be versatile and the saying "every man to his trade" is not uncommon. Such conditions, together with closed-shops, tend to restrict vocational mobility.

There are various alternatives to the apprenticeship system. These include accelerated-training where adults can learn the basics of a trade in six to 12 months. Such programmes are often looked upon with suspicion by employers and workers alike who consider an apprenticeship provides better training. In addition such trainees often meet resistance, when taking up employment, from closed-shops. In Singapore, six to 12 months of off-the-job training is followed by two to three years of on-the-job exposure, with adequate job rotation, coupled with the studying of modules on a part-time basis in a technical college.\footnote{3} Similar systems have been introduced, following the 1964 Industrial Training Act, in Britain.\footnote{4}

Other possible alternatives for a flexible manpower system include a "graded craft ladder", which really implies that more menial tasks are undertaken by

\begin{footnotes}
\footnotetext{1}{D.D. Waters, \textit{A Visitor's Impression of Vocational Training in the USA}, Industrial Training International, vol.3, no.4 (England, April 1968), pp.170 to 175 (p.173).}
\footnotetext{3}{Ibid., p.14.}
\end{footnotes}
partially-trained practitioners. For example, while the People's Republic of China has fully-qualified doctors, it also has "bare-foot" doctors who are qualified to a lower level, and, consequently, their training is cheaper, yet there are many tasks within the field of medicine that they can perform adequately.\(^1\) In the same way, is there any point in training fully-fledged carpenters, in every case, when some work can be done by "shuttering hands". That is to say, erecting the timber formwork for the pouring of concrete. Also, does a mechanical engineering machinist-cum-fitter need to be an expert on lathes, millers, shapers and other machines ad infinitum? There is no doubt that the cost of training, in some cases, can be reduced by shortening the training period, by a graded-craft ladder, and by providing, as it were, "half-way houses".

Professional associations and unions

In a similar way, professional associations also restrict mobility. The case of doctors has already been mentioned. Similar examples include chartered engineers, chartered surveyors and chartered accountants. During the period under study, a number of separate associations, or new sections within existing professional institutions, have been formed, in Britain, solely for technician members: for example, the Society of Electronic and Radio Technicians, and the Institution of Electrical and Electronic Technician Engineers. Many Hong Kong people are members of British institutions. Membership of an institution is normally obtained by passing examinations or by obtaining exemption. In general, standards have risen in the past decade. Again, such associations tend to restrict mobility of personnel, as sometimes, unless a person possesses a certain qualification, he is not eligible for a job.

Labour unions also sometimes set up barriers, to prevent those who do not belong from practising, even if they are capable of doing so.\(^2\) Restrictions include limits

---

on apprentice intakes, to avoid the dilution of labour, in line with trade-union established ratios of time-served workers to apprentices. Generally, these barriers become stricter when there is more unemployment. For example the United States, one would imagine, would have little difficulty in bringing into the country additional research scientists, in the event of a shortage, but considerable opposition would no doubt be met if any attempt were made by employers to recruit foreign welders, as American welders are strongly unionised. In a similar way, in Britain for example, platers and welders are often not interchangeable, because of union regulations, in spite of large elements of common basic training.

There is no doubt a need to review the approach to unions, in the United Kingdom and other countries, in order to increase job mobility. Similar examples do not exist, to any extent, in Hong Kong, where unemployment is relatively low and unions have limited clout. However, the above illustrates the need for examining the various related labour practices when formulating manpower policies.

The position in Hong Kong

While an examination of manpower planning in Hong Kong will be covered in the next chapter, let us first see where it would fit on the continuum at Figure 5. Understandably, as we are now comparing a developed with a developing country, in Hong Kong, unlike the United States, there are not sufficient places for all qualified young people to study at tertiary level (see Chapter 4). Because of this competition starts, and the pressures on children commence, by many parents trying to enrol their infants in reputable

1. Labour Shortages and Manpower Policy, op.cit., pp.58 and 59.
2. Ibid., pp.59, 60 and 61.
3. Ibid., p.97.
4. Hong Kong 1981, op.cit., p.53; and John Bussey, HK's Labour Pains, Unions in Desperate Struggle to Stem Membership Slide, South China Morning Post (31 October 1982); and Fourth-Year Decline in Union Membership, Standard (30 December 1982).
kindergartens, as these can provide "gateways" to the most sought after primary schools. In turn, some of these act as "feeder schools" to some of the most prestigious secondary schools.

Hong Kong has a competitive education system and examinations play an important part. For example, selection to kindergarten and primary school may still be by interview; there is also a junior-secondary schools places public sector allocation scheme, at the age of 12, and public-sector senior-secondary education allocation by means of the Junior Secondary Education examination, at the age of 15 (see Figure 2). Selection for sixth-form, at the average age of 17, is by means of the Certificate of Education Examination. This is followed by selection for entry to the Chinese University of Hong Kong, by means of the Higher Level examination, at the age of 18; and at the average age of 19, selection for entry to the University of Hong Kong by the Advanced level examination. The above "sieving" devices have been set up for "creaming off" applicants for senior secondary, further and higher education, or for certification prior to entry to the labour market, or for admission to the more prestigious education institutions.

To give some idea of the degree of "creaming off" that used to take place: for every 1,000 pupils who entered the six-year primary school course, in 1965, 645 completed primary six, 364 completed form-three (in secondary school), after nine years of general education, 293 completed form-five, and 39 pupils completed form-seven after 13 years of general education. With a law prohibiting young persons from working in the manufacturing industries under the age

1. A Perspective on Education in Hong Kong, op.cit., p.33.
3. A Perspective on Education in Hong Kong, op.cit., pp.31 and 32.
4. Education Department enrolment records.
of 14, this meant that, as only 364 completed form-three (in 1965) out of the 645 who finished primary-six at the age of 12, there was a two or more year "gap" when many children had nothing to do. Many however, did work illegally. By 1981, for every 1,000 entering primary school, 940 completed it, and 894 pupils went on to form-three. (This tremendous improvement was due to the introduction of nine years of universal, free, compulsory education, in 1978\(^1\), although the above figures include private schools). Eight-hundred and forty-nine pupils then completed form-five and 132 form-seven.

Although discouraged by the Education Department, at one stage written entrance examinations into primary school were common, and indeed it is said that, even in the 1980s, such a practice still continues on a limited scale, sub rosa, for entry to some kindergartens.\(^2\) The above illustrates that a form of streaming, which has a bearing on the education one receives, and which has an influence on manpower planning, commences at an early age. For example, a reasonably bright child of middle-class parents, who spoke some English, would stand a better chance of getting into a primary school, which led to an elitist secondary school, than a bright child of poor parents who lived in a Government resettlement housing estate.

(In addition, many primary schools are bi-sessional with one "school" meeting in the morning and one in the afternoon in the same building.\(^3\)) And once a child has entered a good feeder primary school, the chances of him working his way up to form-five are good. As always, however, the system is not infallible, and cases do exist where sons of illiterate coolies later

---

2. A Perspective on Education in Hong Kong, op.cit., p.41.
3. Ibid., p.47.
successfully completed doctorates.¹

(Taking a more extreme case, however, it was noted during an examination of a manpower programme in Thailand, that decisions were being made on how many pupils should be channelled through, at a later age, into vocational education, with respect to four-year olds.²)

In the 1960s, several different types of schools existed in Hong Kong. These included vocational training centres, often run by voluntary agencies, such as religious bodies.³ These provided one or two years of vocational training on completion of primary schooling. In the late 1960s or the 1970s, most of these centres either closed or were converted into prevocational schools (see pages 23 and 24).

In addition, in the early 1960s, Hong Kong also had three-year secondary modern schools. These were never popular, as the public realised that they did not allow pupils to obtain a Certificate of Education after a five-year secondary course. As a result, the Government secondary modern schools were converted into five-year technical schools, in the early 1960s, and a similar transformation took place with the five Government-aided secondary moderns, commencing in 1978.⁴ Secondary technical schools (there were 21 in 1982/3) provide a five-year, general secondary education (some have sixth-forms) with some emphasis on non-vocational technical subjects. They have been described as grammar schools in disguise.⁵ The small number of prevocational and secondary technical schools reflects the generally lower status traditionally accorded, in both Chinese and English societies, to practical

¹. Recollections of Author.
⁴. Induction Course for Newly Appointed Teachers in Prevocational Schools (August 30, 1979), pp.17 and 18.
⁵. A Perspective on Education in Hong Kong, op.cit., pp.49 and 50.
studies. However, this is not to say that some of these schools do not have good reputations or that the position is not improving. 1

As can be seen, of the wide range of types of schools, over the last 15 years, some have disappeared and, in other cases, their differences have become less marked. At one stage, it was intended that all children should follow a common nine-year education, with the inclusion of some technical subjects in the curriculum, although this proposal did not materialise. 2 This would have been on the lines of the Japanese system. 3 Such a structure has many advantages in that early selection is not necessary, and some pupils are not forced to follow a "road of no return" at a comparatively early age. The reason the Government did not insist on uniformity throughout the junior secondary school system was, to a large extent, because it would have meant modifying the prevocational and the technical schools. Many felt that these serve a useful purpose for the less academic type of student, and there was a fairly strong "lobby" for the continuance of such schools. 4

The compartmentalisation of education in Hong Kong is not, in general terms, unlike some other countries. 5 For example in Singapore, students are streamed starting at primary school, and, after that, limited mobility is possible. 6 A similar situation exists in Indonesia. 7

1. Ibid., p.50.
2. Secondary Education in Hong Kong over the Next Decade (16 October 1974), p.3.
4. Secondary Education in Hong Kong Over the Next Decade, op.cit., p.6; and Report on Seminar on Aims of Prevocational Education (27 December 1974), passim.
From this chapter it can be seen that more places are now available, in Hong Kong, for pupils to obtain a full nine years (or 11 years in some cases) of schooling than was the case a few years ago. Also, some of the types of 'schools' are less 'vocational' than they once were. This means that specialisation which could, at one time, "type" a person as early as 12 years of age, does not now commence until 15 years or, in about 70 per cent of cases of those attending Government or aided schools, not before 16 or 17, or later.¹ As a result people are not destined, to the same extent, for particular levels of work, early in life. This means that Hong Kong's position on the continuum (Figure 5), as far as education is concerned, has moved, during the 1960s and the 1970s, from well over to the left, to a position considerably more to the right. Further movement will no doubt continue as additional places become available and there is less competition.

Methods of teaching at the Technical College, up to 1972 when it was superseded by the Polytechnic, were always somewhat rigid. For example, students fresh from school once attended one-year, full-time, craft courses in specialist subjects, such as sheet-metal work or tool and die training. However such courses were phased out in 1970, and replaced by broader engineering craft programmes when they were taken over by the Morrison Hill Technical Institute.² However, students could study tool and die or other specialist subjects as advanced craft programmes. Since its founding, the Polytechnic too has gradually introduced a less rigid course structure and more flexible methods of teaching (see Chapter 5).³ The technical

1. Education Department records.
institutes are also committed to more flexible methods, and a credit-unit system was introduced with effect from 1977.\footnote{Technical Institutes, Policy for the Introduction of Technician Programmes of Study and a Credit-Unitary System (July 1976), p.3.} A modular system has also been introduced for craft courses commencing in 1981.\footnote{Sub-Committee on Course Structure (Technical), Interim Report (19 May 1978); and (39)ED(TE)108/3/4 (22 January 1980).}

Various suggestions have been made for streamlining the Hong Kong apprenticeship system, largely on the lines mentioned earlier in this Chapter.\footnote{D.D. Waters, The Apprenticeship System in Hong Kong, letter to Committee on Apprenticeship, Industrial Training Advisory Committee (15 May 1969), TI/4/5; and Williams, Paper I, op.cit., pp.20 and 21.} And, while the establishment of Government registered apprenticeships has improved standards, the possibility of streamlining them is, it is felt, worth investigating. In a similar way, while a student who has completed a full-time course in a prevocational school or a craft course in a technical institute may receive remission of one year, it is worthwhile considering reducing the length of apprenticeships from four to three years. This is especially so now that nine years of general education for all has been implemented, and that a number of craft students have now completed 11 years of education.\footnote{Report of the Committee to Review Post-Secondary and Technical Education (1981), p.40.} Many school leavers, at the age of 16 or 17, do not wish to tie themselves to long apprenticeships.

Turning to substitution, as we have seen, Hong Kong is one of the freest economies in the world,\footnote{Williams, Paper I, op.cit., para.4.} very "open" and highly competitive, and with no minimum wage. Its "openness" means that for many higher level skills, when in difficulty, they can always be imported, and many technologists and senior managers in manufacturing, commerce and the service industries are expatriates.
Neither has there been too many restrictive practices concerning certification and qualifications, which has made it easier to appoint on the basis of experience, and there has been a good deal of learning on-the-job.

While there is a relationship between education and manpower, in practice there is not an "exact fit" between qualifications and a job, and, in a place like Hong Kong where there are virtually no trade-union closed-shops, people normally change employment comparatively easily. Also, during a boom, many employers fill vacancies by internal promotion, and they will offer more money to induce workers away from another firm to their own.\(^1\) And in such cases, unskilled or semi-skilled workers, possibly after a short period of on-the-job training, are fairly interchangeable. Again in a building boom, a large number of workers enter the construction industry to boost the labour force, where wages are generally better than in most other industries.\(^2\) In contrast, when there is a recession, some return to, say, driving taxis or hawking, and a few move back to the land.\(^3\)

Entrepreneurs in Hong Kong are quick to invest in new technology, if they can see a good return, and there is a considerable degree of substitution of labour. This means that people are generally quite quick to change their jobs if it is advantageous for them to do so. For example, a textile teacher at the Technical College left, in the early 1960s, to set up his own electronics firm, which has become very successful.\(^4\) Then there is the case of the Chinese watch importer (who trained initially as an engineering apprentice) who, in his forties, went to the

---

3. (49)L/M(6) to ED(RB)202/75 (8 January 1977), p.3, para.10.
4. Recollections of past Technical College staff.
United States to attend a course on gems, and who came back to Hong Kong and set up his own diamond cutting and polishing firm. One also often sees young people who go overseas to study, say engineering, and, on their return, they may take up posts where they make limited or no use of their engineering education, especially if there are good openings in other fields. Indeed Finniston states that a high degree of mobility also exists with professional engineers and technician engineers in Britain, and, while under the age of 30 transfers are two-way, at a later age, many engineers move into general management. While some would consider this a waste, others would say that education in any form is never wasted, and that such "shifts" and flexibility should not be curbed — even if it were possible to do so — neither on economic nor on philosophical grounds.

There has also been a brain-drain from Hong Kong over the years, but with the present immigration laws in Britain for example, it is now difficult to emigrate. However, many go to other parts of the world such as the United States or Canada.

As another example of flexibility, during a recession, people tighten their belts. For instance in November 1982, when unemployment was put at three and a half per cent of the work force, it was estimated that the wages of at least 300,000 workers in manufacturing had dropped to about 60 to 70 per cent of normal because of shorter working hours. There are no unemployment benefits in Hong Kong, as such, although public assistance, which is means-tested and non-contributory, is provided in

1. Casey Diamonds (undated), brochure.
4. Our Concern About the Brain Drain, South China Morning Post (3 August 1983), p.2.
5. Government Census and Statistics Department figures.
cases of hardship.\textsuperscript{1} Also, although with urbanisation the Chinese extended-family system has broken down to some degree, members of the family still usually help one another in difficult times.

It can be seen from the above that Hong Kong's labour force is generally flexible, and the market mechanism is able to match the supply and demand of labour fluctuations, albeit sometimes sluggishly, in the short-term. This does not mean to say that everyone is prepared to change jobs willingly. The case comes to mind of general English teachers, at the Technical College, who resisted the idea of teaching English for specific purposes.\textsuperscript{2} This, no doubt, was partly because of their lack of expertise and, also, because of a lack of incentive. The latter is important and explains why the Hong Kong Chinese are more productive and enterprising than their "brothers" in the People's Republic of China.\textsuperscript{3} Thus, it would appear that, with regard to substitution, in general, Hong Kong is well over to the right of the continuum (see Figure 5).

It is also worth noting that the Government has not been deeply involved in economic planning and setting targets which require manpower to achieve their realisation. The international and domestic markets, not the Government, have determined the patterns of output.\textsuperscript{4} With this in mind, the case for manpower forecasting has, up to now, been rather weak. This is the more so because a private education system has existed alongside the public one, and it has been possible in some areas of skill (commercial courses for example) and knowledge for persons to "buy" (without asking the Government) the education they desired (see page 21).

\textsuperscript{1} Hong Kong 1981, A Review of 1980, p.117; and It's a Tough Job Getting Assistance, South China Morning Post editorial (13 November 1982), p.2.

\textsuperscript{2} Recollections of researcher.

\textsuperscript{3} S.G. Redding and G.L. Hicks, Culture, Causation and Chinese Management (February 1983), p.1.

\textsuperscript{4} Williams, Paper I, op.cit., para.4.
However the Careers Education Section, in the past, has not been particularly strong, with careers masters in schools having to undertake their duties in addition to their teaching loads. As in Britain, such work in Hong Kong is divided between the Education Department and the Department of Labour, which is responsible for the Youth Employment Advisory Service, and this explains why facilities for vocational guidance have on occasions not been properly coordinated. However the Education Department, in September 1982, enlarged its Careers Education Section in conjunction with the Association of Careers Masters. This Section is now playing a worthwhile role.

Manpower forecasting, which questions the ability of the labour market to satisfy demands, was introduced in the second half of the 1960s, and throughout the 1970s a fairly rigid system of planning, which to a large extent controlled the development of the Government technical institutes, but not to the same extent the Polytechnic, was in force. With Hong Kong's largely laissez faire labour market in the private sector, it is probably that too much emphasis was placed on forecasting (see Chapter 3). However changes are taking place, some gradually and some more rapidly, which, over time, will probably make the economy less flexible and thus manpower planning will become more important. Some of these changes can only take place with the agreement of the Government, which, in the

---


2. Place to Get You the Right Career, South China Morning Post (9 April 1983); and typical leaflet: Opportunities for Form 3 School Leavers (1982).

future, may decide to impede or to encourage them.\textsuperscript{1} Among these trends one can observe the following.

The number of civil servants has increased from 63,793 in 1964,\textsuperscript{2} to 168,400 in 1982,\textsuperscript{3} and although attempts are being made to restrict growth, numbers are still increasing. The same general growth trend also applies to various quasi Government bodies, such as the Tourist Association, and educational institutions (the City Polytechnic and aided schools), and the social services sector. As with all Government and sponsored bodies, it is, understandably, not easy not to appoint and pay staff giving some degree of consideration to education and qualifications. For example so many posts in government service, such as doctors, architects, teachers and health inspectors, require a professional qualification. Indeed for an organisation such as the civil service - or even a large business house - ad hoc appointments and promotions cannot be made, for any grade of staff, in the same way as for a smaller firm, as it is important that consistency and fairness are seen to be applied, as the tax-payers' money is being spent and the government must be accountable. It is also important that similar grades of staff, in different sections, are given the same treatment. In other words, for any large organisation, establishment regulations must be implemented on a systematic basis. However having said that, bureaucracy can get out of control.

The only large private establishments, up to say 15 or 20 years ago, were the "hongs" (large business houses), such as Jardine Matheson, Wheelock Marden, and Swire, a few large banks and dockyards, and the like.\textsuperscript{4} Recent years however have seen the emergence of more large

\textsuperscript{1} Williams, Paper I, op.cit., paras. 5 and 6.
\textsuperscript{2} Hong Kong 1964, p.274.
\textsuperscript{3} Hong Kong 1983, op.cit., p.260.
\textsuperscript{4} D.J. Dwyer and Lai Chuen-yan, The Small Industrial Unit in Hong Kong: Patterns and Policies, University of Hull (England, 1967), passim.
corporations, such as banks, shipping companies and business houses, many of which are Chinese owned. Such firms normally have personnel managers and formal schemes for entry - depending on qualifications - and promotion. Detailed conditions of service are laid down. In addition, such firms will usually have pension or provident funds, medical services and, in some cases, housing schemes. Such fringe benefits are not transferable between jobs and, as a result, they tend to impede labour mobility. Considerably more Government labour legislation has also been introduced.

Generally, in Hong Kong, there have been few restrictive practices by trade-unions and employees' organisations, for example stating that to do a certain job a person must have a given qualification plus so many years of experience, and a minimum wage. While such moves could be justifiable in some cases - for the protection of workers - the benefits should be weighed against the damage involved in terms of reduced responsiveness to labour market forces.

There has been a gradual tendency too, for people at all levels to become more conscious of "paper qualifications", which give a degree of "face". People can also be unwilling to accept, for status reasons, lower-grade jobs - even if the pay is satisfactory. This phenomenon is sometimes known as "certificate inflation", the "diploma disease" or "qualification spiral". In other words, qualifications are a kind of currency used to buy one's way up the ladder of success. One also commonly meets the "cuckoo effect" where employers demand, over time, increasingly higher qualifications for the same jobs, thus throwing out of the "nest" applicants who previously would have been considered as qualified and who are still capable of doing the job satisfactorily. This practice tends to foster under-utilisation of skills. At one stage for example, in Government service, newly recruited executive officers, generally, had only completed form-six or, in

1. Hong Kong 1983, op.cit., pp.52 and 53; and various Labour Department literature.
many cases, form-five of secondary schooling. Now, a university degree is the accepted norm. Also, in Hong Kong, private schools and private tutors engaged solely in preparing students to sit certificate examinations abound. As an example, 39,735 private candidates (outside the formal school system), out of a grand total of 150,954, sat the Hong Kong Certificate of Education Examination in 1982.\(^1\)

There has also been a strong move to institutionalise technical education and training, and industrial experience. For instance, since 1969, five technical institutes and two polytechnics have been established, together with a number of training centres. The efforts of the Training Council and its successor the VTC, together with formal apprenticeship schemes, also all point in the same direction.\(^2\) There has also been a tendency to take training to higher levels, sometimes necessary because of higher technological standards, thus demanding longer lead-times.

It is not implied here that any of the above moves were unnecessary. What is being said is that, as they gather momentum and spread to other sectors of the community, manpower forecasting will become increasingly apposite. However, in the present laissez faire private sector, manpower forecasts are expected to continue to be of limited use, because of the rapid changes that take place, and because of the ability of the labour force to adjust to surpluses and shortages.

**International developments in manpower planning**

In the early 1960s, the concept of human capital as a part of manpower planning emerged, with the idea of calculating the demand and supply of education for economic growth.\(^3\) This has sometimes been dubbed, "investment in people" (see page 44). During the 1960s, many believed

---

1. Hong Kong Examinations Authority figures.
that education could be planned by following some mathematical system. This approach is sometimes referred to as first generation planning.

After gaining more experience, it was found that such value-free planning was not really practicable, and while such technical aspects still remain useful as a scientific base, more consideration had to be given to social aspects, as we shall see in Chapter 4. Qualitative objectives, which cannot be mechanically calculated, also have to be considered. With this second generation or political educational planning, consultation and obtaining the views of the general public are important.

Commencing in the mid 1970s however, with expansion taking place in many countries, education has become integrated into a huge social complex so that fixed value goal-setting alone is seen as being unrealistic, with many social sectors becoming entangled in the web of educational planning. At this level, sometimes titled third generation or participatory planning, the task cannot rightly be left entirely to a certain sector of the government. Such planning, as the name implies, places accent on flexibility and participation.¹ In the latter case, elected or nominated representatives sit on government committees and play a definite part in formulating policies and objectives, within which framework the planners and administrators must work.

Also, over time, in addition to there being a growing awareness of the importance of human resources, there has been an increasing realisation of a need to make them an integral part of an overall development plan. Thus, when a manpower blue-print is drawn up, it is important that it is not looked upon as piece-meal social engineering, and that a flexible education plan is integrated with a comprehensive and properly coordinated long-term, national,

¹ Mark Blaug, Where Are We Now in the Economics of Education? University of London Institute of Education (England, 1983), passim; and Educational Planning A Reappraisal, OECD (Paris, 1983), passim.
economic and social development plan, where necessary, in collaboration with neighbouring countries. Such a document, which combines the economic, social and political philosophy of a country, will provide an overall framework of approach which will allow for the examination of education in relationship to other elements of the plan, in order to be able to establish an overall order of priorities and other related factors. In this way, "balance" will be achieved. To quote a simple example. If it is decided that rapid expansion is to take place in departments of engineering in colleges, this will, obviously, have repercussions on industry. In a similar way, the apprenticeship unit of the government department of labour, or the commerce and industry department, may have to be expanded in order adequately to support such developments.

It is also important when drawing up a manpower plan, that such factors as technological, sociological and industrial change, on a local, national and international level, together with other constraints which affect such predictions, are taken into account. As we shall see in the following chapters, Hong Kong has trodden a similar path, in the field of manpower planning, to that outlined above, albeit a little tardily.

The techniques of manpower planning

It is generally appreciated that planning - in some form - can make a significant contribution to the economical use of a country's manpower. There is also little doubt that sophisticated and widely applied techniques of manpower forecasting can result in a better balanced labour force. However to achieve any degree of accuracy, a permanent survey unit may need to be established which can also keep a constant watch on changes and trends in the economy. But, in practice, it is seldom possible to forecast with any degree of exactness beyond three or four years, even in a fairly stable economy, let alone in the rapidly changing

---

situation which one finds in Hong Kong. The farther ahead we attempt to plan, the greater the number of related factors and their degree of variation, and, as a result, the more difficult the operation becomes. The U S S R, with its almost totally planned economy, is said to be no nearer accurate forecasting than it was in the 1920s. A similar position, it is said, exists in countries such as Britain, France and the United States, where successes in the fields of manpower planning are anything but striking.

It would appear therefore that after the consideration earlier in this chapter, of a theoretical approach, it is possible to formulate a plan of action. We must understand, however, that by the term "planning", we do not mean we are attempting to control what will happen in the future. What we do mean is having a clear idea of what a particular country wants to achieve, to know what obstacles will be met, and what choices, compromises and needs might be necessary in order that it will be able to meet certain targets at a given stage in the future. As we saw earlier, a combination of the two extremes (Examples A and B in Figure 5) are required, as there is no single panacea, and we must rely upon all the available resources that we are able to bring to bear.

Firstly, in spite of not being an exact science, manpower surveys can provide a useful starting point and a base-line from which planning can proceed. These forecasts can begin with short-term predictions, which will enable a state to make minor changes to the manpower planning system. However, these short-term forecasts will not be sufficient to plan long-term increases, or to formulate major changes in output from the education system. This means that there is a danger that we may get the numbers and types of manpower required out of kilter if we do not look sufficiently far ahead. Also, with the long lead-times required for

1. Blaug, op.cit., p.159.
2. Ibid., pp.137, 160 and 162; and Labour Shortages and Manpower Policy, op.cit., pp.101 and 102.
educational projects, there is a need to cater not only to short and medium-term manpower demands, but also to long-term needs. We shall find that, as experience is gained gradually in forecasting, the terms can be extended to longer time-scales, where, with increased extrapolation and the chance of compounding mistakes and transgressing assumptions, the risk of error is greater. And, as time goes by, more reliable long-term forecasts should be arrived at.

To be sure there are difficulties with forecasting, and a high degree of accuracy can never be guaranteed. Indeed in Britain, even when forecasting the numbers of teachers or doctors required (see page 55), there are difficulties.¹ For example with teachers, requirements vary depending on the birth-rate and wastage-rates for women teachers who get married or give birth. For doctors, figures change depending upon migration. However, if it is even difficult in such "simpler" areas, how much more difficult must it be to forecast accurately in industry. Carrying this a stage further, some informed people in Britain readily admit that manpower planning is defective, but, unfortunately, they doubt whether any real improvements are possible.²

So, in spite of the difficulties, armed with the available data which should be examined as closely as possible for reliability, how should we proceed? As we shall see, manpower projections arrived at in a variety of ways (for example employers' demands, international comparisons etc.) should not be seen as alternative approaches, but as a way of obtaining useful information that can be incorporated into a compounded overall analysis. Whichever method is used, there seems to be little point in


providing long-term, single-value forecasts. In other words, it is far more realistic to work out alternate projections with varying parameters to illustrate different patterns of supply and demand. These will then provide the planners with information so that they can evaluate the consequences of taking various decisions. Thus, it is important that forecasting is not seen as a fixed tool, but that it is used and kept as flexible as possible. Then, even if long-term figures are crude, at least some knowledge of future needs, it can be argued, is better than nothing, in order that certain realistic targets can be set. Viewed in this context forecasting can be valuable, providing the probability of error in the medium, and even more so in the long-term, is accepted as being relatively certain.

However to counter this, one can argue that, in the long-term, the compounding of errors can become so great that a stage is reached where a forecast can mislead rather than inform. In other words, often for long-term planning, it is not possible to plan more accurately than within, say, plus or minus 25 per cent. While this may seem very much a hit or miss affair, it is still better than knowing nothing.

Once the plan has been finalised and objectives have been set, it will then be necessary to formulate and to implement policy so that aims can be achieved. We must not imagine, however, that planning is a once and for all operation. As the economy, which is usually dynamic, develops, it will be necessary to update the blue-print, and this should be done at intervals by using a "rolling-plan".

When talking of manpower planning, the average person automatically thinks of forecasting. However, although this can play a useful role, as we have seen, we

---


can also anticipate the future by having a flexible labour market, and an education system which will allow an economy to adjust to a changing set of circumstances.\(^1\) This means it is not true that the only way to make sound decisions about the future is by being able to make premeditated judgment. For example, many of the forecasts made in Hong Kong turned out later to be patently inaccurate (see Chapter 3). Nevertheless, the economy was able to adjust reasonably effectively. For one thing, manpower surveys often take time to conduct and compile and for the information to be disseminated. For instance the building trades manpower survey, which was conducted in Hong Kong from 12 to 14 August 1968, was published as a report in September 1969 (this time-lag is typical).\(^2\) After such a period in fast moving Hong Kong, figures are already out-of-date.

Supposing then that it turns out we have been able to forecast manpower requirements to a degree of accuracy of plus or minus 25 per cent. How are we going to adjust the system? What is needed, as we have already seen, is a flexible education system that provides for job mobility, redeployment and retraining so that an automatic adjustment mechanism is available. Ideally, general education and early technical education then should be broad and not specialised.\(^3\) (Early specialisation has been cited as one of the major causes of Britain's manpower difficulties.)\(^4\) They should provide a foundation for continuing education in conditions of rapid change; they should give an appreciation of the contribution of other subjects, especially the social and natural sciences, and be seen as the first stage of a life-long process which alternates

---

3. W.A. Reynolds, Future Directions in Tertiary Education of Engineers, op.cit., pp.13 to 21 (pp.18 and 19).
between experience of application and acquisition of new knowledge, and should give as much weight to methodology and problem-solving as to physical laws. Education should also inculcate culture, integrity of mind, and the understanding of moral values. We should also remember that we are attempting to educate young people for the world of tomorrow, which however difficult to envisage, will be quite different to the world of today.

Technical courses should also be kept as short and flexible as possible, for example by employing modules or credit-units (see pages 260 to 263). A typical example of shortening courses may be quoted. At the Hong Kong Technical College up to the mid-1960s, many part-time evening only courses consisted of three years of general education, followed by three years of technical education for an Ordinary Certificate, and a further two years for a Higher Certificate. Commencing in 1966, this was changed to four years of general education (although a student could be exempt if he had studied up to form-five in secondary school), followed by two years of technical education for an Ordinary Certificate, and a further two years for a Higher Certificate. This change fulfilled commonly voiced recommendations that general education should be carried up to a higher level, and, in this way, technical courses can then be shortened. This can also reduce costs (see page 356). It has also been suggested, on occasions, that degree courses should be shortened, and indeed there are a few examples of this having been done for special reasons, for instance at Bristol University, so it is

---


understood. A two-year university degree course, for able students, has also been suggested for Hong Kong.

It should be made plain however that, as we shall see later, no educationalist can be entirely happy when education is too tied to economic needs, although in an emerging country especially, both must be given high priority. If too much emphasis is placed on the views of industrialists, however well intended, there can be a risk of producing men who are especially strong in narrow technical fields. Instead, it is wiser to plan technical education with a broad-based, longer-term, more liberal and flexible approach.

When planning an education system, thought must be given, at the same time, to both quantity and quality (see Chapter 5) as the two are inextricably linked. The economist will be mainly concerned with establishing a given number of colleges, and training teachers so that so many students can be enrolled at a given time. If however pupils are taught by rote, by poorly qualified staff in ill-equipped colleges, boredom will soon set in and limited progress will be achieved. It is obviously important that close attention be paid to quality at all stages of planning.

It is also vital, in a free society, that school leavers are allowed to choose freely their specialisation at further education level, assisted, where necessary, by vocational counselling. In some countries, the USSR for example, students receive larger grants if they are studying subjects which the state considers to be more important, such as science or engineering, rather than the humanities.

There is no doubt, however, that advice to students on the choice of careers, firmly rooted in job opportunities, is

important, although in Hong Kong it is often surprising how technical institution applicants get to know which industries offer the best prospects (see page 210). Indeed this so often seems to be the over-riding factor of choice, rather than applying for a course which appeals in itself or because a person has a special aptitude. Nevertheless, if more attention is given to counselling, fewer consequences will have to be paid to college leavers who are unable to find jobs, or to economic growth that is retarded because of shortages of skills.

Indeed Finniston proposes not only improved career advice, but also the setting up of school/industry links. These can include visits by school groups to industry, talks to pupils by industrialists, short secondments of teachers to industry, more emphasis upon technology and industry in teacher-training courses and in the school curriculum, and the like. In this way pupils would have a better understanding of industry, and, in addition, when they are about to leave school, their chances of choosing the wrong career could be lessened. While the Finniston report is concerned with professional and technician engineers, the recommendation is valid for other industries and for craft and technician level occupations.

In turn, in order to promote flexibility, barriers to transfers by personnel across occupational boundaries must be reduced as far as this is practicable (see pages 60 to 65). There will, however, be less scope here for government policy than in the case of the education system: nevertheless, it is possible for a state to alleviate the situation by adopting flexible attitudes. These will be readily supported and taken advantage of by purchasers and purveyors of labour, and wage-rates and shortages in the

---

1. Labour Shortages and Manpower Policy, op.cit., pp.7 and 37.
2. Engineering our Future, op.cit., pp.79, 80 and 165.
manpower market-place will signal the impact of economic policies, and what moves are necessary to satisfy the needs for manpower equilibrium. In this way, the resources and aspirations of a receptive and intelligent work-force, in an open economy, can do a great deal to offset the errors made in manpower planning.

Other examples of what can be done include a malleable recruitment policy for the public sector, and by keeping industry informed of the future output of schools and colleges in the hope of encouraging an easy adjustment of hiring standards, and by offering incentives - if necessary financial - for industry to increase its training programmes. A typical example is the 1964 Industrial Training Act, in Britain, and, although not entirely successful, it has helped to spread the load and has avoided placing all the responsibility for manpower development on the schools and colleges alone (see page 69).

Having examined how manpower planning should be carried out, it might be useful to look at how, it is suggested; it should not be done. Take for example a notional trade which has 100,000 personnel and where, on average, manpower wastage due to deaths, retirements etc. stands at three per cent a year. Suppose, because of some sudden demand or external circumstances, the requirement is suddenly increased to 120,000. There is straight away an acute personnel shortage. Only 3,000 graduates are coming out of colleges this year when, in fact, 23,000 are needed.

Suppose that spare accommodation and equipment are available, additional technical teachers can be recruited, and technical education facilities are then increased. Although it can be argued that there is the multiplier effect, as one member of staff recruited from industry is able to train a number of new personnel, initially it makes the position worse because it means robbing industry of experienced people. Then, supposing in say five or six years...

---
years time the sudden shortage of 20,000 persons, plus the annual wastage rate, has more than been made up, and the annual out-turn from the colleges is well in excess of demand. The answer appears to be to reduce supply. However, if the colleges are government institutions and the new teachers are young, permanent and pensionable members of staff and specialists who cannot turn their hands to other disciplines, we find ourselves carrying on with the overproduction of personnel for industry, resulting in unemployment, or, as an alternative, running college departments at low capacity. The moral of the story appears to be to consider carefully before introducing new programmes, and to try to change things gradually, and, at the same time, to attempt to satisfy peak demands by other means such as substitution or on-the-job training.

A paucity of information

Having argued that manpower forecasts, even with their built-in inaccuracies, are of some use, the question then becomes how can planning be made as systematic as possible? There is no doubt that, generally, more reliable data are necessary for effective planning, and these are normally the very things that emerging countries lack, as plans are only as reliable as the information that is used to prepare them. This could mean the setting up of a (or the expanding of an existing) government census and statistics department, or a college management (data-based) information unit using a computer.1 This would involve systems analysts working in close co-operation with academic and administrative departments. Such a unit analyses manpower forecasts and combines such exercises with the distribution of resources; student admissions, assessment and employment; and tracer studies.

It has even been suggested that a well researched and authoritative statement of current trends in the various sectors of the economy, issued at appropriate

intervals, could be a useful aid to decision making for educational planners. With improved information on manpower providing a sounder data base, it should be possible systematically to identify more easily determinants between industrial needs and education. This would then mean that forecasting is not seen so much as a predictor of what will necessarily happen, but as a guide and an indicator of what should follow if certain targets for economic growth are met.

Even after a manpower plan has been implemented, additional data should still be systematically collected, and this should be used continually to monitor and to bring into line the projections of the plan in the light of up-to-date evidence. In addition, it is important that follow-up studies should be carried out which analyse the actual developments of the economy and the education system. These are then compared with the original estimated developments. With this type of research, the forecasting and planning of manpower requirements can be made more sophisticated and effective.

In this context, a recommendation was made in the Finniston report that, ... official surveys should in future be structured to collect, inter alia, the information which would enable an up-to-date national inventory of engineering manpower to be built up. It has been said that no country, outside the United States and Canada, has adequate data on the composition of the labour force. However, a great deal of useful information has now been built up, in the main industries, by the Hong


2. Human Resources Development Manpower Forecasting in Educational Planning, op.cit., p.150.


Kong Training Council\textsuperscript{1} and its successor, in 1982, the VTC. Also, longitudinal tracer studies have been carried out by the Education Department and by the Polytechnic. These examined the career patterns of graduates over subsequent years of employment.\textsuperscript{2} In the future, while it is not suggested that every student on graduating should be traced (although this is an ideal to aim at), as this is time consuming and expensive, nevertheless thought should be given to problem areas, for example, worker-flow in industries which are over or under-supplied. Such surveys provide a realistic basis for making assumptions about job-satisfaction, participation and wastage rates, and may also throw light on alternative routes into occupations.\textsuperscript{3} For example, such surveys may reveal that many future craftsmen are recruited above the age of 18, as apprentices, to avoid the apprenticeship ordinance and having to send them on day-release courses.\textsuperscript{4} It is also useful, among other things, to find out how willing school leavers are to become apprentices or to enrol on craft courses.

It is important that attempts are made to synchronise the education system with the job market. The latter transmits signals regarding skills for which there is demand, the movement of manpower, and other related

\begin{itemize}
\item[3.] P.R.C. Williams, Economic Bases for Educational Planning in Hong Kong: Some Reflections, Paper III (13 March 1978), para.8.
\end{itemize}
factors. Once a well-rounded picture has been taken into account, any reliable forecasts of future supply and demand, and supply possibilities at colleges, can then be examined with a view to expansion. It is usually too risky, however, to increase the supply of graduates on information obtained by forecasts alone. It is important therefore that the conducting of manpower surveys, and the collecting of information, are not looked upon as separate exercises, but as an integral part of planning as a whole.

**Stimulation of economic growth**

Implicit in many manpower plans is the hope that economic progress can be generated. Indeed forecasting the need for manpower, and matching supply with a notional demand, it has been suggested, can provide the first step in a chain-reaction leading to further economic development. However, a second school of thought feels that the degree to which manpower planning can, by itself, stimulate growth, is limited. It is of course often a "chicken and egg" problem. Is there any point in providing technical education for an industry which does not exist? Yet, at the same time, no one can expect a foreign firm to come into a country, to set up a new industry, possibly as a joint venture with a local firm (as is not uncommon in Hong Kong and Singapore), if suitable personnel are not available.

There is no doubt that the role of education and manpower development, and the part they play in economic growth, has commanded considerable attention in recent years. However, while education is an obvious factor which contributes to economic development, it is not the only consideration: health, nutrition, and the motivation of

---

2. Ibid.
people, together with the natural resources of the country concerned, are other obvious factors. While there is no doubt that education and the development of human resources are important, there appears to be no simple formula to compute their relationship with development. It has nevertheless been suggested that the under-development of many countries, with rich natural and physical resources and vast development possibilities, can be largely ascribed to the under-development of human talents and a lack of educated manpower.

In the case of the wealth and the industrial might of the United States and some European countries, much of the capital, it has been argued, has been accumulated in non-conventional form, such as knowledge, skills and ability embodied in people. There is no doubt that human endowment is important. For example, it has been said that you could have two identical villages, one occupied by 100,000 Swiss and the other by a like number of people from some developing country. Which village would develop more rapidly? A hypothetical question perhaps? But when the question was posed at a seminar at Boston, Massachusetts, in 1962, everyone predicted the Swiss village would grow more rapidly. Lest this question be construed as a vote for Western superiority, one could hasten to add that the Swiss could be substituted by Japanese. In a similar vein, would Hong Kong have developed at the rate it has if it had been populated by people of some other nationality? The answer would appear to be, "probably not". Similar questions could be posed in the case of Singapore, Korea and Taiwan. And yet the rapid development of these countries did not depend on highly educated labour forces judging by Western standards.

1. Ibid.
5. Ibid.
By contrast, if one looks at the Philippines, one finds that there is a higher percentage of the population undergoing "tertiary" education there than in many European countries. However, if the situation is examined more closely, one finds that a student enters a four-year agriculture, commerce, liberal arts, engineering or teacher-training course after six years of primary and only four years of secondary education. However medicine takes nine and law eight years. Nevertheless, while it is not easy to make accurate comparisons with other countries, one must assume that the reduction in the length of the school course does result in lower standards.

Sometimes education is made to appear as a panacea for economic development; nevertheless, it is possible to have too many educated people, in the same way that there can be too many steel-mills. In other words, there are too many for the economy to absorb, at the prevailing rates of pay, which could result in diminishing returns for the investment in education and a prolongation of the period of unemployment. Even when it is a good investment, richer countries will, naturally, find it easier to provide a better education system than poorer countries.

There are numerous potential effects of education on economic growth, the most important being the increased direct productive capacity of better educated personnel. However, education is only one of several inputs. For example, there are skills which may be obtained outside the process of formal education, either on or off-the-job, which one can acquire either before or after one enters employment. For instance, the self-made man is not uncommon. However, there is no doubt that formal education is important, and, in this context, it should be remembered that general education is enormously "vocational" in its impact in

developing general mental powers, communication skills, numeracy and broad perspectives. It should also be remembered that educated people contribute indirectly to the productivity of others. For instance, child-care centres release mothers for work, and such centres employ people. And so the chain continues.

So, although there is no positive and scientific answer, and it is difficult to quantify, education can have all kinds of positive effects beyond which one normally sees. This can lead us to take a fairly liberal view between the division of education for investment and education for consumption. One can also say, in general terms, that education which is costly and which is likely to stunt the development of human potential is likely to be unproductive. 1

It is never easy to assess what proportion of the population should receive further education and, when it comes to manpower planning, as we shall see in Chapter 3, some projections of the labour market have proved notoriously unreliable. 2 However education can unleash expectations, ambitions and energies which would otherwise remain dormant. For these reasons, it has been suggested that manpower plans tend to err on the conservative side, and that such figures should be provided as a minimum and as much more education should be offered as resources will allow. 3 It has also been said that it is better to overestimate future manpower shortages than to underestimate, although such statements are far from convincing. 4 One of the reasons could be the long gestation period required to produce educated people. However, due to overestimation, we may later have personnel who cannot immediately, on graduation, find employment, and they may have skills which are not always easy to transfer to another industry.

2. A Perspective on Education in Hong Kong, op. cit., p. 66.
In the case of Hong Kong, although it is difficult to prove it, technical education must have done a great deal to stimulate the economy. For instance the Technical College, up to 1954, had only departments of building, mechanical engineering, electrical engineering and nautical studies. Today, in the Polytechnic and the five technical institutes, a wide range of disciplines exists (see Tables 22 and 23). It is difficult to believe that Hong Kong's industries would have developed at the rate they have without this significant contribution from education. And in this regard it is suggested that, in a developing country, a college can itself be a trend-setter and can, to some extent, provide an example and a lead to industry. However it must keep reasonably in step, as there is no point in teaching super-modern techniques when, in an underdeveloped country, intermediate technology would be more appropriate.

Conclusions

It can be argued that there are two polarised versions of manpower planning. The professors of one extreme believe it is possible to forecast accurately the numbers and types of personnel that will be required "x" years from now, and then to educate the specialist manpower to fill the future vacancies. The opponents of this concept, however, taking the other extreme view, postulate that it is impossible to place much faith in forecasting, and that reliance should be placed on educating and training an adaptable work-force, and on the mobility of personnel. This thesis has championed the theory that, in the real world of manpower planning, a combination of the two views is called for, but that the actual "mix" will depend on the characteristics and needs of the country concerned.

In the case of Hong Kong, a form of manpower planning can be said to have been incorporated into the education system. In other words, students are selected for advancement by highly competitive examinations. Technical education too, especially in the past, tended to be narrow and specialised.

A flexible and versatile labour force, and a high level of substitution are, however, important, it would appear, and people given a broad education and incentives
are more resourceful than they are usually given credit for. Nevertheless, many conventional jobs done in the traditional way do require a long "learnership". Also rigid, narrow apprenticeships, and restrictions such as government, professional-institution or trade-union regulations, forbid or discourage mobility of personnel. Nevertheless with some jobs, a variety of alternatives to apprenticeships exist, such as a graded craft ladder, deskilling and crash-training.

Hong Kong, in fact, has a fairly flexible labour force, with a great deal of learning on-the-job, with people generally moving easily from one trade to another. Entrepreneurs are also quick to invest in new technology. However, the economy is tending to become less laissez-faire. Nevertheless, in spite of a rapidly changing and flexible economy, Hong Kong seems to have placed too much emphasis on manpower forecasting. This would appear to have limited value except when education has to be long and specific to suit a particular occupation, or when entry to a job is by a restricted training route: also, when demand for manpower and the development of the economy is fairly predictable, and when the chances of substitution are, for any reason, limited. In other words, if one plans for certain specific activities, say in 15 years'time, and there is a reasonable certainty that those activities can be taken up only by persons with those specific types of knowledge and skills. Under such circumstances, forecasting is of value.

However, we should bear in mind that our projected manpower categories are likely to change over time, even when we feel fairly certain that we need to educate a specific type of personnel. Also, we should remember that long, highly specific courses, and attempts to establish close links between education and training, which lead to mandatory qualifications which, in turn, lead to jobs with little chance of substitution, do pose dangers of maladjustment and unemployment. In this context however,

1. Williams, Paper I, op.cit., passim.
it has to be accepted that, in many areas, the complexities of the late 20th century make the division of labour and specialisation inevitable. Without them we should never achieve control of our world that is today represented by modern science and technology.1

As we have seen, unfortunately, because of difficulties in forecasting the long-term future state of a "stop-go" economy, and the extent and implications of new scientific and socio-economic developments (introduced often within a short space of time), forecasting is often seen to (and does) include large areas of "guesswork", often euphemistically called assumptions. This means that after forecasting, objectives can be set, but, because of changing needs, few are realised. From the above, it will be clear that the case for using manpower forecasting depends on the idea that the use of short-term substitution of skills is limited. Because of the above, it is wrong to "overplan" and to develop projections in too much detail, as later, when adjustments have to be made, one finds that flexibility has been lost and that a great deal of effort has been wasted.

Planning tries to look into the future, but it is wrong to assume that there can be no manpower planning without forecasting. A flexible education system, which can readily change with the introduction of new technology and social conditions, and a flexible labour market as an automatic allocative mechanism, to avoid bottlenecks to economic growth, are probably the most important strings to the bow of manpower planning. In other words, the labour market should not be tied down with constraints which prevent it from functioning efficiently. In this way, a reciprocal system incorporating an active manpower policy is available to offset inevitable mistakes made in the formal forecasting process.

Forecasting and planning have often been viewed as unwarranted government intervention, and as a violation

---

of labour-market forces, and a threat to individual freedom. However, it should be remembered that the forecasting approach, on the one hand, and the flexible education system and labour market on the other, are reconcilable and can complement one another. This, in a volatile economy, often means, for rational planning, not so much specific recommendations, but recommended movement in a particular direction for a specified period of time.

So we come back to a, perhaps, over-reiterated theme. As with most things, for manpower planning, there is no one panacea, and there is not just one way of doing something. And, while some reliance can be placed on forecasting, it is generally too "narrow", and no one can foresee accurately 20 or even ten years ahead by delicately balancing just so much economic growth against exactly the right amount and type of education to bring it about. This means that the total planning process, embracing the social sector and active government interventionist attitudes, should be brought into play. These will include flexible education to gear the uncertain and nebulous manpower system towards long-term targets. In other words, there should be a move towards cost-conscious, third-generation, participatory planning, consisting of a large conceptual overall framework, making use of all available resources and developments, based on a sounder data base, embracing the manpower requirements and the social-demand approach.

And so we come back, full circle, to the question that was posed in the opening lines of this chapter; namely, is there a theory on which forecasting and educational and manpower planning can be based? From the foregoing evidence it would appear, to be fair, to say that there is. However it is not well defined, and, unfortunately, especially with long-term forecasting, even with the aid of a sooth-sayer, a great deal, even if conducted by experienced planners, can be little more than educated guesswork.
CHAPTER 3

MANPOWER PLANNING IN HONG KONG

Introduction

Having examined the theory of manpower planning in Chapter 2, Chapter 3 continues by reviewing the more specific methods of manpower planning that have been employed in Hong Kong. In these two chapters, together with subsequent chapters, an attempt is made to compare the planning methods used with later actual happenings in technical education, as there appears to be a dearth of research and information of this nature. 1

After reviewing the early and primitive attempts that were made at manpower planning, Chapter 2 examines how, after the formation of ITAC in 1965, a system of surveys and manpower forecasting for technical education was introduced in the second half of the 1960s. These data largely provided the necessary information to substantiate the need for a further four technical institutes (see Chapter 4).

The methods of manpower forecasting that were employed in the 1970s, together with some of the data collated by ITAC, are then examined. However, these methods have not been without their critics, who have included both visiting educational advisers and local committees, who have highlighted the system's shortcomings; and these are discussed in some detail. Again, supplementing Chapter 2, the limitations of forecasting are stressed as are the difficulties met in using manpower planning in an open,

flexible, volatile economy such as exists in Hong Kong.

The structure of the manpower profile is then examined, as is the theory that all countries follow a similar development path, and the view that more use could have been made of the "international comparisons method", possibly by, say, fashioning Hong Kong's manpower structure on the lines of Japan. This leads to a look at the Territory's efforts in the field of manpower modelling, with the outturn of technicians and craftsmen estimated, albeit approximately, until the year 2001.

**Early manpower planning**

Little was done in the way of manpower forecasting in Hong Kong up to the mid 1960s, when the Morrison Hill Technical Institute was planned. A survey was however carried out, under the auspices of the Standing Committee on Technical Education and Vocational Training, in May 1962, to examine apprenticeships and other similar forms of training. The questionnaire covered 60 different trades, and was sent to employers in 32 different industries or business sectors, which included all the major manufacturing industries, as well as leather, rubber and paper products, food manufacturers, and a service industry, hotel and catering. Information requested included numbers of workers and numbers required each year, conditions of recruitment and service, and types of training employed. It was generally agreed however, that because of the limited number of questionnaires returned (107 out of 398 firms covered, of which only 86 properly completed the form), it was not possible to arrive at any definite conclusions from the survey.

In 1964 Sir Sik-nin Chau, a prominent businessman at the time, said, in his address as Chairman at the Annual General Meeting of the Federation of Hong Kong Industries, that Hong Kong needed, annually, 1,500 technologists,

---

1. A Report on an Enquiry into Apprenticeships and Other Similar Forms of Training in Hong Kong, 1962, by an Ad Hoc Sub-Committee of the Standing Committee on Technical Education and Vocational Training, passim.
3,000 technicians and 10,000 craftsmen. These figures were based on the labour intake into registered and recorded factories (see page 115 in 1963, which was 56,497, while the total number engaged in the manufacturing industries was estimated by the Labour Department to be 558,600. This gave an annual growth rate of about ten per cent.

Sir Sik-nin further stated that one person in six should be a skilled craftsman, so he suggested that of the 56,497 who found employment in the manufacturing industries, in 1963, nearly 10,000 of them should have received institutional training beforehand. (No allowance was apparently made for any future craftsmen to be trained entirely on-the-job.) To arrive at the numbers of personnel required to meet the ten per cent annual growth rate in the labour force, Sir Sik-nin used figures obtained from manpower profiles of western countries. He thus estimated that, every year, 1,500 technologists, 3,000 technicians and 10,000 craftsmen would be needed in the manufacturing sector alone. Watt Hoi-kee, Principal of the then Technical College, felt that while the ratios were high by Asian standards, they appeared to correlate with an OECD manpower survey of Mediterranean countries (see pages 59 and 60).  

Sir Sik-nin's views were supported by Sean Mackey, Professor of Engineering at the University of Hong Kong, who felt that,

... at least 1,000 technologists of graduate level supported by a further 1,000 managerial staff of an equivalent status were required by industry each year and that some 4,000 technicians at supervisory levels and 18,000 at lower managerial levels were needed.

3. Sean Mackey, 9th Meeting Working Committee on Productivity (22nd April 1964), para.(2)V of Minutes.
In addition, Watt suggested that a manpower survey had become a matter of urgency. He also estimated that, based on figures obtained from a Government Census and Statistics Department survey, about 56,000 additional persons, which represented about 39 per cent of the annual population growth of 145,000, were entering industry every year.\(^1\) Watt also said that the value of domestic manufactured exports had increased nearly 73 per cent over a five-year period, and that there was, therefore, an average increase of about 15 per cent per annum. He also said that if this could be maintained, then industry should be able to absorb a labour increase of 50,000 to 60,000 persons a year.\(^2\)

Watt went on to say that the then Technical College was producing about 20 per cent of the technicians and technologists (Higher Diploma students who, later, sometimes assume the role of technologists in industry) required from its full-time and part-time courses. He also pointed out that, in 1963, there were 2,868 applicants for full-time courses at the College but, of these, only 496 could be found places.\(^3\) In 1964, 8,371 candidates applied to sit the Hong Kong English School Certificate Examination, and 3,010 the Hong Kong Chinese School Certificate Examination. It was also estimated that there would be 11,381 form-five school leavers, in July 1964, and that if only ten per cent were given an opportunity to pursue a technical course, then the Technical College would have to be at least doubled to meet the demand. It was also pointed out that 1,111 applications had been received for 17 craft apprenticeship vacancies in Government workshops.\(^4\)

Although the above calculations were comparatively crude, bearing in mind the demand by all sectors of the

---

1. Watt Hoi-kee, memorandum to Director of Education, op.cit., paras. 5 and 6.
2. Ibid., para.6.
3. Ibid., paras.10 and 13.
4. Ibid., para.13.
community, including industry and students, there was obviously a need for the Government to increase the technical education provision as soon as possible. Indeed Watt said the problem had become both a social and a political issue.\(^1\) Largely on the above scant manpower calculations, it was decided that an additional technical institution was needed. As a result, the Morrison Hill Technical Institute was eventually founded, on September 1, 1969.

After ITAC was established in 1965, it decided that a selected programme of manpower surveys was necessary. As a result S.A. Morgenstein, an International Labour Office (ILO) specialist in manpower assessment, spent six weeks attached to the Labour Department in Hong Kong, arriving in July 1967.\(^2\) The subsequent manpower surveys that have been conducted by ITAC and the Government were largely run on the principles suggested by him. The first surveys were in the electronics industry, in 1966, and in textiles and plastics, in 1967.\(^3\)

By the time the reports were available the schedule of accommodation for the first technical institute had long been finalised, and there was a limited chance of making major changes. However, some consideration was given to the varying of courses.\(^4\) Indeed in one case a textile-mechanics workshop was provided, at Morrison Hill, instead of the metal-finishing shop as was originally planned.\(^5\)

---

1. Ibid., para.14.


5. Report by the Textile Industrial Committee on the Manpower Survey of the Textile Industry, op.cit., p.68, item (11) (b), (c) and (d).
This was to satisfy the urgent needs of industry.

Eventually, manpower surveys were conducted for the ten major manufacturing industries in Hong Kong (see Table 5).¹ Bearing in mind, however, that the surveys were carried out between February 1967 and March 1970, the figures were generally out of date by the time the ITAC report was published in 1971.

While it is appreciated that the figures in Tables 5 to 10 are now "history", nevertheless the planning for the five technical institutes (see Chapter 4) was based largely upon them. However, to give some idea of the growth that took place, it can be seen from Table 5 that in the late 1960s there were 23,768 technicians and 78,450 craftsmen employed in the ten major manufacturing industries. By 1982/83, however, the figures had increased to 65,079 and 162,971 respectively (see Table 1). It can also be seen from Table 5 that the annual demand was for 2,894 technicians and 9,657 craftsmen. By 1981, however, the requirements were 4,190 and 9,140 respectively.² It can be seen that there is a slight decrease in the demand for craftsmen, but a significant increase in the number of technicians required owing to Hong Kong's diversification into fields of higher technology much of which is in operative-based industries (see Table 1).

Manpower planning for technical institutes two to five

In addition to the planning undertaken within the Education Department, a large amount of the manpower planning, in relation to the new technical institutes, was carried out by ITAC. Because of the importance of this task, an ad hoc ITAC committee was set up, in 1968, and, in January 1969, a formal ITAC Committee on Technical Institutes was established.³

This examined the data that were then available, including the Labour Department records of the numbers of persons employed in registered and recorded industrial

---

Table 5: Numbers Employed in the Ten Major Manufacturing Industries in Hong Kong, Showing Numbers in Demand, and Numbers Completing In-plant Training Annually

<table>
<thead>
<tr>
<th>Industry</th>
<th>Year survey conducted</th>
<th>Technicians</th>
<th>Craftsmen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number employed at date of survey</td>
<td>Number in demand annually</td>
</tr>
<tr>
<td>Automobile repairs and servicing</td>
<td>1967</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Building trades</td>
<td>1968</td>
<td>3,103</td>
<td>217</td>
</tr>
<tr>
<td>Clothing</td>
<td>1969</td>
<td>5,117</td>
<td>570</td>
</tr>
<tr>
<td>Electrical apparatus and appliances</td>
<td>1968</td>
<td>686</td>
<td>141</td>
</tr>
<tr>
<td>Electronics</td>
<td>1970</td>
<td>1,780</td>
<td>567</td>
</tr>
<tr>
<td>Machine shop and metal working</td>
<td>1968</td>
<td>2,348</td>
<td>209</td>
</tr>
<tr>
<td>Plastics</td>
<td>1967</td>
<td>3,926</td>
<td>473</td>
</tr>
<tr>
<td>Printing</td>
<td>1969</td>
<td>1,398</td>
<td>125</td>
</tr>
<tr>
<td>Shipbuilding and ship repairs</td>
<td>1968</td>
<td>906</td>
<td>45</td>
</tr>
<tr>
<td>Textiles</td>
<td>1967</td>
<td>4,504</td>
<td>547</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>23,768</td>
<td>2,894</td>
</tr>
</tbody>
</table>

|                                              |                       | Number in demand annually      | Number completing in-plant training annually |
|                                              |                       | 215                            | 4,073                                         |
undertakings (see below). For example in March 1947, there were only 32,904 males and 18,434 females, making a total of 51,338 employees, in 972 registered and recorded undertakings in Hong Kong. However by 1957, these numbers had increased to 91,340 males and 56,795 females, making a total of 148,135 workers, in 3,290 registered and recorded undertakings. The build-up from 1962 to 1972 is shown in Table 6.1 Manual workers included all personnel, foremen and some supervisors employed on the shop-floor. Also, approximately one-third of the managerial and clerical staff were estimated to be supervisors and other technician level personnel. The percentage annual increase in manpower varied from a minimum of 0.39, in 1971/72, to a maximum of 18.1, in 1963/64. This meant that, over the ten-year period from 1962 to 1972, the work-force grew from 258,664 to 544,944 and more than doubled.

However, these figures do not tell the full story. For example factories and workshops employing fewer than 20 persons, which were not using power-driven machinery, were not required to register with the Labour Department (see Table 6). In addition, these labour returns were only collected for the manufacturing industries, and, because of the prevalence of a sub-contracting system and the consequent difficulty in collecting data, no statistics were available for the construction industry. A variety of data, in addition to the above figures, was however available from the Census and Statistics Department.2

It was also estimated by ITAC, in March 1969, that, in 27 different industrial fields (excluding commerce and the service industry sectors), ranging from mining and quarrying, to various manufacturing trades, to building, that 91,430 craftsmen and 12,884 apprentices were employed, and that 9,632 apprentices would be required annually over the following five years.3

---

1. Government Labour Department quarterly statistics on registered and recorded industrial undertakings for March each year.


3. Craft Apprenticeships for Hong Kong, table prepared by ITAC Committee on Technical Institutes (March 1969).
Table 6: Number of Employees in Registered and Recorded Industrial Establishments Based on Labour Department Quarterly Statistics for March Each Year

<table>
<thead>
<tr>
<th>Year (March)</th>
<th>Number of managerial and clerical workers</th>
<th>Number of manual workers</th>
<th>One-third of managerial and clerical workers</th>
<th>Number of manual workers, plus one-third managerial and clerical workers</th>
<th>Annual increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>29,923</td>
<td>248,690</td>
<td>9,974</td>
<td>258,664</td>
<td>-</td>
</tr>
<tr>
<td>1963</td>
<td>33,891</td>
<td>268,343</td>
<td>11,297</td>
<td>279,640</td>
<td>20,976</td>
</tr>
<tr>
<td>1964</td>
<td>34,885</td>
<td>318,686</td>
<td>11,628</td>
<td>330,314</td>
<td>50,674</td>
</tr>
<tr>
<td>1965</td>
<td>38,352</td>
<td>319,145</td>
<td>12,784</td>
<td>331,929</td>
<td>1,615</td>
</tr>
<tr>
<td>1966</td>
<td>42,604</td>
<td>334,107</td>
<td>14,201</td>
<td>348,308</td>
<td>16,379</td>
</tr>
<tr>
<td>1967</td>
<td>48,012</td>
<td>383,961</td>
<td>16,004</td>
<td>399,965</td>
<td>51,657</td>
</tr>
<tr>
<td>1968</td>
<td>51,423</td>
<td>407,517</td>
<td>17,141</td>
<td>424,658</td>
<td>24,693</td>
</tr>
<tr>
<td>1969</td>
<td>60,330</td>
<td>463,615</td>
<td>20,110</td>
<td>483,725</td>
<td>59,067</td>
</tr>
<tr>
<td>1970</td>
<td>69,960</td>
<td>498,827</td>
<td>23,320</td>
<td>522,147</td>
<td>38,422</td>
</tr>
<tr>
<td>1971</td>
<td>76,024</td>
<td>517,470</td>
<td>25,341</td>
<td>542,811</td>
<td>20,664</td>
</tr>
<tr>
<td>1972</td>
<td>80,416</td>
<td>518,139</td>
<td>26,805</td>
<td>544,944</td>
<td>2,133</td>
</tr>
</tbody>
</table>
Perhaps the most useful figures, however, were those collected by ITAC itself, as a result of its own manpower surveys, although these only covered ten industries (see Table 7). It can be seen that employees are divided into technicians, craftsmen, operatives and unskilled, and the number of trainees/apprentices required annually was also estimated.

It is interesting to compare the figures gleaned from these ITAC surveys (Table 7) with the statistics collected by the Labour Department which we previously examined (Table 6). Turning to Table 8, only the ten major industries are compared. It can be seen that only 100 out of 747 garages (representing approximately 35 per cent of the automobile workforce) were registered with the Labour Department, as most garages employed less than 20 persons and did not generally use power-driven machinery. In the same way, only 190 out of a total of 1,280 electrical apparatus and appliance establishments were covered. As mentioned before, no returns were collected for building and civil engineering. Apart from these discrepancies, the correlation between the ITAC surveys and the Labour Department statistics appears to be reasonable.

In Table 8, manual workers included all workers, foremen and supervisors employed on the shop floor, while clerical and managerial employees included some supervisors and other technician level grades such as draughtmen and designers.

The difference between the figures for the 1971 census of manufacturing establishments and the 1971 Labour Department statistics, and the ITAC surveys, may be attributed largely to the fact that not all undertakings were registered with the Labour Department. For example, they did not include wiring contractors and power companies. Also, many small pontoons (watertight floats or vessels) were not registered with the Labour Department but with the Marine Department, and thus many were covered in the ITAC survey. The total workforce, excluding non-industrial workers, in the ten ITAC surveys, amounted to 428,092.
<table>
<thead>
<tr>
<th>Industrial committee</th>
<th>Date of survey</th>
<th>Numbers of workers at date of survey</th>
<th>Annual training requirements for each of the three levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Technicians</td>
<td>Craftsmen</td>
</tr>
<tr>
<td>Automobile repairs and servicing</td>
<td>23.12.67-30.12.67</td>
<td>-</td>
<td>3,693</td>
</tr>
<tr>
<td>Building trades</td>
<td>12.8.68-14.8.68</td>
<td>3,103</td>
<td>11,495</td>
</tr>
<tr>
<td>Clothing</td>
<td>10.3.69-31.3.69</td>
<td>5,117</td>
<td>3,291</td>
</tr>
<tr>
<td>Electrical apparatus and appliances</td>
<td>10.12.68-18.12.68</td>
<td>686</td>
<td>11,736</td>
</tr>
<tr>
<td>Electronics</td>
<td>16.3.70-21.3.70</td>
<td>1,780</td>
<td>3,999</td>
</tr>
<tr>
<td>Machine shop and metal working</td>
<td>2.4.68-11.4.68</td>
<td>2,348</td>
<td>13,295</td>
</tr>
<tr>
<td>Plastics</td>
<td>18.8.67-2.9.67</td>
<td>3,926</td>
<td>3,448</td>
</tr>
<tr>
<td>Printing</td>
<td>5.8.69-23.8.69</td>
<td>1,398</td>
<td>9,816</td>
</tr>
<tr>
<td>Shipbuilding and ship repairs</td>
<td>22.7.68-27.7.68</td>
<td>906</td>
<td>8,491</td>
</tr>
<tr>
<td>Textiles</td>
<td>25.2.67-10.3.67</td>
<td>4,504</td>
<td>9,186</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>23,768</td>
<td>78,450</td>
</tr>
</tbody>
</table>

Table 7: Summary of Manpower Statistics Obtained by the Ten Industrial Committees of ITAC
<table>
<thead>
<tr>
<th>Industry/Trade</th>
<th>Date of last ITAC survey</th>
<th>ITAC survey statistics</th>
<th>Labour Department statistics at date of ITAC surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of workers</td>
<td>Number of trainees/apprentices</td>
</tr>
<tr>
<td>Automobile repairs and servicing</td>
<td>23/12/67 to 30/12/67</td>
<td>4,996</td>
<td>2,230</td>
</tr>
<tr>
<td>Building and civil engineering</td>
<td>12/8/68 to 14/8/68</td>
<td>27,871</td>
<td>575</td>
</tr>
<tr>
<td>Clothing</td>
<td>20/3/69 to 31/3/69</td>
<td>114,189</td>
<td>1,539</td>
</tr>
<tr>
<td>Electrical apparatus and appliances</td>
<td>10/12/68 to 18/12/68</td>
<td>22,706</td>
<td>3,640</td>
</tr>
<tr>
<td>Electronics</td>
<td>16/3/70 to 21/3/70</td>
<td>32,597</td>
<td>708</td>
</tr>
<tr>
<td>Machine shop and metal working</td>
<td>2/4/68 to 11/4/68</td>
<td>38,835</td>
<td>2,920</td>
</tr>
<tr>
<td>Plastics</td>
<td>18/8/67 to 2/9/67</td>
<td>60,079</td>
<td>1,134</td>
</tr>
<tr>
<td>Printing</td>
<td>5/8/69 to 23/8/69</td>
<td>12,345</td>
<td>1,761</td>
</tr>
<tr>
<td>Shipbuilding and ship repairs</td>
<td>21/7/68 to 27/7/68</td>
<td>11,198</td>
<td>1,048</td>
</tr>
<tr>
<td>Textiles</td>
<td>27/2/67 to 10/3/67</td>
<td>85,045</td>
<td>2,676</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>428,092</strong></td>
<td></td>
</tr>
</tbody>
</table>

(less three items marked * (see text) = 366,074)
In addition, the ITAC Technical Institute Committee members prepared a map\(^1\) (see Figure 7) and a table (Table 9)\(^2\) showing the number of workers engaged in the major industries and the regions where they were employed. In this way, a decision could more easily be made as to where new institutes should be sited. For example, although the Technical College had been in operation for many years, and work had already started on building the first institute at Morrison Hill, the latter site seemed an obvious location. It was fairly central on the north side of Hong Kong Island, and accessible from Kowloon by ferry, and, after 1972, by the cross-harbour tunnel (and, after mid 1985, by Mass-Transit (underground) Railway). Also, in addition to small industrial establishments and residences being spread along the north coast line of Hong Kong Island, there were, in 1967, an approximate 90,000 resident population and a 38,000 resettlement population situated in Aberdeen and on the south side of the Island. Again Shau Kei Wan and Chai Wan, on the east side of the Island, had together about 200,000 residents, a 56,000 resettlement population, and 5,500 registered factory workers. There were few establishments on the Island employing more than 200 people.

From Table 9 it can be seen that, in addition to Hong Kong Island, there were six major districts where industry was situated in Kowloon and the New Territories, where technical institutes could usefully be located; always, of course, provided suitable sites could be found. These districts included the Tsuen Wan (a rapidly expanding new town (see page 9)) area of the New Territories, Cheung Sha Wan and Sham Shui Po, Mong Kok, Hung Hom and To Kwa Wan, San Po Kong and Wong Tai Sin, and, finally, Kwun Tong.

---

1. Map of Hong Kong and Kowloon showing numbers of persons employed, factories, and resident populations by regions, ITAC (1968).

Figure 7: Map showing locations of population

Key:
- Factories employing more than 200 persons
- Registered factory population
- Resident population
- Resettlement population

Note: Parts of original map are not completed.
<table>
<thead>
<tr>
<th>District</th>
<th>Tsuen Wan</th>
<th>Cheung Sha Wan/Sham Shui Po</th>
<th>Mong Kok</th>
<th>Hung Hom/To Kwa Wan</th>
<th>San Po Kong/Wong Tai Sin</th>
<th>Kwn Tong</th>
<th>Hong Kong</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>265,000</td>
<td>482,000</td>
<td>130,000</td>
<td>204,000</td>
<td>580,000</td>
<td>252,000</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Resettlement population</td>
<td>149,021</td>
<td>160,129</td>
<td>-</td>
<td>22,380</td>
<td>426,056</td>
<td></td>
<td>219,718</td>
</tr>
<tr>
<td>Registered total industrial population</td>
<td>50,000</td>
<td>73,500</td>
<td>36,000</td>
<td>5,100</td>
<td>64,000</td>
<td>66,000</td>
<td>80,000</td>
</tr>
<tr>
<td>Textiles</td>
<td>33,000</td>
<td>18,000</td>
<td>3,500</td>
<td>8,000</td>
<td>10,500</td>
<td>17,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Garments</td>
<td>1,000</td>
<td>3,500</td>
<td>12,500</td>
<td>10,500</td>
<td>16,500</td>
<td>6,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Footwear</td>
<td>2,000</td>
<td>1,500</td>
<td>-</td>
<td>1,500</td>
<td>2,000</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Plastics</td>
<td>2,500</td>
<td>6,500</td>
<td>4,000</td>
<td>5,000</td>
<td>8,000</td>
<td>8,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Light engineering</td>
<td>6,500</td>
<td>7,000</td>
<td>4,500</td>
<td>6,500</td>
<td>5,500</td>
<td>6,500</td>
<td>10,000 (3,000 Auto.)</td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
<td>2,000</td>
<td>-</td>
<td>5,500</td>
<td>8,500</td>
<td>9,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Ships/boats</td>
<td></td>
<td></td>
<td>-</td>
<td>3,000</td>
<td></td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>Printing</td>
<td></td>
<td></td>
<td>1,500</td>
<td>1,000</td>
<td>750</td>
<td>1,000</td>
<td>500</td>
</tr>
<tr>
<td>Wigs</td>
<td></td>
<td></td>
<td>3,000</td>
<td>3,500</td>
<td>1,500</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
<td>Not known</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotel and catering</td>
<td></td>
<td></td>
<td>Not known</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The total population, the resettlement housing population, and the registered industrial population, as well as the numbers of workers in the main industries, are all shown in Table 9.

**Manpower forecasting**

The ITAC, its successor in 1973, the Training Council, and, in turn, its successor in 1982, the VTC, have all conducted surveys in order to attempt to quantify the demand for manpower. These bodies have been assisted by the Census and Statistics Department and the Labour Department. Up to the mid 1970s, these surveys were conducted in ten major industries (see Table 8). In the second half of the 1970s, however, these surveys were gradually extended to some of the commercial and service industry sectors, such as banking; insurance; journalism; accountancy; hotels, catering and tourism; and wholesale/retail, and the import/export trades.

From these surveys, which covered both the private and public sectors, it has been possible, to some degree, to forecast manpower requirements and to anticipate future trends and employment needs (see Table 7). However not everyone, as we saw in Chapter 2, agrees with asking industry how many workers will be required, the method upon which, to some extent, Hong Kong's forecasts are based (there are of course other methods, see pages 53 to 60). For instance Gerry Fowler, Minister of State at the Department of Education and Science in London, in 1976, said:

> A detailed manpower policy, in the sense of organising courses of education so as to meet with precision the forecast needs of employers ... is not a practical proposition ... We can neither predict demand nor manipulate supply ...

---

1. Report on Technical Manpower: Demand and Supply 1977-82, op.cit., passim; and Manpower Planning, Hong Kong Training Council (27 August 1976), (2) HKTC/MAN/PLN.

However, Britain has subsequently moved closer towards manpower planning policies (see also page 52).

In a small compact place like Hong Kong, it is no doubt easier to undertake some form of manpower planning than in a larger more complex state. Partly for these reasons, a number of developing countries do have manpower development plans which appear to provide varying degrees of usefulness. These include, for example, Singapore, Nigeria, Bangladesh, Fiji, and India.¹

Singapore (until 1959 a British colony) is, in many respects, more similar to the Crown Colony of Hong Kong than any other place.² It is small (616 square kilometres), like Hong Kong (1,060 square kilometres), and, in 1979, Singapore's population was 2.36 million people (Hong Kong was approximately five million), of whom 76 per cent were Chinese (Hong Kong has about 98 per cent). Singapore has paid a great deal of attention to its technical education system and, like Hong Kong with its VTC, has set up a high powered Council of Professional and Technical Education, and one of its main aims is to ensure that an adequate reservoir of trained professional, technical and skilled manpower is available for economic development.³ A number of national surveys of manpower have been conducted.⁴

Hong Kong too, as we have seen, has placed some emphasis on manpower planning, and the methodology used

---


² Singapore Facts and Pictures 1979, Information Division, Ministry of Culture, Singapore.


is briefly as follows (see Figure 8).\textsuperscript{1} The respective training board of the Training Council identifies all principal jobs in the industry concerned, designs survey documents, and decides on the sample coverage. This is usually about 450 establishments, depending on the size of the industry, and ranges from 100 to about 60 per cent coverage. Where the coverage is not full, a representative sample is used. The fieldwork of the survey is carried out by enumerators of the Census and Statistics Department, who visit selected employers, help with the completion of questionnaires, and undertake similar duties.

The surveys first establish the current manpower structure by numbers of workers, together with their job levels, and then proceed to forecast the annual demand to cover both replacement and economic growth.\textsuperscript{2} The likely trend in annual recruitment is established from past and present survey data. This trend is then adjusted by the respective training board in the light of factors such as employers' forecasts of market trends, technological developments, and future expectations. As some job skills, for example fitter, are distributed across several industries, the annual demand for such skills within each industry is aggregated, in order to establish the total annual demand for graduates in the various branches of technology. As not everyone graduating from a technical education institution, or completing other forms of training, would enter employment in the fields for which they have been trained, the training boards estimate from graduate employment statistics, and other information, the participation rate for each branch of technology. The projections of average annual demand are considered by the Training Council to be valid for about five years. From the above brief description it can be seen that Hong Kong basically

\begin{itemize}
  \item \textsuperscript{1} Report on Technical Manpower Demand and Supply 1977-82, Hong Kong Training Council (August 1977), pp.3 to 7.
  \item \textsuperscript{2} Report of the Committee to Review Post-Secondary and Technical Education (1981), pp.43 to 45.
\end{itemize}
Figure 8: Manpower Planning Procedure in Hong Kong

1. Analysis of structure changes
2. Forecast by adaptive filtering for growth and estimation of replacement to cover wastage
3. Integration of principal jobs in different industries
4. Estimation of participation rates
5. Integration of principal jobs in different industries

* Statistical data from other relevant but independent surveys (e.g., volume of trade in the case of manufacturing industry) may also be used.
uses the trend method, together with employers' opinions, which is linked only very tenuously to an output base.¹

Having established the output of graduates necessary to meet the demand, a quantitative analysis is made to see whether the current and planned provision of tertiary education places, in the relevant disciplines, is sufficient to match the demand. Table 10 was based on the findings of the Training Council's surveys of requirements in technically-based industries, conducted in 1979 and 1980, which are compared with the estimated supply from technical education institutions.²

Prior to surveys being carried out in the second half of the 1960s, Hong Kong had limited knowledge of the numbers of persons it was necessary to train each year. However, these surveys have not always been reliable. For example, when the first one was conducted for the building and civil engineering industry (one of the first industries to suffer and one of the worst affected in a recession³), in August 1968, it employed only 27,871 workers plus 575 apprentices/trainees. This may be compared with the second survey, conducted in April 1973, when the labour force had increased to 55,545, plus 2,310 apprentices/trainees, with 2,586 vacancies.⁴ This amounted to an increase of about 99.3 per cent over a five-year period, or about 19.9 per cent per annum. The first survey was conducted when the industry was at a low ebb, and it was decided not to include questions regarding the numbers of vacancies and forecasted future labour requirements.⁵ However, the

1. Williams, Paper I, op.cit., paras.12(a) and 17(b).
Table 10: Comparison of the Annual Demand and Supply of Technical Manpower

<table>
<thead>
<tr>
<th>Personnel level</th>
<th>Aggregated annual demand</th>
<th>1981</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supply</td>
<td>Surplus(+)/- shortfall(-)</td>
<td>Percentage of demand met</td>
</tr>
<tr>
<td>Technologist</td>
<td>1,094</td>
<td>1,217</td>
<td>+ 123</td>
</tr>
<tr>
<td>Technician</td>
<td>4,190</td>
<td>3,104</td>
<td>- 1,086</td>
</tr>
<tr>
<td>Craftsman</td>
<td>9,140</td>
<td>2,591</td>
<td>- 6,549</td>
</tr>
<tr>
<td>Total</td>
<td>14,424</td>
<td>6,912</td>
<td>- 7,512</td>
</tr>
</tbody>
</table>
second survey was carried out during a boom. The results of these two surveys are shown, together with subsequent manpower surveys, in Tables 11 and 12.

Table 11: Estimated Numbers of Building/Civil Engineering Technician Trainees/Apprentices Recommended to be Taken On for Training as Shown by ITAC/Training Council Manpower Survey Reports

<table>
<thead>
<tr>
<th>Manpower survey</th>
<th>Year conducted</th>
<th>Number and years when trainees/apprentices should be recruited</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1969 to 1973</td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>1968</td>
<td>Future demand not estimated because of recession</td>
</tr>
<tr>
<td>Second</td>
<td>1973</td>
<td>223 223 223 596</td>
</tr>
<tr>
<td>Third</td>
<td>1975</td>
<td>179 182 185</td>
</tr>
<tr>
<td>Fourth</td>
<td>1977</td>
<td>560 522 494</td>
</tr>
<tr>
<td>Fifth</td>
<td>1979</td>
<td>547 501 468</td>
</tr>
<tr>
<td>Sixth</td>
<td>1981</td>
<td>Between 830 and 970</td>
</tr>
</tbody>
</table>

Table 12: Estimated Numbers of Building/Civil Engineering Craft Trainees/Apprentices Recommended to be Taken On for Training as Shown by ITAC/Training Council Manpower Survey Reports

<table>
<thead>
<tr>
<th>Manpower survey</th>
<th>Year conducted</th>
<th>Number and years when trainees/apprentices should be recruited</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1969 to 1973</td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>1968</td>
<td>Future demand not estimated because of recession</td>
</tr>
<tr>
<td>Second</td>
<td>1973</td>
<td>684 684 684 1824</td>
</tr>
<tr>
<td>Third</td>
<td>1975</td>
<td>164 230 280</td>
</tr>
<tr>
<td>Fourth</td>
<td>1977</td>
<td>161214971393</td>
</tr>
<tr>
<td>Fifth</td>
<td>1979</td>
<td>169215471437</td>
</tr>
<tr>
<td>Sixth</td>
<td>1981</td>
<td>Between 2000 and 2300</td>
</tr>
</tbody>
</table>

It can be seen from the above two tables, that recommended intakes dropped again, as a result of the third survey, which coincided with another recession. Subsequently needs increased, in the second half of the 1970s and the first half of the 1980s, when the fourth, fifth and sixth surveys were conducted. It will be noted also that the sixth survey showed numbers as "range forecasts".

There was still a boom in the construction industry in 1981, as Tables 11 and 12 show. However the position is quite different today, and while the economy, both world-wide and in Hong Kong, has improved, there is now a recession in the local construction industry.
To further illustrate the degree of fluctuation of these surveys, the third survey (1975) estimated that 280 craft trainees/apprentices would be required in 1978, while the fourth survey (1977) estimated 1,612 (almost six times as many) for the same year. It was obviously not possible for building and civil engineering departments in the Polytechnic and the technical institutes, which were running some three and some four-year courses, to vary student numbers to coincide with the recommendations of the Training Council at short notice. However, the figures were of use for future planning and provided some evidence of economic trends.

Obviously, such fluctuations make extrapolations difficult. However the examples quoted above, for the construction industry, are exceptional cases, and other industries do not show such wild swings, although most suffer, to some extent, during a recession. Again, similar fluctuations have been common during the first half of the 1980s. What clearly has to be done is to draw a compensating line which is a "mean fit" to the high and low points obtained on the peaks and troughs, thus providing estimates of average demand, as the education system is not able to adjust to rapid changes, and it is necessary to "smooth out" sudden variations. 1

Thus, at times of buoyant growth, labour demand may not be fully satisfied, and it may be necessary to depend, to some extent, upon substitution and similar measures, while at times of depressed growth there could be an oversupply of graduates. Also, under such circumstances, with courses of two, three and four-years' duration being run, the view must be taken that, during a depression, education is being provided for personnel who will be needed in the boom years ahead. And sometimes in Hong Kong for example, although at the time of a recession "no light can be seen at the end of the tunnel", the position can change quite quickly. Thus, educationalists normally need to plan

---

1. Titchener, Professional Engineers - Forecasting Demand and Supply, op.cit., pp.18 to 25 (pp.21 and 22).
for a steady sustained growth, in the long-term, for a moderately buoyant economy.

Nevertheless, in the hands of experienced planners, even under the circumstances outlined above, manpower surveys have still provided a useful tool for technical education, although, quite rightly, they have not escaped criticism. For example, as we saw in Chapter 2, some feel that the whole planning approach, in Hong Kong, is too rigid, especially if it is used to postulate that if the out-turn of technical institution graduates is less than the annual demand, the growth of the economy will be retarded, while if supply exceeds demand, unemployment and under-employment will, automatically, result.¹

In practice, many would agree that the labour market is more flexible in responding to shortages or surpluses than at first appears to be the case (see pages 60 to 67). For example, the rapid expansion of the construction industry during a boom was made possible by a large number of semi-skilled personnel entering the industry, although, as a result, productivity dropped.²

While employers' opinions can provide one useful tool, albeit with fairly wide confidence limits, in the important task of manpower planning, their usefulness is, as we saw in Chapter 2, restricted if used for medium or long-term forecasting.³ In the past, in Hong Kong, surveys have also been too restrictive (see page 123), in that they have only been employed for the manufacturing sector, although from the late 1970s onwards, more industries have been covered. As at 1981, the industries surveyed only accounted for about 37 per cent of the totally employed population;⁴ however, it has been estimated that, in the

¹ Committee to Review Post-Secondary and Technical Education (1981), pp.47 and 48, paras.2.34 and 2.35.
² Report by the Building and Civil Engineering Industry Training Board on the Second Manpower Survey .... op.cit., p.5., para.3.3.
⁴ Ibid., p.43, para.2.30.
future, manpower surveys will cover 70 per cent of the entire labour force.¹

Professor P.R.C. Williams, Head of the Department of Education in Developing Countries at the University of London's Institute of Education, visited Hong Kong in March 1978, to advise the Government on education. He came again, from 21 March to 9 April 1981, to advise the Committee on Post-Secondary and Technical Education, especially with respect to manpower forecasts and educational planning.² Williams wrote at some length on planning,³ and, in answer to his own question:

How reliable are the Hong Kong Training Council's surveys in predicting future levels of recruitment and the likely balance of supply and demand? he replied, "not very".⁴

As we saw in Chapter 2, the more rigid the links between the output of students and occupations, and between occupations and education/training, and the longer it takes to produce specific skills, the more justifiable forecasting may be. Nevertheless when there are shortages, these may often be overcome by substitution. Because Hong Kong is characteristically fast changing,⁵ demands for manpower can alter quickly, and, as a result, forecasting can be particularly hazardous.

In addition, surveys in Hong Kong are conducted for each industry about once every two years, and they do not therefore all take place simultaneously. It is done on a staggered basis in order to spread the work-load around the calendar. However this means that, at the end of a

¹. (27)CR26/2041/76 III (28 February 1978).
³. Williams, Paper I, op.cit., passim; and P.R.C. Williams, Cover Note to Papers on Manpower Planning and Rate of Return Analysis (16 March 1978), passim.
two-year period, when a summation is carried out for all industries, the socio-economic situation can have changed compared to when a particular survey was actually conducted. For instance it is doubtful if the "slow-growth" forecast, which was typical during the recession in 1975, would have continued to be so gloomy in 1977 when business had generally improved. ¹

In turn, it was also suggested by Williams that additional questions be included in the survey questionnaires, such as, what is the actual education/training/experience levels of various personnel? ² Otherwise, there is no way of knowing whether, for example, upgraded craftsmen or ab initio technicians, who are trained to do such work from the start of their careers, are doing a particular job. Such information is also useful in that it shows if there is a need for upgrading training. Williams felt that the job specifications in the surveys were "sometimes rather unsatisfactory", and not based on any fundamental job analysis, in the same way that there was insufficient precision in classifying workers by jobs rather than by qualifications. For example, sales managers who hold engineering degrees should not, in an occupational survey, be classified as engineers.

The surveys were also criticised by the Diversification Committee, in 1979, because they tried to be too exact, suggesting for example that 3,008 additional mechanical craftsmen were needed, in a particular year, whereas it would have been better to have said, between 2,500 and 3,500 were required. ³ In practice however the educationalists have, in fact, normally converted an exact figure to a "range forecast", although the point was taken and survey reports were altered accordingly (see Tables 11 and 12). It is agreed, however, that the figure of

¹ Williams, Paper I, op.cit., paras.17(a)(i).
² Ibid., para.17(a)(II) and (III).
3,008 does give a marvellous aura of accuracy. Nevertheless, with manpower forecasting being only correct to, say, plus or minus 30 per cent, one cannot tell whether four, five or six technical institutions are needed. Range estimates also provide a constant reminder to the planners of the fallibility of forecasting.

In addition, Williams considered that the estimated manpower wastage, on the basis of three per cent to allow for retirements and deaths etc., "could not possibly be right", because a high proportion of Hong Kong's craftsmen, technicians and technologists are young, and because of the population structure, and the recent rapid expansion of education, training and industry. However, Williams also felt that personnel wastage of the non-retirement type had probably been under-estimated, as job mobility and wastage (movement from one firm to another, in the same trade, should not count as wastage) was rather high. One way of finding out what wastage actually is, is by tracer studies (see page 99).

However, Williams believed the most serious potential source of error of the manpower forecasts, in balancing supply with demand, arose from the personnel stock projections and ignoring the existence of substitution, and the fact that a large number of people actually learn on-the-job. This of course is true, as a large number of "qualified" people in Hong Kong, especially the older ones, have never attended a formal technical course.

Williams felt that it was doubtful if surveys were reliable enough to be used for planning technical education facilities, and he suggested the following be considered. Firstly, note should be taken of "flaws" in the surveys, as outlined above, and attempts made to achieve greater accuracy and sophistication in methodology. As an

1. Williams, Paper I, op.cit., para.17(c)(i) and (ii).
alternative to this he suggested that one could take the view that, in a rapidly changing society like ours, as forecasting cannot be accurate, one should, instead, try to develop a more flexible system of technical education. As he put it,

If the USSR with its controlled economy has grave difficulty in getting manpower forecasts accurate, what hope has Hong Kong?¹

With this alternative proposal, made by Williams, of a more flexible system of technical education, lead times and durations of courses need to be reduced wherever possible, for example, by the introduction of units/modules. In this way people are not tied to long courses, and they can switch to something slightly different as opportunities and needs change. Greater flexibility would then result in less rigid divisions and more of a graduation between craft, technician and technologist levels, with more "half-way houses" (see pages 71 and 72). Such improvements would also need to be linked to more careful monitoring of student-cum-worker flow (see page 99). In other words what are the trends over time, and what implications do they have for education policy?

Williams was quick to point out that a great deal of conscientious and skilled effort has been invested in the forecasts, but that more needed to be done to eliminate known weaknesses. But even then one is left with the vital question:

... can the volume and structure of output (of manpower) in an open economy like Hong Kong's be accurately predicted five or six years ahead?²

The general conclusion he arrived at was "no", and that any educational planning should not be unduly influenced by manpower surveys.

¹. Ibid., para.20.
². Williams, Paper III, op.cit., para.4.
After all, are forecasts which, within two years (1975 to 1977) changed the recommended student output targets by 90 per cent for technologists, 28 per cent for technicians, and 48 per cent for craftsmen, going to be useful for policy makers in long-term planning of the numbers of technical education places? For example, as we know, Hong Kong combines the "asking industry" and the trend methods. However, it does not mean that an economy which grew rapidly from 1970 to 1977, will continue to grow at the same pace from 1977 to 1990. Professional statisticians do not feel safe making line projections from only three or four sets of data, as the possibility of miscalculation is immense.

In reply to Williams' comments on manpower forecasting, H.R. Knight, Assistant Commissioner (Industrial Training) of the Department of Labour and Secretary of the Training Council, said that many of the criticisms had been based on misunderstandings. He also considered that while some minor improvements could be made, such as using range forecasts, Hong Kong's manpower planning had been as successful as most countries.

However, the Working Party on Senior Secondary and Tertiary Education (1977), the Advisory Committee on Diversification (1979), and the Committee to Review Post Secondary and Technical Education (1981), all felt that Williams' observations provided some valuable indications about the whole forecasting approach. There is no doubt that Williams' advice was useful, and that he alerted the Education Department and other bodies to the fact that some improvements needed to be made with regard to manpower forecasting. This was in fact a case where an outsider was

1. Figures extracted from Hong Kong Training Council manpower surveys; and Williams, Paper I, op.cit., para.20(2).
2. H.R. Knight, Secretary Training Council, Comments on the Paper by Mr P.R.C. Williams on "Manpower Forecasting as a Basis for Educational Planning in Hong Kong" (30 September 1978), passim.
able to help the Hong Kong planners, who, although they had done a good job, were perhaps "too close to it".

However of Williams' two options (see pages 134 and 135), namely of either attempting to refine manpower forecasting, or, as an alternative, discarding it altogether and depending on a flexible education system; it would still appear to have been the correct decision that Hong Kong should adopt a combination of both methods (see page 49). In this context there is no doubt, in spite of their limitations, that manpower surveys do provide useful information in the two or three-year term and on which medium and longer-term planning can commence. In this regard, it should be recorded that no local committee or body has recommended that the surveys should be discontinued.\(^1\) The surveys are needed to supply such basic information as existing occupational categories, including qualifications, age and experience of personnel, and skill requirements of the various jobs. The surveys have, in fact, provided most of these required data, although some modifications have been made to the methodology employed in the light of Williams' comments (see pages 132 to 136).

Regarding Williams' second option concerning making the education system more flexible: as we have seen (Chapter 2), credit-unit technician programmes were gradually introduced into the Polytechnic and technical institutes (see pages 260 to 263).\(^2\) Such schemes do provide, or have potential for, greater flexibility. However, there are obvious limitations regarding the shortening of a course, and the degree to which flexibility may be attained. If a course is too broad-based, there is a danger that a student gets what amounts to an appreciation of a wide field of technology, and he finishes by having little concentrated

---

1. Recollections of Education Department staff.
2. (147)ED(TE)110/18 (14 August 1980); and Sub-Committee on Course Structure (Technical), Interim Report (19 May 1978); and (39)ED(TE)108/3/4 (22 January 1980).
knowledge of any one subject, and he is thus of limited use to an employer. Such extremes have to be watched by the planners (see pages 51 and 52).

The polytechnics

When the Government was considering the technical institutes numbers two to five, it gave great weight to the ITAC and Training Council surveys, especially up to the time of Williams' visit, in 1977. However, the Polytechnic has not placed the same emphasis on manpower surveys. It was, as we have seen (pages 28 to 30), born in 1972 from the womb of the old Technical College, long since a thriving institution, and student-number targets for the two UPGC quadrennia (1970 to 1974 to 1978) were based mainly on ad hoc estimates, the Polytechnic being established in the middle of the first quadrennium. The Government had already, in 1969, expressed the intention that the Polytechnic should have a student population of about 4,000 full-time equivalent day students by 1974. The Polytechnic Planning Committee, in turn, as we shall see in Chapter 4 (pages 157 to 158), set up a number of sub-committees and ad hoc advisory panels on specific areas of teaching, and, among other things, they produced estimates of the numbers of students they recommended should be educated.

After the Polytechnic was established, it obtained predictions of industrial and social demands from its own standing departmental and other advisory committees (see page 36), and to a lesser extent from the Training Council, as well as obtaining comparable statistics from other countries. In addition Legg, Director of the Polytechnic

1. Waters, A Series of Papers ... Paper One - General, op.cit., pp.5 to 7.
3. Ibid.; and Final Report of the Polytechnic Planning Committee (July 1971), passim.
4. Ibid.; and Hong Kong Polytechnic Triennial Academic Plan, 1981-84, op.cit., passim.
from 1975 to 1984, has intimated that he is prepared to give limited weight to Training Council manpower forecasts, and that in his view:

A good approach on provision for technical education is to provide, for the estimated manpower requirements as a minimum and to provide as much more as resources will allow.¹

Legg has always maintained that the economy can absorb more technical personnel than forecasts suggest. In addition, UPGC members take the view that there is more to educational planning than just satisfying economic demands. By the latter part of the 1970s, as we have seen in this chapter, educational planning based almost entirely on "short term" manpower surveys and economic needs became less "respectable" within the Government. As a result the "Topley Committee", in 1981, quite rightly adopted a broader view, taking into account social needs and students' aspirations. This Committee also constructed a model of future manpower requirements, and, as a result of such recommendations, the City Polytechnic was established in 1984, with an overall brief from the Government, through the UPGC, to expand to 8,000 full-time equivalent students by 1994 (see page 30).

The structure of manpower

The third series of manpower surveys, conducted from 1974 to 1976, revealed that in the ten major industries, consisting of a total of 537,394 workers, the overall manpower profile was one technologist, 4.6 technicians, 13.5 craftsmen, 38 operatives, and 12.9 unskilled workers.² Meanwhile, in order to obtain a total picture of the economically-active population, using data from the 1976 by-census, a second profile was constructed.³ This showed that out of a working population of 1,890,870, there were

¹ Keith Legg. Technical Education in an Industrializing Society, op.cit., pp.56 and 57.
² (27)GR26/2041/76III (28 February 1978), paras. 4 and 5.
approximately one technologist, 2.9 technicians, 8.2 craftsmen, 11.1 operatives and 8.3 unskilled workers. However, it must be emphasised that it was not always clear how the grades of technologist, technician, craftsman and operative married up with the "comparable" grades in commerce and the service sector.\(^1\) We must also remember (see Table 1) that the shape of the manpower profile will vary, sometimes considerably, from industry to industry and even from firm to firm in the same trade.

As was outlined in the previous Chapter, there are often ways of attempting to forecast manpower needs. One such means is to study the labour forces of other countries (see page 57).\(^2\) An example of such a study was that carried out by Daniel Kwok, a lecturer at the Polytechnic, who attempted to project the future labour structure of Hong Kong on the basis of developments in Australia, the United States and Britain.\(^3\) Kwok did not, however, take into account the differences in economic features between Hong Kong and those countries, nor did he consider whether the use of more highly-educated manpower in these developed states is efficient. On the same subject Williams wrote that one must not assume,

...all countries are following a single development path, and that countries further back along the path will be like those further along it at some future date.\(^4\)

This is because the economy and the manpower model for different countries are bound to vary to some degree. This is especially so in the case of Hong Kong, with its highly particular economic pattern.\(^5\) Also, the manpower structure

---

1. *Number of Employed Persons by Occupation by Industry, Labour Force Survey (September 1980), Table 146.*
3. (29)GR26/2041/76III; and Daniel Kwok, Appendix I to (29) CR/2041/76III (3 March 1978).
5. Ibid.
may be influenced by the education system, which may be affected by political, social and other non-economic factors.

Well known international comparison studies include those by the OECD and by Layard and Saigal. The last two authors conclude that international comparisons should not be used on their own in manpower forecasting. It is also relevant to note that Blaug, when commenting on the OECD study mentioned above, suggested that one cannot safely derive an occupational structure from a given level of output or GDP.

Keith Legg, Director of the Polytechnic, however, feels that the international comparison method could play a valuable part in Hong Kong's educational planning system, although he admits obtaining statistics from other countries is usually not easy. He is of the opinion that a "global picture" needs to be obtained of the education, training and economic background of various countries using a standardised method.

There is no doubt that manpower profile comparisons are of interest in order to know how Hong Kong stands in relation to other countries, and they may be useful if all relevant factors are considered and similar countries are compared. For example, hypothetical manpower pyramids have to be developed when, as we shall see later, a manpower model is constructed, and examining profiles in other similar countries may be one of the methods used. For example Singapore is now, rightly or wrongly, tending to look to the Japanese for guidance, rather than to the West.


2. Mark Blaug, An Introduction to ..., op.cit., p.84; and Williams, International Comparisons Approach to Manpower Forecasting, op.cit.

It has also modelled its future profile on an overall ratio of one technologist, five technicians and 15 craftsmen, with these approximate proportions of technical students graduating each year.¹

**Manpower models**

One of the most useful recommendations to come out of Williams' visits was the need to place less reliance on manpower surveys. Partly as a result, a model was constructed.² It was also concluded that although "modelling" is a precarious activity, with potential pitfalls, it offered a better chance of making a reasonably accurate long-term projection of manpower needs than any other method. The model was constructed, starting with the known, namely the past and present economic conditions, and the existing working-population as a base.³ This was then followed by projections which took into account demographic changes, assumptions about movements in the socio-economic system, and the development of the manpower components of the economy.⁴ Students' aspirations for vocational education and developments in the secondary and tertiary education sectors were also considered.

The Post-Secondary and Technical Education Committee took the working population with its various industrial groups as a base, and projected these numbers forward. While net immigration had to be estimated, it was a relatively secure procedure as all workers, as at 1981, who will be in the labour force up to 1996, had already been

² Ibid., pp.61 to 76.
³ Ibid., pp.68 to 73; and Yip Hak-Kwong, Senior Statistician, Education Department, discussion with author (27 June 1984).
born. The next step, to predict the growth rates of different sectors of industry, was more hazardous. A study of employment trends and consultations with industry were necessary. In addition, reports considered by the Committee included those from the Civil Service, the Director of Social Welfare, the Secretary for Social Services, the Public Works Department, the Society of Accountants, the Management Association, and the Training Council.\(^1\) Many of these are Government departments. Probably the task of reporting on manpower needs, for a period up to 2001, was too daunting for most private organisations to contemplate.

It was generally agreed that, in the future, financial services would grow at the expense of the manufacturing industries. Because commerce tends to employ a larger proportion of higher-qualified personnel than manufacturing, there will, it was estimated, be a need for more highly qualified persons. Also, the economy will undergo slow structural change, with the percentage share of manufacturing and primary production, in terms of manpower, decreasing from 43.7 per cent in 1981, to 38.4 per cent in 2001. Also, the occupational structure of the working population would shift from production and agricultural and related trades to professional, technical, clerical, sales, commerce and services, with a gradual upgrading in the levels of education for personnel required. These are of course normal trends, as a country's economy becomes more sophisticated and develops into a "post-industrial" society.

The second stage of the exercise took account of changes in the occupational structure within each industrial group. For example, a greater proportion of higher-level staff was predicted for the manufacturing industries. In addition, assumptions were made about education and qualifications of personnel. All these forecasts were

---

drawn up by people with experience of industry. Eventually the following figures, which directly relate to the technical institutions, were arrived at.\(^1\)

Table 13: Estimated Numbers of Technician and Craft Graduates Required from 1986 to 2001 Per Annum

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Technician and equivalent (full-time courses only) (including non-degree holding teachers and nurses)</td>
<td>8,000</td>
<td>9,190</td>
<td>9,740</td>
<td>10,580</td>
</tr>
<tr>
<td>Craft</td>
<td>12,140</td>
<td>17,110</td>
<td>18,930</td>
<td>21,360</td>
</tr>
</tbody>
</table>

It is obvious of course, that such estimates, for instance for the year 2001, must contain wide margins of error.

There is no doubt that the preparation of the manpower model was a useful exercise, which should be reviewed and "rolled-forward", so as to continue to cover a 20-year period, at regular intervals. It is a pity that such a model was not constructed earlier, for example by the Working Party on the White Paper on Senior Secondary and Tertiary Education, in 1978, which had expressed concern at the reliability of the manpower surveys as long-term predictors.\(^2\) One would imagine that, like the surveys in the past, as the manpower model is reviewed, the persons involved will gain experience, and the information fed in will be more refined and, as a result, the model will become more sophisticated.

A model should not, however, be regarded as a tool for firm forecasting. Rather it should be looked upon as being flexible, and as a possible (not an exact) pattern of manpower development, with indications which may be used as a base for decision making. For example H.K. Yip, Senior Statistician, and J.R. Devereux, at the time Assistant

---

1. Ibid., p.65.
2. (27)GR26/2041/76III (28 February 1978), p.3.
Director (Technical Education) of the Education Department, both of whom worked on the model in 1981, said that, to so many of the questions at the time, for instance how the economy would develop, no one knew the answers.\(^1\)

Devereux, for instance, expressed the view that when preparing the model, especially in the more distant future, it was very much "a guessing game".

**Views of educationalists on forecasting**

Continuing with personal views, Horace Knight, Deputy Executive Director of the VTC, an ardent and committed forecaster, who has been actively involved with manpower surveys since the late 1960s, feels that they have generally served Hong Kong well, and that they have not been "too far out".\(^2\) He is also of the opinion that, to date, the Territory has escaped periods of major unemployment (see page 81). He attributes this, to a considerable extent, to basing our technical education system on estimated job vacancies, rather than providing a tertiary student-place for most qualified applicants (the "Robbins philosophy") as has been done in Australia\(^3\) and many western countries. Knight pointed out that the latter method tends to educate too many young people, and to develop skills which many may not have the opportunity of using, resulting, in many cases, in "frustrated young men", as well as the Government wasting money.

H. Cameron, Principal of the Lee Wai Lee Technical Institute, thought that there was nothing like Hong Kong’s system of manpower surveys in Britain, and, while it was not perfect, he was unable to suggest a more reliable way, although if surveys were conducted at more frequent intervals it would be better.\(^4\) R. Bray, Principal, Haking

---

1. Yip Hak-kwong, discussion with author (27 June 1984); and J.R. Devereux, discussion with author (14 July 1984).
2. H.R. Knight, Deputy Executive Director, VTC, discussion with author (17 August 1984).
3. Educational Planning: A Reappraisal, op. cit., p.120.
Wong Technical Institute, took a similar view, and said that the Training Council's surveys were "better than nothing", although it was important not to adhere too rigidly to them.¹ J. Devereux, Assistant Director (Technical Education) of the Department of Technical Education and Industrial Training, also felt that, in the main, the Training Council's surveys were "a good guide".² However I.T. Tsang, Principal Education Officer of the same Department, was of the opinion that because the surveys depended upon the often subjective views of employers, a broader approach, for example taking into account students' aspirations and social factors, was desirable.³

Leung Kam-fong, Senior Education Officer, Department of Technical Education and Industrial Training, however, takes a rather different view, and said that so many European countries have used the "social demand approach", and, as a result, have "overplanned".⁴ On the other hand, Hong Kong with its technical education system based, to a large extent, on economic needs, complemented by a flexible labour market, may not have provided all the answers but, nevertheless, the results show, "by and large, that we have generally done the right things".

Keith Legg however, while not so "fervent" as some, also feels that manpower forecasting is necessary, and that it serves a useful purpose (but more research is needed), and that we cannot afford not to do it.⁵ He is, nevertheless, of the opinion that the subjective method of "asking industry" is more suitable for (short term) training than for (long term) education, and that a broader macro

---

1. R. Bray, Principal, Haking Wong Technical Institute, discussion with author (6 June 1984).
2. J.R. Devereux, Assistant Director (Technical Education), Department of Technical Education and Industrial Training, discussion with author (14 July 1984).
3. I.T. Tsang, Principal Education Officer, Department of Technical Education and Industrial Training, discussion with author (5 and 6 June 1984).
4. Leung Kam-fong, Senior Education Officer, Department of Technical Education and Industrial Training, discussion with author (3 August 1984).
5. Keith Legg, Director, Hong Kong Polytechnic, discussion with author, op.cit.
approach is desirable as has been used for the City Polytechnic (see pages 209 to 211). He also believes that the;

Unplanned diversification and proliferation of academic degrees (courses) is the "villain" in relation to unemployment and under-employment.\(^1\)

Trying then to analyse the views of the preceding educationalists who have all had first-hand experience of planning: they all agree that some form of forecasting is necessary. They do not, however, altogether agree on its importance and how it should be carried out. There is of course a danger, in a place like Hong Kong, where the social demand for tertiary education (see Chapter 4) is considerable, that if places are provided for too many post-secondary students, especially if highly specialised courses are run, a mis-match of skills to jobs will result. In this context, Hong Kong has been spared,

... the problem of youth unemployment (which) is to a considerable extent the product of the post-war explosion in post-compulsory education.\(^2\)

This again points to the need for broad-based technical education, rather than narrow specialisation, in order to promote flexibility.

K.W.J. Topley

And now, turning once again to people who played an important part in technical education (see pages 39 and 40). Kenneth Topley became Director of Education in 1974 and, in the late 1970s and early 1980s he made his presence felt in various ways, such as by taking a more liberal view and by implementing more enlightened policies in the field of manpower planning and technical education as detailed in this thesis. Topley was an administrative officer and was the first "non-professional" to head the Education Department for 37 years.\(^3\) After joining the Hong Kong

---

3. Halima Guterres, A high-flying bureaucrat with an enquiring mind, South China Morning Post (24 September 1983).
Government, in 1955, he served in various posts including the Labour Department, the Government Secretariat, as Secretary of the University Grants Committee, and as Director of Social Welfare. He became Secretary and headed the new Education Branch (renamed Education and Manpower Branch in 1983) in 1981, and retired from Government service in 1983.

Topley chaired the working parties which produced the 1977 Report on Senior Secondary and Tertiary Education, the subsequent 1977 green paper, and the 1978 white paper. He also chaired the committee which produced the 1981, so-called, "Topley Report" on post-secondary and technical education. In spite of his involvement in the drawing up of the above "statements of intent" he was quick to point out that, in the Government, he did not make policy but that this is done by the Executive Council.

In the Government everything is very much a team effort, and education policy emerges during the course of proposals and counter proposals made by the Education Department (sometimes other departments are also involved), the policy branch(es) in the Government Secretariat, and a "tug-of-war" is also likely to take place with the Finance Branch as education is one of the big spending departments. After much time-consuming to-ing and fro-ing of minutes and memoranda, and after some degree of

1. Staff Biographies Hong Kong Government 1974, p.94.
3. Senior Secondary and Tertiary Education A Development Programme for Hong Kong Over the Next Decade (November 1977).
agreement has been reached, the Secretary for Education and Manpower brings matters to the point of decision and presents the options in a logical form to the Executive Council.

As a director of education who had never taught, Topley generally listened to opinions and delegated to his directorate staff. He had the reputation of being a fair man who could make his mind up and whose arguments were generally cogent. Nevertheless, the carrying out of so many of his proposals, like those of other directors, were in the hands of the Finance Branch. During Topley's term in education (1974 to 1983), as can be seen from this thesis, more was achieved in craft and technician education (and in education as a whole) than with any of his predecessors, although of course a great deal depended on the team he had working with him and on Government policy (see subsequent chapters regarding contributions by other individuals).

Conclusions

Little manpower planning was undertaken, in Hong Kong, until after ITAC was established, in 1965, and the methods used to make a case for the establishing of the first technical institute, at Morrison Hill, were quite rudimentary. The Government, however, realised that the cost of educating craft and technician students is high, and this factor alone is a strong reason for trying to match educational output to industrial demand.

However, from doing relatively no forecasting up to the mid 1960s, Hong Kong, like many other countries, tended to go to extremes, and manpower forecasting was used to attempt to provide a rigid, "number-crunching" approach, to balance educational supply with employment needs. As a result, the subsequent four technical institutes had to be justified largely on forecasted industrial manpower

---


demand. However this did not apply, to the same degree, to the Polytechnic, as this, although mainly funded by the Government, is, to a large extent, autonomous, and also the persons in authority (Polytechnic Council and UPGC members, and directors) did not place so much faith (quite rightly it appears now) on manpower forecasting.

In the second half of the 1970s however, various committees and educationalists, with the benefit of hindsight, levelled constructive criticism at Hong Kong's narrow forecasting and planning methodology. For instance, until the second half of the 1970s, only ten industries were covered, and ITAC did not include technologists in manpower surveys. In addition, too much faith was placed on the "asking industry" method for long-term educational needs. Hong Kong combines this with the trend method, which can be drastically affected by the rapidly changing industrial pattern and the economic cycle.

It is appreciated that a comparison of Hong Kong's manpower structure (with its highly particular economy) with other countries is fraught with difficulties. However, such international comparisons can, it is felt, be of some use, if similar economies are examined, and if such a method is used as an additional string to a manpower forecasting bow. It is therefore possible that Hong Kong has not exploited this approach sufficiently in spite of its shortcomings.

However, with the construction of a manpower model, in 1981, we have learned to place less reliance on surveys, although modelling is full of potential pitfalls. Nevertheless more use, it is suggested, should be made of modelling in the future. However, it would still not appear wise to forsake manpower surveys. After all, they have served - and they continue to serve - a useful purpose. Forecasts are now more flexible and comprehensive, they are based on more reliable data, they are updated regularly, and surveys provide a useful "baseline". Also, while it is agreed that most firms are notoriously weak at assessing future needs, surveys still provide, together with other "tools", a valuable manpower planning aid, resulting in less "groping in the dark" concerning tomorrow's needs.
As with many countries, Hong Kong has learned from its mistakes. With these thoughts in mind, it can perhaps be said that the Territory has been as successful, with regard to manpower planning, as most states. Apart from the early 1950s, with the mass exodus from the People's Republic of China, unemployment figures have been low and, during the 1983 recession, the unemployment rate stood at 4.4 per cent (high for Hong Kong) of the labour force, and the figure for underemployment (working less than 35 hours a week) was 1.9 per cent.¹ One of the acid tests of manpower planning is, after all, can most of the people find jobs, and from the above, it would appear that they can; and in fact demand for graduates (see Table 20) usually exceeds supply, although they may not always be in the exact type of employment for which they have been educated. A typical example would be construction students trying to find employment during a building recession (see Tables 11 and 12). And the only real way to find out what jobs past students have moved to is to conduct longitudinal tracer studies. Having said that however, it must be admitted that Hong Kong is in a special position, regarding employment, with her rapidly developing and vibrant economy (by world standards).

CHAPTER 4

THE PROVISION OF STUDENT PLACES IN HONG KONG

Introduction

Having examined the theory of manpower planning in Chapter 2, Chapter 3, as we have seen, complements it by reviewing the specific methods that have been employed in Hong Kong. Chapter 4 then takes this process a stage further by examining how the output of students from the educational institutions has been "matched", on a territory wide basis, to economic forecasts and estimated needs.

This Chapter also illustrates how attempts have been made to translate forecasted manpower requirements, to achieve specific growth, into the necessary educational output, firstly in the case of the Morrison Hill Technical Institute, then for the Polytechnic, and, later, for technical institutes numbers two to five. The various estimates which were made in the 1970s of the numbers of institutes that were considered necessary to satisfy the demand are then examined. The chapter continues by looking at the student capacity of the educational institutions and their roles, and how the running of a wide variety of courses has been divided between the Polytechnic and the technical institutes. The general educational standards of students on admission to technical programmes are also reviewed.

The possibility of using various expedients, when facilities are in short supply, is also considered. These include the "extended day", the "extended week", and the "extended year", the use of temporary premises, and "distance-learning". This is followed by a look at the different types of development plans that have been employed in Hong Kong. The latter part of the chapter explains how more attention was paid to social needs and
students' aspirations in the early 1980s, with the setting up of the Committee to Review Post-Secondary and Technical Education. This leads to recommendations which resulted in the establishing of the City Polytechnic. An examination is then made as to how this new institution was initially planned.

The Morrison Hill Technical Institute

When a case was being prepared to state the need for the first institute at Morrison Hill, emphasis was placed on the requirements of industry. However, some consideration was given to social needs. As a result, Principal Watt of the Technical College said that whether one looked at the problem from the point of view of the number of places that should be provided to accommodate a reasonable number of school leavers, or the numbers that were required to satisfy the needs of industry, the facilities existing at that time were inadequate. As we saw in Chapter 3 (pages 109 to 112), this comment appeared to be justified.

In the mid 1960s, when the first institute was being planned, technical education was entering a further stage of development. In addition to the facilities provided at the Technical College, for technician and technologist courses, the view held by teachers was that the Government should run more craft courses so as to meet the increasing demand from industry for more and better educated apprentices and craftsmen. The feelings were that unless this was done the development of industry, and the manufacturing of more sophisticated products, would be retarded. Although the Technical College had expanded rapidly, and a new workshop block had been completed in 1964 (where a few craft courses were run), and a new classroom wing was being planned (completed in 1967), the opinion

of some staff was that these developments would not be able to meet future demands.

When the first technical institute opened, in borrowed premises at the Technical College in 1969, the six teaching departments comprised electrical and mechanical engineering, construction, commerce, technical teacher training, and general studies. As the completion of the contract was delayed, the Institute did not move into its new building until the summer of 1970. Although laboratory technician courses, and hotel, catering and retail courses were also proposed, these did not materialise. The laboratory technician programmes continued to be run by the Technical College and, later, by the Polytechnic. There was also a lack of support for hotel and catering courses, although such a department was eventually established in the fourth institute (Haking Wong) which opened in 1977, and retail (trading practices) courses were run when the fifth institute (Lee Wai Lee) opened in 1979. All craft courses and some technician courses were transferred from the Technical College to the Morrison Hill Institute, in 1969, thus allowing the College to concentrate on higher-level work.

Much of the planning for the first institute was done on an ad hoc basis. The Principal of the Technical College was advised by his heads of departments, and they, in turn, were in contact with industrialists, and, although these contacts were, in the main, of an informal nature, senior staff were usually able to gauge reasonably accurately what type of courses ought to be run. Indeed looking back now, in spite of the informal way these six department were selected, it is difficult to say that the correct decisions

2. Proposal of a Technical Institute, Revised (March 1964), passim.
were not made bearing in mind that, subsequently, the
courses were well supported and the graduates had little
difficulty in finding employment.\(^1\) One exception would
perhaps be in the case of technical teacher training, which
some (for example Gailer (see page 281) and some staff at
the Technical College) would have preferred to have remained at
the College, as they felt that as it was the higher-level
institution, with better back-up facilities, it was more
suitable for teacher training.\(^2\) The Technical Teacher
and Workshop Instructor Training Department, at the Morrison
Hill Institute, was later transferred to form the nucleus
of the new Technical Teachers College (see pages 290 to
293), in 1974.

**Industrial training centres**

Technical institutes should not be confused with
industrial training centres (see page 7) which provide off-
the-job practical training supplemented by "lecturettes".\(^3\)
However, the trainees are released for one day a week to
attend a technical institute for their theoretical studies.
A construction industry centre and a clothing industry centre
were established in 1977 (each of these industries, as at
1984, has two centres). Additional training centres are
now being established in two new complexes, one at Kowloon
Bay and the other at Kwai Chung, which are both due to be
completed in 1985.\(^4\) Together, they will provide about
8,700 training places. The following trades will be covered
at Kowloon Bay: electronics, metal-working crafts, plastics,
printing and hotel training. In turn automobile repairs and
servicing, electrical and electronics, machine-shop and
metal-working, and textiles will be taught at Kwai Chung.

---

1. Waters, *The Technical Institutes in Hong Kong 1969 to
1980* ... op.cit., pp.194 to 199; and (40)ED(TE)114/2
(May 1980).

2. J.W. Gailer, *The Development of Technical Education and
Training in Hong Kong* (March 1967), p.11.

3. Waters, *The Technical Institutes in Hong Kong 1969 to
1980* ... op.cit., pp.109 and 110.

4. *The Vocational Training Council and Its Role* (1983),
pp.3 and 4; and Bina Jang, *Industry trains for the future,*
Standard (29 July 1984); and Big leap forward for
Also, a seamen's training centre has already been set up at Little Sai Wan, on Hong Kong Island. As we have seen, this thesis is not directly concerned with industrial training (see page 8).

The Technical College/Polytechnic

Turning to the Polytechnic (see page 28): it was suggested as early as 1964, by H.K. Watt the Principal, that the Technical College should eventually become a college of advanced technology, as some of its higher-level courses had been recognised by British professional institutions since the early 1960s (see page 271). The decision to upgrade the College was taken by the Government in 1967, although an alternative proposal was that it should remain as a technical college and that an entirely new Polytechnic should be established. There were, however, advantages in using the College as a nucleus, for example it was cheaper.

The 1969 intention expressed by the Government (several departments were involved in the decision) (see pages 148 and 149) was that the Polytechnic should have a student population of about 4,000 full-time equivalent day students by 1974. Like many of the decisions made on student-numbers targets, at the time, it was based mainly on ad hoc estimates and not on detailed manpower forecasting, as limited statistics were available, although both economic and social needs were taken into consideration. It has to be remembered of course, that it was a case of upgrading and enlarging a flourishing institution, as the Technical College, in 1971, already had a base of 1,834 full-time equivalent students and a campus on which the Polytechnic (established in 1972) could further expand. There were,


3. Ibid., p.16.

4. Ibid.
however, limitations as to the degree the Polytechnic could develop by 1974, and 4,000 full-time equivalent day students seemed to be a realistic figure to aim for.

The Polytechnic Planning Committee was appointed in May 1969 under the chairmanship of the late P.Y. Tang a prominent industrialist and public figure (see also pages 276 to 277). The decision regarding what courses should be run was, to a large extent, based on the recommendations of the "Sub-Committee: on Scope of Initial Courses", which was chaired by Doctor the Honourable (now Sir) S.Y. Chung (see pages 213 and 214) and included representatives from employers' associations, professional institution and the Civil Service. The Final Report of the Planning Committee covers such areas as scope of initial courses; sites and buildings; the Polytechnic Board; legislation; financing; order of costs; staffing; consultancies; supervisory, consultative and advisory machinery; and further development of the Technical College.

The Sub-Committee on Scope of Initial Courses dealt with the following 20 areas of study: accountancy, building and surveying, business studies, chemical engineering, civil and structural engineering, electrical engineering, electronic data processing, electronic engineering, industrial and commercial design, industrial and production engineering, languages and other studies, management sciences, mathematics and science, mechanical and marine engineering, nautical studies, plastics technology, printing technology, textile chemistry, textile technology,

1. Final Report of the Polytechnic Planning Committee (July 1971), passim; and University and Polytechnic Grants Committee of Hong Kong Special Report, op. cit., p.16.

and tourism. Each of these 20 panels were chaired and manned by persons who were in close touch with the industry concerned, and while the panels worked in different ways, their tasks were to obtain first-hand information as to actual needs. In many cases they worked through their respective trade association which, in turn, obtained information from its members. No elaborate surveys were conducted.

After all the panels had finalised their reports, a summary was prepared by Dr. Y.K. Ching, Principal of the Technical College. This revealed that a total of 5,280 student-places were needed, which was 32 per cent more than the original Government target of 4,000. The proposals were then divided into three main groups. Firstly, there were top priority courses which received the greatest demand from both students and employers, such as electronics, electrical and mechanical engineering, and accountancy. Secondly, there were fields such as industrial engineering and electronic data processing, which were not yet taught at the Technical College, but were areas in which Hong Kong already had some expertise and their introduction was not expected to cause any controversy. Then, thirdly, there were courses such as printing and tourism where expertise was lacking (see page 281) and it would be necessary to proceed with caution. On this basis, the planned number of student-places was reduced to 4,000 to meet the Government target.

By the time the details of the proposed courses were compiled, it was clear that, starting from a base of 1,834 full-time equivalent students, the 1974 target of 4,000 would be difficult to achieve in the limited time available. Nevertheless the Polytechnic grew rapidly (see

---

2. Ibid.
3. Ibid., pp.36 and 37.
pages 28 to 30), and the task given to the Director, Keith Legg, on his arrival in 1975, was to develop the Polytechnic into a large and complex institution, which would produce much needed manpower to assist in the growth of the economy.\(^1\) In 1977/78, the enrolment target was 7,650 full-time equivalent students,\(^2\) and by 1982/83 there was a total of 24,831 students (by head-count) on roll\(^3\) after a number of technician courses had been transferred to the technical institutes (see Table 21).

In fact, after the Polytechnic Planning Committee was dissolved, in 1971, the task of advising the Polytechnic Council, the Director and staff, on new programmes to be run, was taken over largely by the Polytechnic departmental advisory committees (see page 36). Proposals regarding developments and expansion are normally prepared by the Director and his staff, for the Polytechnic Council, and they are then put to the UPGC and to the Government for approval.\(^4\)

Technical institutes two to five

A great deal of the initial planning for technical institutes two to five was done by the ITAC Committee on Technical Institutes (see page 113). This Committee consisted of members drawn from industry, educational institutions, and from the Government.\(^5\) In 1969 Ian Grant, the ILO adviser, was also in attendance at many meetings. As a result of its deliberations, the Committee recommended that institutes should be established in the following order (see Table 14).\(^6\)

---

3. Polytechnic records.
Table 14: Proposals by the Industrial Training Advisory Committee for the Establishment of New Technical Institutes

<table>
<thead>
<tr>
<th>Stage</th>
<th>Area to be served</th>
<th>Estimated numbers of registered industrial workers in locality as at September 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hong Kong Island (Morrison Hill Technical Institute)</td>
<td>80,000</td>
</tr>
<tr>
<td>2 (a)</td>
<td>San Po Kong (including Wong Tai Sin, To Kwa Wan, Hung Hom and Kowloon Tong), plus Kwun Tong (temporarily)</td>
<td>178,000</td>
</tr>
<tr>
<td>(b)</td>
<td>Cheung Sha Wan (including Sham Shui Po, Mong Kok, Tai Kok Tsui and Shek Kip Mei), plus Tsuen Wan (temporarily)</td>
<td>160,000</td>
</tr>
<tr>
<td>3 (a)</td>
<td>Kwun Tong (when separated from 2(a) above)</td>
<td>66,000</td>
</tr>
<tr>
<td>(b)</td>
<td>Tsuen Wan (when separated from 2(b) above)</td>
<td>50,000</td>
</tr>
</tbody>
</table>

The three stages of development were, in the eyes of ITAC, listed in priority order, although in 1969, when these recommendations were prepared, Morrison Hill Institute was due to open in September of the same year. These recommendations, which were finalised before the ITAC manpower surveys (see Table 7) were completed, were forwarded to the Government in August 1969.

It can be seen from the above, and from pages 113 to 123, that the case for four additional institutes was based mainly on economic requirements.\(^1\) The question of how many school leavers would like to continue their education in technical institutes, and other aspects of social planning, were never considered in detail. Looking back now, this was not of course right. If these factors had been considered however, even more technical institutes would have been required. For example in 1970/71, at the Morrison Hill Institute, there were 6.2 applications for education in technical institutes, and other aspects of social planning, were never considered in detail. Looking back now, this was not of course right. If these factors had been considered however, even more technical institutes would have been required. For example in 1970/71, at the Morrison Hill Institute, there were 6.2 applications for

---

1. Committee on Technical Institutes, ITAC Paper No.2/69, 195/69 (15)ED(TE)18/3149/69.
every full-time place, and 3.2 applications for every evening course place (see also pages 204 to 208).

The site for the Morrison Hill Institute was chosen, in the mid 1960s, largely because the Technical College was situated in Kowloon, and it was felt, by many of its staff, that a technical institution was needed on both sides of the harbour. As a result, a suitably centrally located site was found, on Hong Kong Island, for the first institute. The sites for the next four institutes were proposed by the Technical Institute Committee, bearing in mind the concentrations of industry (see pages 120 to 123). Consideration was also given to siting institutes within easy reach of resettlement housing estates, where the less privileged live, as it was considered that such people would be more willing for their youngsters to study craft courses and to take up "blue-collar" jobs. At the time, it was felt by the Technical Institute Committee that courses might be under-subscribed if institutes were situated in more affluent districts.

It was eventually agreed, in 1972, by the Government, after the manpower surveys had been conducted, that it would provide five technical institutes (including Morrison Hill), two of which were opened (Kwai Chung and Kwun Tong) in 1975. The fourth (Haking Wong) was opened at Cheung Sha Wan in 1977, and the fifth (Lee Wai Lee) at Kowloon Tong in 1979, although the building was not completed until 1980. It can be seen that the order of establishing these four projects is different to the recommendations in Table 14. The ITAC recommended that Cheung Sha Wan and San Po Kong Institutes should go ahead first, but, because of difficulties in finding suitable sites in these heavily built-up urban areas, Kwun Tong and Kwai Chung institutes were built first. For the same reason,

1. Recollections of past Technical College staff.
2. Extract from His Excellency the Governor's Speech at the Legislative Council on 18th October 1972, pp.1 and 2.
Kwai Chung was substituted for Tsuen Wan (the two districts are adjacent to each other). This change of plans provided time so that a site could be cleared of its occupants in Cheung Sha Wan for the Haking Wong Institute. However, because of a shortage of land and competing claims from other Government departments, it was not possible to find a suitable site at San Po Kong, and, instead, the fifth institute, Lee Wai Lee, was built at Kowloon Tong.

The Committee on Technical Institutes formed an ad hoc working party which drew up a list of proposed courses for the institutes (see Table 15). The ITAC report also recommended that printing, photography, plastic mould-making, and jewellery arts and crafts should be run at Morrison Hill Institute, which was already established. Printing, in fact, commenced at Morrison Hill in 1973, but was transferred to Kwun Tong Institute when it opened in 1975, while jewellery arts and crafts and photography are subjects in the Department of Design at Lee Wai Lee.

The report on the choice of courses was prepared in 1969, and the fifth institute was opened ten years later. During that period, diversification (see Tables 2 and 3) took place in industry. Also, as we saw, because of the availability of sites, the institutes were not built in the order recommended by ITAC. This meant that, because of urgent need, some departments had to be established at an earlier date in other institutes. However bearing these facts in mind, the comparison between the working party's proposals and the actual departments established is not too dissimilar (see Table 15). Indeed the Report included a section dealing with the changing needs of industry. This was always, in fact, kept in mind, and the "spread" and the


Table 15: A Comparison of the Disciplines Proposed by the ITAC Committee on Technical Institutes with the Actual Courses Run in the Institutes

<table>
<thead>
<tr>
<th>Technical institute and date opened</th>
<th>Disciplines</th>
<th>Actual departments established</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kwun Tong (1975)</strong></td>
<td>Textiles and garments Mechanical engineering Electrical engineering Horology and instruments Construction, furniture Business studies Industrial design</td>
<td>Textiles, clothing Mechanical engineering Electrical engineering Printing</td>
</tr>
<tr>
<td><strong>Tsuen Wan (Institute eventually built at Kwai Chung) (1975)</strong></td>
<td>Textiles Mechanical engineering Electrical engineering Business studies Construction</td>
<td>Textiles, clothing Mechanical engineering Electrical engineering Commercial studies Construction (established in 1982)</td>
</tr>
<tr>
<td><strong>Cheung Sha Wan (Haking Wong Institute) (1977)</strong></td>
<td>Garments and knitting Textiles Mechanical engineering Electrical engineering Shipbuilding and ship repairs Business studies and supervisory studies</td>
<td></td>
</tr>
<tr>
<td><strong>San Po Kong (Lee Wai Lee Institute eventually built at Kowloon Tong) (1979)</strong></td>
<td>Garments and knitting Textiles Mechanical engineering Electrical engineering Business studies Hotel and catering Technical teacher and workshop instructor training</td>
<td>Mechanical engineering Commercial studies General studies Design Industrial technology Footwear Optics Metal-finishing Clock and watch repairs Production and industrial engineering</td>
</tr>
</tbody>
</table>

1. Technical Institutes Prospectus 1981-83 (Joint), passim.
2. Ibid., 1983-85, p.96.
rationalisation of courses among the technical institutions (including the Polytechnic) was considered at intervals.¹ For example, a department of construction (the third) was set up in the Kwai Chung Technical Institute in September 1982, mainly to accommodate part-time day students from the newly opened (the second) Construction Industry Training Centre (see page 155).²

Views on technical institute planning

With the benefit of hindsight, perhaps the biggest error regarding planning the institutes was establishing two departments of clothing and two departments of textiles (see Table 15).³ While such a need appeared to exist in the late 1960s and the early 1970s, the textile industry has since declined and students are not now so keen to join such a department (see page 210). Also, to make matters worse, in addition to the large Institute of Textiles and Clothing at the Polytechnic, off-the-job training centres have been established (see page 155), with the result that technical education and training for these industries are now overprovided. At present, one department of textiles and one department of clothing would have been sufficient in the technical institutes.

Also, in the Department of Industrial Technology at the Lee Wai Lee Institute, the courses in metal-finishing, optics, clock and watch repairing, and footwear have not been entirely successful.⁴ For example, as for the ship and boat-building courses at Haking Wong Institute⁵ and, to some degree, the printing courses at Kwun Tong⁶, while it is

². Technical Institutes Prospectus 83-85, p.96.
³. Tsang and Mo, discussion with author, op.cit.
⁴. Cameron, discussion with author, op.cit.
⁵. Bray, discussion with author, op.cit.
⁶. Devereux, discussion with author, op.cit.
possible to recruit students for full-time studies (although there is a low applicant-to-place record) who, later, are able to find employment, industry will not, in the main, support day-release in these fields. It is also often difficult to recruit teachers with suitable qualifications and experience. Improvements may come with time, although again the position can be affected with the setting up of off-the-job training centres. Because of the above factors, it would probably have been better, in the case of, say, metal-finishing, and clock and watch repairing, for students to follow a broad-based engineering course, with modules in specialised subjects.

By contrast, when Lee Wai Lee was being planned in the mid 1970s, manpower surveys did not reveal a need for more electrical and electronic courses. Today, however, there is a definite demand.

The above are examples where funds could have been better employed, although, at the time such decisions were made, it was not apparent in which way industry would develop. Thus the answer again appears to be, where possible, to plan for flexibility to meet changing circumstances. Now that newly-recruited staff in technical institutes are no longer civil servants, but are recruited by the VTC on less permanent terms, it should be easier to close down a course or department.

How many institutes needed?

As previously mentioned, the Government decided to wait until ITAC had conducted manpower surveys in the ten major manufacturing industries before making a final decision on building four more institutes. These figures were then set against the output of students from the Technical College and the Morrison Hill Institute. This is illustrated in Table 16.2 This shows that there was a deficiency of places, based on 1971 graduation figures, of 2,601 technician

1. Cameron, discussion with author, op.cit.
### Table 16: Deficiencies in Technical Education Places for Technician and Craft Students in Ten Major Industries

<table>
<thead>
<tr>
<th>Industrial committee</th>
<th>Technicians: Numbers graduating from the HKTC or MHTI annually</th>
<th>Craftsmen: Numbers graduating from the HKTC or MHTI annually</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1970 FT HD OD PTDR PTE Total</td>
<td>1971 (estimates)</td>
</tr>
<tr>
<td><strong>Automobile repairs</strong> and servicing</td>
<td>- 7 - - - 21 21 -</td>
<td>649 26 19 - 13 32</td>
</tr>
<tr>
<td>Building</td>
<td>217 397 37 27 20 355 439 170</td>
<td>807 106 144 - 72 216</td>
</tr>
<tr>
<td>Clothing</td>
<td>570 - - - - 570</td>
<td>439 - - - -</td>
</tr>
<tr>
<td>Electrical apparatus and appliances</td>
<td>141 135 25 30 15 61 131 96</td>
<td>1,649 37 51 - 14 65</td>
</tr>
<tr>
<td>Electronics</td>
<td>567 80 54 30 - 61 145 537</td>
<td>1,100 57 66 - 32 98</td>
</tr>
<tr>
<td>Machine-shop and metal working</td>
<td>209 337 35 29 29 180 316 108</td>
<td>1,825 91 100 - 81 221</td>
</tr>
<tr>
<td>Plastics</td>
<td>473 97 31 - - 83 114 473</td>
<td>587 - - - -</td>
</tr>
<tr>
<td>Printing</td>
<td>125 - - - - 125</td>
<td>1,125 - - - -</td>
</tr>
<tr>
<td>Shipbuilding and ship repairs</td>
<td>45 52 - 16 - 14 30 29</td>
<td>421 - - - -</td>
</tr>
<tr>
<td>Textiles</td>
<td>547 113 56 54 - 44 154 493</td>
<td>1,055 - - - -</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,894 1,218 238 229 64 819 1,350 2,601</td>
<td>9,657 317 380 - 212 632</td>
</tr>
</tbody>
</table>

**Abbreviations:**
- HKTC = Hong Kong Technical College
- MHTI = Morrison Hill Technical Institute
- HD = Higher Diploma Course
- PT = full-time course
- PTDR = part-time day-release course
- OD = Ordinary Diploma Course

**Note:** See pages 378 and 379 for 1984 supply and demand figures
students and 9,657 craft students (see pages 378 and 379 for 1984 supply and demand figures). It was intended that the main mode-of-study should be part-time day release.\(^1\)

The case for additional technical institutes was agreed on the following lines.\(^2\) The submission was based on statistics gathered from 1967 to 1970, by ITAC, when the total labour force in the ten major industries surveyed was in the region of 410,000 (see Table 7). It was obviously not possible accurately to forecast how the labour force would develop from 1972 onwards, but further growth depended, to a large extent, on an improvement in manufacturing efficiency coupled with a higher degree of technological sophistication. These conditions, in addition to demanding better qualified technicians and craftsmen, possibly in increased proportions to the overall size of the working population, would affect the rate of growth of the labour force, as the development of more sophisticated industries produces a further shift from labour intensive to more capital intensive methods.

It is significant to note that the increase in size of the manual labour force, including craftsmen and technicians, during the year ending March 1972, over the previous year, was only 0.39 per cent (see Table 6), but the figure of 545,000 represents an increase of 33 per cent over the 410,000 (see Table 7) employed in industry, in 1969, when ITAC made its recommendations on the number of institutes required. It was, it was argued, reasonable to update the ITAC estimates of annual demand for 2,900 (rounded) technicians and 9,700 (rounded) craftsmen (see Table 5) by applying a simple multiplying factor based on the growth of the workforce. It would also appear reasonable


\(^2\) D.D. Waters, A Series of Papers on The Planning, Establishing and Running of Technical Institutes in Hong Kong, Paper One - General (September 1972), pp.5-7, paras. 7.3 to 7.9.
to assume that these estimated annual requirements would not diminish.

Indeed in paragraph 3.43 of the ITAC Final Report (1971), the point is made that then the manpower surveys dealt with the industrial sector only, leaving the commercial and service sectors relatively unexplored. Yet the need for technical education in these areas is also important, as they too contribute substantially to Hong Kong's prosperity. There is therefore good reason to suppose that, if a survey of these sectors had also been undertaken in the late 1960s, including for example in hotels, catering and tourism establishments, the results would have shown a demand for technical education which, if added to the ITAC estimate, would have substantially increased the total requirements.

The need for more technical institutes was then argued by ITAC as follows. Using the multiplying factor of 33 per cent indicated above (to update the ITAC figures from 1969 to 1972), and assuming that new institutes would approximate in size to those already approved, and that technical education would be undertaken largely through part-time day classes, the total requirement would be for eight technical institutes calculated as below. This assumes the Polytechnic would cater for the technician education needs for 65 per cent of manufacturing industry's requirements, and that 85 per cent of all courses would be industrial and run on a part-time day release basis (one day and two evenings a week), the remaining 15 per cent being commercial and service industry courses. Also, the assumption was made that courses for technicians and craftsmen would be of four and three years' duration respectively.

The number of technical institute places required for technician students would then be (see Table 16) ¹

The number of additional technical institutes of approximately 1,300 (the original size of Morrison Hill Institute) full-time equivalent places (6,500 part-time day release places) each would therefore be \( \frac{32,612}{6,500 \times 0.85} \approx 6 \) approximately. Taking account of the increase of 33 per cent in industrial personnel since the shortfall in technical education was estimated by ITAC, in 1969, and by applying the simple multiplying factor, the need became 33 per cent higher. Therefore, it was estimated, eight technical institutes were required.

In Table 16 the figure of 2,601 is obtained by subtracting the number of students graduating from the full-time, ordinary Diploma courses and part-time day courses, at the Technical College and Morrison Hill Institute, from the number of additional technicians required.1 (It is recognised that a proportion of Higher Diploma graduates will later become technologists). The figure of 9,657 for craftsmen is obtained by subtracting the number of students graduating from the part-time day courses (graduates of the one-year, basic, craft courses require on-the-job training before becoming fully-fledged craftsmen, and evening only students are, generally, already working in industry) from the number of additional craftsmen required annually. Students graduating from the upgrading, endorsement or short courses have not been included in the output figures as they are already "qualified".

It is relevant to note, however, that the ITAC calculations, as given above, did not take proper account of the not then fully developed Morrison Hill Technical Institute which was, in 1971, in its first academic year of operation in its own premises. The calculated need should therefore have been, approximately, an additional five and an additional seven technical institutes respectively, and not six and eight as quoted above. It can be seen from the above that the calculations regarding the

1. Ibid., p.95.
number of technical institutes required were reduced to simple arithmetic, and, in practice (see pages 133 and 134), supply would never so neatly balance demand. Also, as can be seen from Table 6, the increase in the number of workers in industry varied considerably from year to year: from 0.39 per cent in 1971/72, to 18.1 per cent in 1963/64.

The total number of institutes required

Until the "Working Party Report on Senior Secondary and Tertiary Education"¹ was finalised, in 1977, it was accepted that a total of eight technical institutes would be needed. That is a further three in addition to the five already completed by 1980; and, in 1973, it was proposed that these three should be built in Shatin, Tuen Mun and Tsuen Wan (the previous institute proposed for Tsuen Wan had been constructed in Kwai Chung instead (see page 162)), all in the New Territories.² It was, in fact, suggested that the Shatin Institute should be completed by 1978/79, when the population was estimated to have become 233,000; that Tuen Mun Institute should also be completed by 1978/79, when the town had grown to 190,000; and that Tsuen Wan Institute should be completed in 1979/80, when the population was 733,000. A second paper, prepared in 1975, proposed that approval should be given for Shatin Institute to be completed by September 1979/80, Tuen Mun by September 1980/81, and Tsuen Wan Institute by September 1981/82.³ Policy clearance was however delayed, and events were overtaken by further recommendations as we shall presently see.

When proposing that additional institutes should be established, great care was always taken to stress that they would only be built if the first five institutions were well supported by industry,⁴ by its employment of the

full-time graduates, and by its sponsoring of apprentices on part-time day courses. Again the emphasis was on industrial requirements, and little mention was made of social needs. It was also stated that, if Hong Kong had eight institutes by 1980 (which it did not), with an estimated population of 4,770,200 (the actual figure was approximately 5.1 million), this would mean one institute for about 600,000 people. Although a direct comparison cannot be made because the technical institutes concentrate on vocational courses, nevertheless Britain appears to have a more favourable ratio (see pages 189 and 190).

Not everybody agreed that a total of eight institutes was needed. Houghton said, in 1971, ... it appears that at least ten technical institutes of the size of the Morrison Hill Institute will be required.

He had in mind, however, an institution on the lines of a college of further education in Britain, which, as he proposed, should also run non-vocational courses. This latter proposal was not agreed to by the Director of Education. If it had been, then the original ITAC figure of eight institutes would (if non-vocational courses had also been run) probably have needed to have been increased to nine or ten. No details are given in the Houghton report as to how the figure of ten was arrived at.

A considerable amount of work was done on a Technical Education Programme plan the drafting of which commenced in November 1974. The whole exercise was, however, aborted in September 1976, and it was replaced by

3. Houghton et.al., Report on A Visit to Hong Kong ... op.cit., p.52, para.2.37.
4. Ibid., p.54, para.2.45.
5. Working Party Report ... op.cit., p.55, para.4.27.
the previously mentioned Working Party Report on Senior Secondary and Tertiary Education which was completed in May 1977. The main reason for this was that the Director of Education felt a report covering the whole of secondary and tertiary education would be of more use than a document covering technical education only. One of the drafts of the aborted Technical Education Programme Plan, however, estimated that, by 1984, 13 technical institutes would be required. Nevertheless, these were again proposed to be similar to the colleges of further education in Britain, running, in addition to vocational programmes, non-vocational and general education courses. A later version of the Programme Plan concluded that six technical institutes, running vocational type courses only, would be required by 1984.

The 1978 White Paper also made a similar recommendation, and, as a result, the sixth technical institute, at Tuen Mun in the New Territories, will come into operation in 1986. This document, which was a statement of intent by the Government, also proposed that extra storeys and annexes should be added to existing institutes. It was made clear that these proposals depended on, ... the support given by industry to the earlier institutes and if a local institute is required to support the developing industries in the vicinity of Tuen Mun.

Another proposal, made by the Working Group on Higher Education in 1980, was that two more technical institutes should be built, making a total of eight. The

2. Technical Education Programme Plan, Revised Draft; Stage VI (July 1976), p.VI.17.
4. Ibid.
same figure was also quoted by the "Topley Committee", in 1981. It is interesting to see that this figure of eight is the same as the original ITAC figure, in 1971 (see page 170). The only difference, of course, is that ITAC envisaged having the institutes functioning in the latter half of the 1970s, whereas in practice they will not all come into being until 1987. This is because the Government was not convinced that eight technical institutes were required in the 1970s and thus the whole programme was delayed.

H. Knight, Deputy Executive Director of the VTC, feels that six institutes is about right (in the mid 1980s), if the need is based on the immediate requirements of industry, including apprentices and part-time day courses. He maintains, probably correctly, that Hong Kong's industrial growth will not go on at the 1970s rate indefinitely, and that the hand over of the Territory from Britain to China, in 1997, is having a "slowing down" effect. It is true that, because of the uncertainty, people are not at present investing in Hong Kong to the same extent as in the past. However, now that a "good agreement" has been reached between Britain and China, the position can change rapidly (see page 375).

In turn H. Cameron, Principal of the Lee Wai Lee Technical Institute, is of the opinion that approximately ten institutes are required. Nevertheless he says they should have a broader role, rather than just running courses to satisfy the immediate need of industry as envisaged by Knight, that is to say they should also run non-vocational courses.

Taking a more optimistic view, Legg feels that we will need to at least double our 1981 tertiary education provision by the early 1990s if we are to meet our economic

2. H.R. Knight, discussion with author, op.cit.
3. H. Cameron, discussion with author, op.cit.
and social commitments. This should lead, eventually, to Hong Kong taking its place alongside the developed countries of the world (see Table 27 and pages 306 and 307).

Legg also questions whether it is wise to go on providing more and more places in secondary schools, which are largely geared to university entrance, for which suitable employment does not exist. A better solution would appear to be to limit the senior secondary school places and to provide more alternatives, such as technical institute courses and non-formal "education", such as courses in training centres. If, however, there is to be an alternative route for students who complete form-three in secondary school, so that, instead of following the senior-secondary path in form-four and form-five, they complete a two-year, full-time technical institute course covering both academic and technical subjects (see page 194), additional institutes would be required. For instance, if only 5,000 (approximately six per cent) of the form-three leavers were to follow such a path each year, then five additional institutes, each with a capacity of 2,000 day students, would be needed. As an alternative, to make the scheme more economical, linked courses could be run jointly by institutes and schools. This would probably be the better solution.

Thus a figure of ten technical institutes, by 1990, would seem a reasonable one to aim for as this lower echelon of technical education (see pages 187 to 192) is very important, and provision should be made for still more


institutes to be established in the 1990s depending upon policy and actual needs at the time of planning.

The size of technical institutes

Any discussion of the number of institutes required must, of course, also consider their size. In this context, if every student-place is occupied, then this will give the maximum theoretical student-capacity. Such a figure is of limited use as, even if a class is full at the start of a course, there will always be students dropping out because they fail examinations or for domestic or other reasons. Also, it will not be possible for all teaching rooms to be utilised for 100 per cent of the time (see pages 334 to 336). For example, some special rooms may be necessary in order adequately to cover a syllabus, even if their utilisation is low. Owing to these factors, if the maximum practicable student-capacity is approximately 80 per cent of the theoretical student-capacity, then this can be considered as very satisfactory. However the aim in the past, in Hong Kong, has sometimes been for 85 per cent utilisation.

Again, when discussing the size of a technical institution, it is possible to have two of the same physical size and yet for one to hold more students than the other. For instance, the average workshop needs to be larger than a classroom, for the same number of students, because of the equipment and the students' exercises involved. Assuming that full-time craft courses consist of 50 per cent of the time in workshops and 50 per cent in other accommodation; and that full-time technician classes consist

2. Capacity and Build-up of Technical Institutes, Technical Education Branch Administrative Circular: TI 1/77 (18 January 1977), ED(TE)2/6704/67; and General Observations on PTIs Returns on the Projected Utilisation of Teaching Accommodation (June 1979), passim; and Capacity and Build-Up of Technical Institutes (21 October 1976), (3)ED(TE)2/6704/(67).
of 35 per cent practical work and 65 per cent theoretical work; then, correspondingly, the more craft courses that are run, the larger the institute will have to be. In a similar way, more space will be required for engineering classes than for commercial courses. In other words, the student capacity of an institution will vary depending on the courses run.

The Committee on Technical Institutes recommended, in 1969, that,

.... Hong Kong's needs could best be met by having a number of fairly small institutes for about 1,000-1,200 places ....

This would, however, appear to be on the small side (see pages 177 and 178). The Morrison Hill Technical Institute building was completed, in 1970, for about 1,300 to 1,400 full-time equivalent students. However, when the additional floor was added to the workshop wing, which was finished in 1974, this increased the capacity to about 1,500. The actual mix - that is to say the number of full-time, to block-release, to part-time day release - will vary, and thus the number of students attending, by headcount, considerably exceeds this figure. For planning purposes the notional numbers in Hong Kong have often been assumed as 960 full-time, 2,800 part-time day, and 4,000 evening only (the last with the help of external centres (schools)) students in each institute. Technical institutes two to five all had, when they were first completed, full-time equivalent student capacities of about 1,500. With the addition of the Victoria Technical School annexe (which until 1957 was the old Technical College) to the Morrison

3. (1)TI/1/5 (24 May 1971); and (18)2/6692/64IV (7 August 1974).
4. Brief Details of Technical Institutes as at 27 August 1980, ED(TE)125/1.
5. Ibid.
Hill Institute, in 1981, this brought its full-time equivalent student capacity to approximately 2,100. (Some of this accommodation is occupied by the Technical Teachers College.)

In a similar way, an annexe and an extra floor have been added to the Lee Wai Lee Technical Institute, which were both completed in 1983. A water-front annexe (for yacht and boat building), completed in 1982, and a five-storey annexe, which should open in 1985, have also been, or will be, added to the Haking Wong Institute. This means that the maximum practicable capacity of the other four institutes, with their additional floors and annexes, as at 1985, amount to a total of about 7,200 full-time equivalent day students.

From the above, it can be seen that there has been a tendency for institutes to become larger over the years. This move also applies to other parts of the world, including Britain. There, colleges have not only tended to become larger, but have also combined, sometimes with polytechnics or universities.

Not everyone has been in favour of increasing the size of institutes in Hong Kong, and Principal Bray, of the Haking Wong Institute, wrote, in 1978,

I should not like to see technical institutes being developed or created which are too big.

Bray appears to imply that the then figure of about 1,500 full-time equivalent students was, in his view, about right, but that over 2,000 was too large. His reason for writing this appears to be that he felt the student amenities and

2. Ibid., pp.24 and 53.
3. Ibid, passim.
administrative facilities and back-up could be overloaded, and that a student has a greater sense of belonging in a smaller institution, and that he is less likely to lose his "identity" than with a larger student population.

Legg's view, however, is that small institutions are not so economic and usually suffer from isolation, and that a well planned integration of a number of small institutions on one campus is preferable, especially in a place like Hong Kong where land is a valuable commodity. Legg also maintains that the Hong Kong Polytechnic (see Table 21) is over twice as large as the average British Polytechnic and "it functions as well, if not better, than they do". There is no doubt there is a great deal to be said for larger, higher-level institutions, such as polytechnics, as this makes for greater flexibility and economy in use.

With a technical institute in Hong Kong, or with a college of further education in Britain, however, which generally enrol a larger proportion of younger (craft) students, there is no doubt that they should not have so many students as universities or polytechnics. However, the original figure recommended by ITAC, for each institute to have a capacity of from 1,000 to 1,200 students, was too small, and the move to make them larger, in some cases now taking over 2,000 students each, has been correct. In this way, more capital and recurrent expenditure are available, and an institute is able to purchase and better able to utilise equipment and facilities, and to engage specialist teachers. Also, with the average technical institute being divided into five or so separate departments, the "unit" is still not so large that a student loses his identity: Indeed Devereux, Assistant Director (Technical Education), feels that, in addition to institutes being designed to accommodate

1. Legg, discussion with author, op. cit.

more students, it would be better if they had only four
departments, instead of the five or more as at present. While this may not always, in practice, be possible when
more disciplines have to be covered, it would provide larger
departments and thus, again, greater flexibility could be
achieved.

Possible roles for institutions

In the same way that giving the numbers of technical
institutes required without giving their student capacity
has limited meaning, so too has supplying this information
without prescribing their roles. As already described
(see page 31), the main task of the institutes is to provide
technical education for both craft and technician students.
It has never been disputed that the institutes should run
most of the craft courses in Hong Kong, although a limited
amount of work has been done by a few non-government
institutions, such as Caritas the Roman Catholic social service
organisation. Also, it has never been proposed that
institutes should run courses for technologists, and these
are left to the two universities and the two polytechnics.
The debatable area has always been technician education and
how such courses should be divided between the polytechnics
and the technical institutes.

The Morrison Hill Institute was planned to run
both craft and technician courses. It was however argued,
in 1968, by S.Z. Sung, the Principal of the Technical
College, and Ian Grant, the ILO consultant, that the
division of work between the Technical Institute and the
Technical College (later the Polytechnic) should be for the
Institute to run craft courses only, and for the latter to
run all the technician classes. It was stressed by them

1. Devereux, discussion with author, op.cit.
2. Information on Caritas Continuing and Adult Education
Service, Caritas Hong Kong (circa 1980), passim.
3. Proposal of a Technical Institute, revised (September
1964), passim.
4. Minutes 20th Heads of Departments Meeting (Technical
College)(21 March 1968), Minute 112; and Ian Grant,
Morrison Hill Technical Institute (17 July 1968),
para.8.
that craft courses were a large and important area of work which would keep institutes fully occupied. There was something to be said for this argument as, over the years, there has been a certain amount of overlap, in the administration of technician courses, between the technical institutes and the Polytechnic. In some cases applicants earmarked for institute courses have accepted instead places at the higher-level institution. In other instances a greater degree of rationalisation of technician courses, between the two types of institutions, would, no doubt, have been beneficial in that certain similar courses would not have been run in so many different institutions, and thus both teachers and equipment could have been more economically deployed.¹

The Principal of the Technical College, H.K. Watt, made his recommendation that both craft and technician courses should be run, in the Technical Institute, in 1964, and, by 1968, it would have been difficult to change the policy as the Institute building, then under construction, had been so planned, and equipment was already on order.²

The advantages of running technician courses in institutes included the fact that, under Government policy, more senior staff could be recruited, and more resources, for example finance, could be made available.³ It can also be argued that, for lower-level technician courses, there should be more stress on practical work and, for this reason, students stand to gain if such programmes are mounted in the same institution where craft courses are also run, as there are many workshops, and emphasis is placed on the practical side of technical education. Also, future technicians and craftsmen learn to relate to one another. Hammond and Gailer, who both came to Hong Kong, separately, to advise

¹ Education Department and Polytechnic 30th Liaison Committee Meeting (29 May 1979), p.3 of Minutes.
³ Ibid., passim.
on the Technical Institute, agreed that some technician courses should be transferred from the Technical College to the Morrison Hill Institute.¹

Indeed Gailer made another proposal: that separate centres should be established to carry out basic craft work, leaving the technical institutes to concentrate on "technician training at the lower level".² Such a scheme would have been similar to Singapore, where craft students attend training institutes and centres, and technician students attend the Polytechnic, vocational and technical institutes, or the Ngee Ann Technical Institute.³ This method has the advantage that there is a clear division between craft and technician work and thus no overlapping.

Another suggestion was that full-time Diploma students, in Hong Kong, should attend the first year in the Technical Institute and the second year in the Technical College. Although this suggestion was not agreed to because of dichotomy, it is not unlike many part-time courses now, where students attend technical institutes for their Certificate courses and the Hong Kong Polytechnic for their Higher Certificate programmes.

It was finally decided by the Director of Education, in July 1969, for reasons outlined on page 180, that the Morrison Hill Institute would run technician courses.⁴ This system, with the technical institutes running both types of programmes, has generally worked well. It is a similar arrangement to that pertaining in Britain and the United States where, in the former case, colleges of further education, and, in the latter, junior colleges, run both craft and technician courses. Indeed in these countries too, such a system appears to work well.

---

2. Ibid., pp.2 and 3.
4. (2)ED(GR)1/18/4605/68 (2 July 1969); and TC/B3/54/66 (16 June 1969).
However, turning to Hong Kong; having decided that technical institutes would run both craft and technician courses, it was then necessary to decide what proportion of the latter should be run in the institutes, and what proportion in the Polytechnic. We have already seen (page 168) that, in 1971, ITAC recommended that 35 per cent of technician education should be provided in the technical institutes, and the remaining 65 per cent in the Polytechnic. The Polytechnic has never opposed the idea that institutes should run technician courses, and the intention has always been that, in addition to Associateship (one-year post Higher-Diploma), Higher Diploma and Higher Certificate courses, the Polytechnic should run some (two-year full-time) Diploma and some Certificate courses.

A proposed division of work between the technical institutes and the Polytechnic, on the above lines, drawn up by ITAC in 1969, is illustrated at Table 17. This division was accepted, in principle, by the Government, and in the early 1970s some courses, such as one-year commercial courses and a few craft courses which were not transferred in 1969 (for example radio and television) were later transferred to the institutes.

During the mid 1970s, many institute staff felt that more technician courses should be run by the institutes largely because it gave them enhanced status. However, the Working Party on Senior Secondary and Tertiary Education, in 1977, took the view that the Polytechnic had developed rapidly, and that as a result of the large number

---

2. Final Report of the Polytechnic Planning Committee (July 1971), p.3, para.15(c) and (d).
3. Committee on Technical Institutes, ITAC, 6th Meeting (5 August 1969), agenda item 3.
5. Eg. H. Cameron, The Out-Turn of Students from the Technical Institutes, the Polytechnic and the HK University, draft (October 1976), passim.
### Table 17: Division of Courses Between the Future Polytechnic and the Technical Institutes Proposed by ITAC in 1969

<table>
<thead>
<tr>
<th>Type of Course</th>
<th>The future Polytechnic</th>
<th>Technical institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-graduate courses</td>
<td>Courses leading to examinations of professional institutions</td>
<td>Secretarial, shorthand and typing courses</td>
</tr>
<tr>
<td>Courses leading to examinations of professional institutions</td>
<td>Degrees (joint with universities)</td>
<td>Ordinary Diploma courses with high craft content</td>
</tr>
<tr>
<td>Degrees (joint with universities)</td>
<td>Endorsement courses at technologist and technician levels</td>
<td>&quot;T&quot; (technician) evening courses (form-four entry level or equivalent)</td>
</tr>
<tr>
<td>Endorsement courses at technologist and technician levels</td>
<td>Higher Diploma (technologist/higher-level technician)</td>
<td>Note: If &quot;T&quot; courses have a high theoretical content, consideration should be given to their being run in the Polytechnic</td>
</tr>
<tr>
<td>Higher Diploma (technologist/higher-level technician)</td>
<td>Higher Certificate (higher-level (engineering) technician)</td>
<td>Craft endorsement courses</td>
</tr>
<tr>
<td>Higher Certificate (higher-level (engineering) technician)</td>
<td>Ordinary Certificate (ditto)</td>
<td>Advanced craft courses</td>
</tr>
<tr>
<td>Ordinary Certificate (ditto)</td>
<td>Ordinary Diploma courses with high theoretical content</td>
<td>Craft courses</td>
</tr>
<tr>
<td>Ordinary Diploma courses with high theoretical content</td>
<td>Courses for &quot;mature&quot; adults</td>
<td>&quot;General&quot; evening courses</td>
</tr>
<tr>
<td>Courses for &quot;mature&quot; adults</td>
<td>All technician level courses with a high-theoretical content</td>
<td>&quot;Preliminary&quot; evening courses</td>
</tr>
<tr>
<td>All technician level courses with a high-theoretical content</td>
<td>Blurred Line due to accommodation and equipment problems</td>
<td></td>
</tr>
</tbody>
</table>

Technical teacher and workshop instructor training

(Note: Consideration should be given, when this department expands, to transferring the technical teacher training to the Polytechnic, but it is felt that workshop instructor training, which has a high craft content, should be left at the Institute. At the moment, technical teacher and workshop instructor training cannot be split owing to the small size of the Department and the few numbers of staff.)
of places there could be too many technologists and technicians and too few craftsmen. It was also decided that all Higher Certificate courses should be run at the Polytechnic, unless facilities were only available in an institute, for example printing and auto-engineering. In this way, institutes could concentrate on producing much needed craftsmen.

The 1977 Green Paper on Senior Secondary and Tertiary Education, which was based on the above Working Party Report, carried this emphasis on craft education a stage further. It recommended that;

About 80 per cent of the day-time places on technically-based courses at technical institutes will be at craft level, with courses at the technician level being provided mainly in the Polytechnic.

The thinking behind this recommendation was that if the Polytechnic and the technical institutes all turned out technicians, too many could be produced, yet there could be a shortage of craft places. Two years later, in 1979, the Diversification Committee shared the view that education for craftsmen should not be neglected. As a result it recommended that,

... the balance of provision between craft level and lower-technician level courses be regularly monitored to ensure that it satisfied the changing manpower requirements of the economy.

The 80/20 craft to technician ratio was adopted in December 1977, and it was planned to reduce ratios in the five technical institutes to approximately these figures by

2. Ibid., p.60, para.4.40.
However, the 1978 White Paper on Senior Secondary and Tertiary Education (which followed the 1977 Green Paper) laid down a countermanding statement regarding the 80/20 ratio. It decreed that Diploma and Certificate programmes should be expanded mainly through the institutes, thus enabling the Polytechnic to concentrate on programmes at the higher technician and technologist levels. It was pointed out that the institutes should be able to operate on a more cost-effective basis than the Polytechnic (see Chapter 6), and should be able to "inject" a good complement of practical work into the courses.

Care was taken however in the White Paper, quite rightly, to mention that, their (the technical institutes) prime function will remain the provision of craft-level courses... Although the 80/20 ratio was phased in, commencing September 1978, only to be modified a few months later, the institutes' staffs did not complain, as most felt that running more technician programmes would give them added prestige.

Legg, Director of the Polytechnic, is also of the opinion that, academically, the best dividing line between the polytechnics and the technical institutes is for the former to conduct Higher Diploma and Higher Certificate programmes and above, and for the institutes to run Diploma, Certificate and lower-level courses. It is apparent, however, that such a system does generate some

3. Ibid., p.16, para.6.10.
problems. For example to optimise costs, it is sometimes better to combine a limited number of Diploma and Certificate classes with higher-level work, in a single location. Furthermore, there is evidence to suggest that some school leavers who apply for a polytechnic place, will not accept a technical institute, for status reasons, as a second choice. It is presumed that such applicants either go out to work or continue their studies elsewhere.

It can thus be seen (pages 179 to 186) that a variety of proposals, regarding the division of courses between the Polytechnic and the technical institutes, has been considered in the past. It was, however, eventually decided that the bulk of the Certificate and Diploma courses should be run by the technical institutes, and that the polytechnics should concentrate on Higher Diploma and Higher Certificate work and above. Therefore, largely because of the transfer of the Hong Kong Polytechnic technician courses to the technical institutes, in the first half of the 1980s (see page 249), the craft to technician ratio was changed to 60/40. However, bearing in mind that the industrial scene can change quite quickly, it would be wrong, it is felt, to adhere too rigidly to this 60/40 ratio, and provision should be made to adjust it if the need arises.

"Institutes of excellence" and monotechnics

While on the subject of upgrading technical institutes, at one stage it was suggested that, with the Polytechnic proposing to undertake some degree work, a vacuum could develop between it and the institutes, and this could be logically filled by one of the latter becoming a "centre of excellence". Indeed one idea that was

1. Ibid.
2. Hong Kong Polytechnic Triennial Academic Plan 1981-84, pp.3 and 4; and Helmore, op.cit., Appendix 2, p.1; and ED(TE)110/1 (March 1980).
4. H. Cameron, discussion with author, op.cit.
5. (21)ED(TE)2/6704/67II (29 September 1976), para.6; and D.D. Waters, Technical Education in Hong Kong (October 1976), paras.45.1 to 45.3.
proposed, albeit by laymen, was that Hong Kong would be better off building bigger institutes, with the possibility that one may eventually evolve into "a second polytechnic, possibly degree-awarding." The idea was never treated too seriously. If one institute, say Morrison Hill, became a "centre of excellence", and its five teaching departments, namely commerce, construction, electrical, mechanical and general studies, were upgraded, what would happen to other disciplines in other institutes also in need of upgrading? For example, there might be a need to run a Higher Diploma course in printing at Kwun Tong, because this discipline is only run there and not at the Polytechnic as there is not sufficient work in this field for more than one institution. It was later considered that it would be better to have the new City Polytechnic custom-built for higher-level courses, rather than upgrading one or more technical institutes. Such reasoning appears sound.

Another proposal was that the Hong Kong Government should consider setting up a monotechnic for commercial subjects. However, monotechnics appear to be losing favour around the world, as students gain by mixing with their counterparts in other disciplines. Also, with a single institute of commerce in Hong Kong, this could involve excessive travelling by students. However since then, the private Hang Seng School of Commerce opened, in 1980 (see pages 26 and 28). In this case, the Hang Seng Bank is not interested in running courses other than in commerce.

The polytechnic/technical institute profile

On various occasions it has been suggested that the Hong Kong technical education system is top-heavy, and that there are too few students in institutes compared to

3. Hang Seng School of Commerce Official Opening by His Excellency the Governor Sir Murray MacLehose, GBE, KCMG KCVO (12 February 1981), passim.
the polytechnics. 1 For example, based on the manpower profile for the entire labour force (see pages 139 and 140), for every technician place available in an institution, there should be approximately 2.8 craft student places. 2

It has to be remembered however that, because of the larger proportion of practical skills needed for a craftsman (see Figure 6), it is not difficult to learn a trade entirely on-the-job, and indeed this is still common practice in Hong Kong. On the other hand a technician needs a larger proportion of theoretical knowledge, and therefore attendance at a technical institution is more important for him. For similar reasons part-time day release (say ten hours a week), where study is undertaken while a person is in employment, is a satisfactory way to become a craftsman. Conversely, for a technician student, who has more theoretical content in his course than a craft student, there is much to be said for full-time (say 30 hours a week) or block-release attendance. For the above reasons, it would appear not necessary to adhere strictly to a ratio of one full-time equivalent (FTE) technician place to 2.8 FTE craft places.

In 1971/72, the Technical College had 1,700 full-time, 740 part-time day, and 9,340 part-time evening (total 11,780) students (see Table 18). 3 By comparison the one institute, in the same year, had 710 full-time, 809 part-time day, and 8,964 part-time evening (total 10,483) students on roll. 4 By 1981/82, the Polytechnic figures were 7,930 full-time, 4,680 part-time day, and 13,300 evening only (total 25,910) 5 students, compared to 3,516 full-time, 10,096 part-time day, and 16,651 evening only (total 30,263) 6 students in the five institutes.

1. D.D. Waters, Ratio of Students in Polytechnics to Students in Technical Institutes (20 February 1970), (8)TI/83/3II.
3. Hong Kong Polytechnic Annual Report 1972/73, p.3.
4. ED(TE)114/1 (May 1980).
5. Polytechnic records.
6. Education Department enrolment statistics.
Table 18: Comparison of Numbers of Students in the Technical College/Polytechnic and the Technical Institutes

<table>
<thead>
<tr>
<th>Mode of study</th>
<th>Technical College/Polytechnic</th>
<th>Technical institutes</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971/72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>1,700</td>
<td>710</td>
<td>One</td>
</tr>
<tr>
<td>Part-time day</td>
<td>740</td>
<td>809</td>
<td>technical</td>
</tr>
<tr>
<td>Part-time evening</td>
<td>9,340</td>
<td>8,964</td>
<td>institute</td>
</tr>
<tr>
<td>Total</td>
<td>11,780</td>
<td>10,483</td>
<td></td>
</tr>
<tr>
<td>1981/82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>7,930</td>
<td>3,516</td>
<td>Five</td>
</tr>
<tr>
<td>Part-time day</td>
<td>4,680</td>
<td>10,096</td>
<td>technical</td>
</tr>
<tr>
<td>Part-time evening</td>
<td>13,300</td>
<td>16,651</td>
<td>institutes</td>
</tr>
<tr>
<td>Total</td>
<td>25,910</td>
<td>30,263</td>
<td></td>
</tr>
</tbody>
</table>

Note: See Table 43 for 1984/85 figures.

In 1981/82, approximately 38 per cent of the students in the technical institutes were studying at technician level and 62 per cent at craft level. However, only just over one per cent (275) in the Polytechnic were pursuing technologist courses (counting all Higher Diploma students as higher technicians), while the remainder were at technician level. This means that in the Polytechnic and the institutes, in 1981/82, there were approximately 37,135 students on technician programmes and only 18,763 on craft courses. In other words the "pyramid" was reversed.

By comparison England, in 1981/82, had 29 polytechnics and 493 other major further education establishments. At the same time, there were 421,000

---

1. Education Department records.
2. Education Department Annual Summary 1981-1982, pp.60 and 61.
3. The Polytechnic Development Plan (11 February 1976), ED(TE)133/73, p.1 and Appendix.
students attending advanced courses and 3,122,000 attending non-advanced courses, on either a full-time, sandwich, part-time day or evening basis, in further education establishments (excluding universities and schools). That is a ratio of approximately one to 7.4. It is agreed, however, that it is not a straight comparison because polytechnics and technical institutes in Hong Kong concentrate on vocational courses, while the figures for England include general education courses and cultural and leisure activities. For example, of the 3,122,000 students mentioned above, only about 1.4 million were on courses which led to recognised qualifications. Nevertheless there is no doubt that, in England, the mass of the students are studying in the lower-level institutions.

Turning now to Table 19: this shows that in 1979/80, Hong Kong's five technical institutes and the one Construction Industry Training Centre had 14,411 craft students/trainees on roll, compared to 10,459 craft students/trainees in Singapore.\(^1\) Because Singapore does not separate technical education from training, as does Hong Kong, and often provides it in the same institution, it has been necessary to include the trainees from the Construction Industry Training Centre in Hong Kong in the above figures. In addition, there were 32,724 technician students in Hong Kong compared to 12,106 in Singapore. Thus, of the above, Hong Kong had 30.6 per cent at craft level compared to Singapore's 46.4 per cent. It should be noted from Table 19 that the grand total of 47,135 student places for Hong Kong is not too dissimilar to Singapore (22,565), bearing in mind our population (5,017,000) is more than double theirs (2,360,000) (see also page 124). Nevertheless, it can be seen that the latter concentrates more on full-time study than does Hong Kong.

---

Table 19 : A Comparison of 1979/80 Craft and Technician Enrolment Statistics in Hong Kong and Singapore

<table>
<thead>
<tr>
<th></th>
<th>Hong Kong</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Craft-level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>1,578</td>
<td>8,715</td>
</tr>
<tr>
<td>Part-time</td>
<td>12,833</td>
<td>1,744</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14,411</td>
<td>10,459</td>
</tr>
<tr>
<td><strong>Technician level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>7,391</td>
<td>8,561</td>
</tr>
<tr>
<td>Part-time</td>
<td>25,333</td>
<td>3,545</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32,724</td>
<td>12,106</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td>47,135</td>
<td>22,565</td>
</tr>
<tr>
<td><strong>Population</strong></td>
<td>5,017,000</td>
<td>2,360,000</td>
</tr>
</tbody>
</table>

Although two more technical institutes will open in 1986, and a third in 1987, these will still only provide approximately a further 6,600 full-time equivalent student places; whereas the City Polytechnic is expected to have 8,000 full-time equivalent students on roll by 1994/95 (and capable of expansion to 13,500 in the longer term) with not more than 30 per cent of these at degree level. From the above figures it appears that the imbalance will continue.

The acting Executive Director, H.R. Knight, of the VTC said, in 1982, that,

... in order to have a balanced technical education structure there is a need to provide more places at the lower level.

In this context it is pertinent to point out that the Llewellyn report reads:

---

1. Technical Institutes Prospectus 83-85, passim.
From the point of view of manpower alone, expansion of the technical institutes... would seem to us to be (a) clear priorit(y).¹

Thus, from the situation outlined above, and in order to keep the technical education profile in equilibrium with the manpower profile, it would appear that more technical institutes are indeed required (see pages 170 to 175).

Levels of entry to technical courses

The recognised entry standards, since the mid 1960s, have been completion of nine years of general education (form-three) for craft courses, and 11 years (form-five) for technician courses (see pages 18 to 21).² However, as we have already seen, until the late 1970s, because of a shortage of qualified applicants, many craft students had not reached that standard.³ In a similar way, up to the early 1970s, some part-time technician courses were run for students whose general education standard was only completion of form-four. However, with the introduction of nine years of general education for all, in 1978, and with more places becoming available at senior secondary level, the position began to change. As a result, by 1979/80, 20 per cent of the full-time craft students and ten per cent of the part-time day craft students had completed form-five, and many technician students at the Polytechnic had undertaken some post-form-five general education (see 273).⁴

Hong Kong was, until 1982, in somewhat of a dilemma as to the number of pupils that should be allowed to go on to senior-secondary, subsidised, general education. For example it was the Government's aim in 1974, that, by 1979, 40 per cent of the 15-16 age group should proceed to forms four and five in the public sector.⁵ In practice however,

1. A Perspective on Education in Hong Kong, op.cit., p.63.
5. Secondary Education in Hong Kong Over the Next Decade (16 October 1974), p.5.
in July 1981, of those who participated in the Junior Secondary Assessment system in form-three, 58.6 per cent were allocated subsidised form-four places (see also page 20) although the demonstrated demand far exceeded this figure. Most would agree that rapid strides were achieved in introducing more secondary education, but not everyone was pleased with the progress made. For instance, on a number of occasions industrialists spoke out vehemently against allowing too many pupils to proceed to senior secondary schools, as they firmly believed industry would be deprived of operatives and craftsmen (see page 63).

Some sectors of the community, for example the Education Action Group, have for some time advocated 11 years of free, compulsory, full-time general education for all. In this context, the Llewellyn report suggests that, F (form) IV and V (in the public sector) should be accessible to all, regardless of scholastic potential, thus reflecting the evident social demand. However, there is no doubt that Hong Kong people are very academic-education minded, and, as mentioned above, the worry of industrialists is that the "diploma disease" will be accentuated. In other words, what is sometimes called "certification inflation" or the "qualification spiral" will gain momentum and people will be "over qualified" and will not be prepared to work as operatives or craftsmen.

---

2. S.L. Chen and Francis Tien (speech read by Alex Wu), "Debate on Green Paper on Senior Secondary and Tertiary Education, Legislative Council (6 July 1978); and A Recurring Dilemma, South China Morning Post editorial (11 July 1978), p.2; and Hong Kong Training Council, letter to Secretary for Social Services (28 February 1978), (12)HKTC/COUN/MTG (9).
3. Don Reynolds, Education by Numbers, South China Morning Post (11 November 1978).
4. A Perspective on Education in Hong Kong, op.cit., p.59.
The desire of the majority of the Chinese for education for their children, however, has to be accepted and, with Hong Kong moving into the field of more sophisticated technology, rigorous academic education taken to a higher level provides a base on which technical education can be superimposed, in a shorter space of time, than if a student has only received a few years of secondary schooling (see page 61). While the point of view of some industrialists is appreciated, the world, including Hong Kong, is changing. Thus, before too long, 11 years of full-time general education will be desirable, both from the social and industrial points of view, and will no doubt be accepted as the norm.

It is not desirable, however, that everyone should necessarily stay on for 11 years of full-time secondary education, and it appears it is worthwhile to place more emphasis on alternative routes in technical institutes (see page 174), which needs to involve some public relations work to influence school leavers. In turn, attempts should be made to give greater credence to technical institute diplomas and certificates as "general education" qualifications in their own right. Too much emphasis seems to be placed, in Hong Kong, on "O" and "A" level examinations.

In addition Legg, Director of the Polytechnic, is of the opinion that, in the future, not only will craft students need to have completed form-four or form-five of secondary schooling, but also fewer craftsmen will be required. Cameron, Principal of Lee Wai Lee Institute, shares this view. Also, with the advance of technology, the roles of many craftsmen and technicians could come closer together and, in some cases, even merge, although to

---

2. Legg, discussion with author, op.cit.
3. Ibid.
4. Cameron, discussion with author, op.cit.
what degree is, naturally, uncertain. Similar moves are also likely to take place in commerce, with craft and technician comparative roles, as offices become automated. This will, of course, change manpower profiles and course patterns in educational institutions in the future.

**Alternative methods**

In Hong Kong a variety of alternative methods, instead of building new technical institutions, has been considered.¹ These are broadly as follows. Firstly, concentrate more on evening only courses which are generally more economical to run (see Chapter 6) and which can be located in external centres, such as schools. It was decided, however, that evening studies are not an adequate substitute for day classes, as practical facilities, such as workshops and laboratories, are usually lacking in schools (see page 198).

It was also suggested that technical education might be left to the aided or private sectors, but it was pointed out that standards in many such institutions are low, and it is usually difficult to find sponsors for such projects with suitable expertise. Another possibility was that the Government should finance technical education, for certain selected disciplines, up to a given provision, and the remainder (for example commercial courses, because they are generally easier to run and require less specialised facilities than most technical courses) should be covered by the private sector. This suggestion was also rejected for similar reasons.

Another possibility was for the Polytechnic to run all the technician courses, and for the technical institutes to be responsible for craft education only (see pages 179 to 180) which it was estimated, in 1976, would have only required three technical institutes. One of the main reasons for this suggestion being rejected was that it would have cost the Government more for each technician.

student-place in the Polytechnic than in a technical institute (see Chapter 6).

Far more serious thought was given to the use of the extended-day/week/year in the quest to make more intensive use of facilities, and, in some cases, such methods have been implemented.¹ For example, when workshops were in short supply, the teaching day has been extended and "twilight-classes" (held after day classes end and before evening classes commence) have been run. The Technical College, for instance, implemented the extended-day for the 1966/67 year, just before its new classroom wing was completed. It has also been employed overseas, and, in the United States during its "war on poverty programme", classes were held in some institutions from midnight until six in the morning.²

The week and the year have, on occasions in Hong Kong, also been extended, by running classes on Saturdays and Sunday mornings, as well as courses being held during the summer holidays. Requests have also been received to run extended-year courses.³ It can be argued that while technical institutes are in relatively short supply, the present nominal teaching year of 39 weeks could be extended to 48 weeks, as is common in many industrial-training centres. In the same way, institutions could work a six-day week, and twilight classes could be run as the norm. This would make more efficient use of expensive facilities and equipment.⁴ If serving staff were expected to work longer hours, some form of "productivity agreement" might be required, or overtime could be paid, or they could be given

¹ C.L. Ko, More Intensive Use of Technical Institute Facilities (13 December 1976), (52)ED(TE)4/15/6704/751; and (10)ED(TE)L/M/2/6704/67 (4 April 1978).
² D.D. Waters, A Visitor's Impression of Vocational Training in the USA, op.cit., pp.170 to 175 (p.174).
³ (3)ATC/P/12 (29 March 1977).
time off in lieu. If however it were done on a large scale, then additional staff would have to be engaged and staggered holidays would have to be implemented.

In spite of what has been said above, it is still felt that there is no real substitute for establishing the required number of purpose-built technical institutions. These should, however, as far as possible, be economically utilised. Time is also required for cleaning and maintenance. Also, there is a limit as to the number of hours a teacher can be "on his toes" in front of a class. For these reasons, it is felt that the correct decision has been made and the extended day/week/year should be reserved for an emergency or for special cases.

**Transitional accommodation**

Llewellyn and his team expressed the view, regarding educational accommodation, that,... what is needed is some lateral thinking about the provision and use of facilities: perhaps the adoption of unconventional solutions such as the use of commercial or other premises to overcome peak enrolment pressures.¹

Perhaps the best example (of many) is the City Polytechnic, which needed to commence classes in 1984 in order to satisfy the demand for manpower.² However, its new campus will not be ready until 1988. Thus, rather than renting accommodation, the Planning Committee decided, in view of the low property prices at the time, that the Polytechnic should purchase transitional accommodation (see page 30). In order to do this, it obtained a $260 million bank loan.³ The first three floors of the 23 storey Argyle Centre will be rented out for commercial use. Also, as another example, the Hong Kong Polytechnic, up to 1976 when its first new

---

¹. *A Perspective on Education in Hong Kong*, op.cit., p.51.
building was completed, accommodated about one-third of its students in rented premises, at Quarry Bay, on Hong Kong Island.¹

In addition, all the technical institutes and the Hong Kong Polytechnic use schools as external centres for evening classes, although the City Polytechnic has ruled out such a measure largely because such "borrowed" accommodation is not comparable to its own building.² For example, suitable specialist accommodation is lacking and, at the same time, the students do not always identify themselves with the institution. These facts are, of course, true, but while schools can be useful when large numbers of evening students have to be enrolled

(for example in 1973/74, the Morrison Hill Institute with a student capacity of about 1,350, had approximately 11,600 evening students each attending, on average, three nights a week)³, or to tide an institution over as a temporary measure, naturally they cannot be compared with purpose-built accommodation.

For that reason, the Education Department did not agree to the ITAC proposal, in 1972, that a flatted factory, possibly at Kwai Chung, should be used as a temporary measure for running craft and technician classes until Kwai Chung and Kwun Tong Institutes opened in 1975.⁴ This suggestion was ruled out, not only because a conversion for a relatively short time would have been expensive, but also because the Director of Fire Services was of the opinion that a "school" situated in an industrial building would present a hazard for the students, and it would contravene the Education Ordinance.⁵

1. Opening Ceremony of the Polytechnic's First New Building (26 October 1976).
3. ED(TE)114/1 (May 1980).
4. (37)TI/1/10 (30 September 1969); and (78)ED(GR)2/6704/67 (31 August 1972).
Distance-learning

On various occasions consideration has been given to the use of "distance-learning". Indeed we have had, since 1971, a successful educational television service for schools and, as the Llewellyn report says, ... with its small geographic size and its high technological standard, Hong Kong would be eminently suitable for a system of education by radio and TV combined. Some work has already been done in non-formal education at the tertiary level, using correspondence courses and the mass media, by the Extra Mural Department of the Hong Kong Chinese University and by Caritas Adult Educational Centre. However, these programmes have been largely of a non-technical education nature.

The Working Party on Senior Secondary and Tertiary Education, in 1977, gave thought to the subject, but came to the conclusion that distance-learning courses, ... would be inadequate by themselves, especially where practical work is involved, as in the case of craft courses. They might however have some value as "back-up" to courses in existing institutes.

In other words, if a youth is learning to become a bricklayer or a mechanic, it is important that a large part of the course should consist of practical instruction. The Llewellyn report recorded that the idea of mass-media foreseeable courses was attractive, but they did not seem likely in the future.

---

1. L/M ED(GR)4102/49III various memoranda and minutes; and Technical Education Programme Plan (Revised Draft, Stage VI)(July 1976), p. VI. 20.
2. A Perspective on Education in Hong Kong, op. cit., p. 77.
future because their viability and credibility had been questioned. In other words they have been seen by many, in Hong Kong, as stop-gap measures.

Such methods are, however, employed in the private East-Asia University in Portuguese Macau, which was founded in 1981, and comprises a graduate college, a junior college, and a college of continuing education. It also runs an external degree programme. The University's Open College is a distance-teaching institution which uses material prepared by the British Open University, the Massey University of New Zealand, and the Royal Melbourne Institute of Technology in Australia. Seminars are conducted at weekends, and students are counselled by telephone. Courses are run in the arts, social sciences, business, mathematics and science. However, because such methods are viewed by many as a surrogate form of education, it has not been allowed to open study centres in Hong Kong. This is, it is understood, because there are doubts as to the standard of the facilities that would be provided.

In the case of the technical institutes it would therefore appear correct that, especially with their highly practical courses, the idea of an "open technical institute" was not pursued. Distance-learning could, however, be more suitable in the case of the polytechnics, with their higher-level courses and their greater theoretical content.

Professor J.J. Sparkes, of the Open University in Britain, visited Hong Kong to advise the Polytechnic in 1978. This institution is committed to the introduction of self-learning systems and Legg, the Director, has spoken on various occasions of the need for an "open education system".

1. A Perspective on Education in Hong Kong, op.cit., p.64.
2. Open College Offers Distance-Taught Degree Courses, University of East Asia, Macau, South China Morning Post (23 March 1984), p.20.
Some Asian countries, including China, Thailand and Malaysia, are already using such methods.

Legg has, in fact, argued the case for a distance-learning institution on several occasions, which he has advocated could best be based on a polytechnic site. He has said, however, that he is not so much in favour of an "open university", but more for the development of a "systematised part-time approach". This, Legg suggests, should be similar to the "flexistudy" systems which are already in operation in Britain and the United States. In other words a student learns, to a large extent, on his own, at his own pace, using unit/module learning packages and kits, together with printed material, the telephone/video-telephone (and possibly a computer), and supplemented by attendance at some formal lectures and small group tutorials. However, it is also necessary for the student to "do" things as well as to "think". In such cases it is possible for projects and personalised instruction to be arranged with regard to laboratory or other practical work, on campus, using "line" or "programmed" closed-circuit television or recorded video-tapes or sound films.

The Hong Kong Polytechnic is, in fact, working actively towards converting some of its programmes, by means of learning packages, towards distance-learning. However, the introduction of such methods will, obviously, have to be

1. Legg, discussion with author, op.cit.
4. Legg, discussion with author, op.cit.
5. K. Legg, address, Hong Kong Polytechnic Students' Union Seminar (4 March 1984); and K. Legg, Non-degree Courses to Use Open University Techniques, talk to Rotary Club Hong Kong Island-East (8 December 1982); and Agnes Chen, Polytechnic Plans for a Revolution in Education, South China Morning Post (5 November 1983).
done gradually if major problems are to be avoided. It has
to be remembered that, in Hong Kong, homes are often small
and crowded, and, for this reason, Legg has suggested
that strategically located study-centres, for example in
the new towns, should be linked to existing library services.
Nevertheless, it should be borne in mind that considerable
time is required to develop packages, and various institutions,
such as the polytechnics, the technical institutes and other
educational organisations, might have to co-operate. There
is also the problem of getting staff to accept such methods
which, to many, appear to resemble a form of training rather
than education.

There is no doubt that there is a place for
distance-learning in Hong Kong, but as the Education
Department has sometimes urged, it preferably needs to be
undertaken on a large scale if it is to be viable.
Consequently to establish such a system, although it can be
cost-effective if properly organised, would be expensive.
With a new Polytechnic and additional technical institutes
being established in the 1980s, and with money now being
less plentiful, priorities, it is suggested, have to be kept
in mind before embarking on a distance-learning scheme for
tertiary education (see pages 356 and 357).

Development plans

In addition to the large number of reports
(including those by overseas educationalists), programme
plans, green papers and white papers, various other
development plans have been prepared. For example, as
referred to repeatedly in this thesis, reports were
published giving the proposals of the planning committees
for the two polytechnics. Polytechnic triennial academic
plans have also been prepared.

1. Hong Kong, A Special Report on the Territory's Tertiary
Sector, The Times Higher Education Supplement (England,
2. Final Report of the Polytechnic Planning Committee (July
1971); and The First Report of the Planning Committee
for the Second Polytechnic (30 November 1982).
3. Eg. Hong Kong Polytechnic Triennial Academic Plan
1981-84, op.cit.
As far as the technical institutes are concerned, a five-year development plan was drawn up in 1976, giving details of programmes and the number of classes to be run.\(^1\) This has since been updated on a regular basis.\(^2\) In addition, a plan was prepared showing the link between the output of pupils in prevocational and secondary modern schools, and how they could be channelled into technical institutes.\(^3\) Also a programme plan was introduced, covering all aspects of Government development, in the mid 1970s, on the advice of McKinsey and Company Incorporated, management consultants. While this plan is not so detailed as, say, the National Development (five-year) plan in Nigeria,\(^4\) or the 20-year plan in the USSR, it does provide a useful outline for development. Into this overall Hong Kong Government plan is incorporated a section on education. This gives details of the number of technical institutes together with student-capacity and targets, based on manpower surveys, as well as shortfalls.\(^5\) Institutes requiring additional storeys or annexes are also shown, as are the financial implications. Student enrolment targets for the polytechnics are also included in the programme plan.

In addition, "manpower demand/technical institute output balance sheets" have, on occasions, been prepared.\(^6\) These show how the need for future technician and craft

---

3. *Link Between Out-turn of Students from Prevocational and Secondary Modern Schools and Intake of Day Students in Technical Institutes* (10 February 1973), (6)(TE)2/6704/67II; and *A Plan for Pre-Vocational and Vocational Education Possible Routes for Primary School Leavers to Semi-Skilled and Skilled Occupations* (7 November 1969).
students, based on Training Council surveys, were to be met, together with the shortfalls.

The Llewellyn report recorded that, in the case of education, the,

... lack of forward planning capacity militate(s)
against efficient management. 1

It is unlikely that the OECD team was referring to technical education when it wrote this, as a great deal has been done in the way of forward planning. Indeed probably it was not, as, throughout the report, there are few criticisms of technical education in particular, and most refer to general education.

Social needs and students' aspirations

Education serves a vocational and a social and cultural need, for the individual who is concerned with personal fulfilment, as well as for the state. 2 While some consideration was given, in planning the polytechnics, to social needs, the number of pupils finishing secondary schooling, and students' aspirations for tertiary education, were not taken fully into account, and technical institute planning was based largely on economic requirements. For example as Eric Ho, Secretary of Social Services, said:

We must not give people expectations in higher education and then we have no jobs to offer them.
That would be a rod for our backs and a misuse of public resources. 3

However, as we have already seen, towards the end of the 1970s, more thought was paid to social needs. As a result, the Topley Committee's "criteria for development" included students' aspirations and their potential for

1. A Perspective on Education in Hong Kong, op.cit., p.16.
"worthwhile development through such education", the demand for qualified manpower, and "the scale of provision in developed countries overseas". It is not easy to decide how much weight should be put on the demand for places by applicants and how much on manpower requirements. That is perhaps why Colvyn Haye, the acting Director of Education in 1978, said:

We must tiptoe between the Scylla of under-provision and the Charybdis of over-provision. If the balancing act fails we shall have social unrest.

It was suggested that there are lessons to be learned from the Robbins report of 1963, in which it was proposed that university expansion in Britain should be based on the principle that every student who has the ability and the desire should have the opportunity of higher education.

Although Hong Kong was probably right, in the late 1960s and early 1970s (when it had only one technical institute), in basing its planning on manpower needs, as more secondary school and institute places came into being in the late 1970s and early 1980s, it was natural that social needs should become more important. However, Hong Kong tends to be a very materialistic society and the average young person is more likely to study because of future earning prospects, rather than for interest or learning for learning's sake. No doubt this is one of the reasons why Hong Kong has been, economically, so successful. Nevertheless, the right of freedom of the individual to plan his own educational path, and to seek opportunities for personal growth, supplemented by wise counselling, should be - and

3. A Perspective on Education in Hong Kong, op.cit., p.67; and Committee on Higher Education Report of the Committee Appointed by the Prime Minister Under the Chairmanship of Lord Robbins 1961-63 (England, October 1963), p.73.
are respected in Hong Kong. There is little doubt that students do not like to be regarded as "manpower units", or as "raw material" to be processed, or as an "end-product" on an "assembly line".¹

However even in our materialistic society, one cannot help but be struck by the importance which some Chinese attach to cultural and moral education; in their opinion, education has been made too much an instrument of the economy.² Social demand is, of course, partly based on cultural considerations, but also on perceived job opportunities. After all, most Hong Kong students believe that there is nothing wrong in seeking – and paying for – an education which adds to one’s economic potential.³ And because Hong Kong people tend to be materialistic, it is unlikely that social demand will get drastically out of step with job opportunities, unless salary structures cause too many people to seek an education and related jobs which are not available to them.

When the Topley Committee stated that one of its criteria was social demand, it had to take into account that, in 1980/81, the application to place ratio for the Polytechnic was 7.0 to one for full-time (10.7 to one for Diploma and Certificate courses), 4.7 to one for evening, and 1.5 to one for part-time day courses.⁴ By comparison, the application to place ratio for technical institutes was 10.2 to one (technician) and 5.8 to one (craft) for full-time courses; and 4.0 to one (technician) and 4.5 to one (craft) for evening classes. All applicants for part-time day courses, in institutes, because they have to be sponsored

² Written comments on Green Paper, "Senior Secondary and Tertiary Education, A Development Programme for Hong Kong over the Next Decade" (November 1977).
by industry, are normally given a place. From the above figures (although some students apply to more than one institution), it can be seen that the demand for places is much greater than the number available. This is in spite of the fact that although the 17 year age cohort increased from 104,000, in 1975, to 121,200, in 1980, an increase of 16.5 per cent; the enrolments in form-five increased from 36,994 to 66,692 over the same period, namely by 80.3 per cent.¹ In other words in 1975, 35.6% of the 17 year old population was in form-five, but, by 1980, the figure was 55.0 per cent. This, of course, put greater pressure on the Polytechnic and the technical institutes, although by 1980, more institutes had been built.

In addition, standards of students are also rising (see pages 192 to 194). For example, despite a 20 per cent rise in the number of places offered in the Polytechnic between 1977/78 and 1980/81, the students' academic qualifications, measured by grade point score on entry, had risen by 15 per cent.²

The Topley Committee also came to the conclusion that, in the field of "non-university type higher education" (higher technician level), mainly within the age band from 17 to 20, Hong Kong, with her 7.44 per cent of new entrants to population in the age cohort, did not rank so highly as most western countries.³ The figures ranged from 21.18 for Australia, 16.54 for the United States, 13.97 for United Kingdom, 8.92 for France, to 2.54 for Spain, although the age bracket for such studies varied from country to country. It must also be remembered that a large proportion of such students in Hong Kong are only studying on a part-time basis (see Table 19).

Broadly, on the above evidence, the Topley Committee concluded that there is scope for considerable

---

¹ Education Department records.
² Hong Kong Polytechnic records.
development of technical education, but that this should be planned, mainly, to assist the growth of the economy.\textsuperscript{1} Also, because the Polytechnic's campus allows for limited expansion, a second polytechnic should be established.\textsuperscript{2} The Committee also recommended that two more technical institutes should be founded (in addition to the sixth institute at Tuen Mun), each with a full-time equivalent student capacity of about 2,250.\textsuperscript{3}

The City Polytechnic

The City Polytechnic (see page 30) was established as a result of recommendations in the "Topley Report".\textsuperscript{4} This came as somewhat of a surprise to most people as, while Legg had been a strong protagonist for such a development for some time, the average man in the street had a third university more in mind. The Government, however, felt that a second polytechnic, with a strong vocational bias, would provide greater assistance to the economy.

The Government's intentions are that this new Polytechnic, which will move to its new campus in Kowloon in 1988 (see page 30), will have an initial capacity of about 8,000 full-time equivalent students, and it will be capable of expansion to accommodate up to 13,500.\textsuperscript{5} Of these, not more than 30 per cent will be studying at degree level. Its other programmes will be at Professional Diploma, Higher Diploma, and Higher Certificate levels. It will also run a limited number of Diploma courses.\textsuperscript{6} It can be seen that the bulk of the programmes are at higher technician

---

\textsuperscript{1} Ibid., pp.90 and 95.
\textsuperscript{2} Ibid., pp.115 to 117 and 169.
\textsuperscript{3} Ibid., pp.128 to 131 and 171.
\textsuperscript{4} Ibid., p.169.
\textsuperscript{5} The First Report of the Planning Committee for the Second Polytechnic (30 November 1982), p.2.
\textsuperscript{6} Ibid., p.113.
level, and there is thus little overlapping with the work of the technical institutes, as happened in the past in the case of the Hong Kong Polytechnic. There will be six schools at the City Polytechnic, namely engineering, architecture and building, computing services, social work, business studies, and accountancy. Within each of these schools, separate disciplines will be developed. 1

In determining the schools and student numbers, the Planning Committee, in 1982, considered the results of the Training Council's manpower surveys. 2 However, it was aware of the dangers of too rigid an interpretation of such forecasts, especially those in the commercial sector. These forecasts commenced in the mid 1970s, and are not yet so refined as those in the manufacturing sector. Other aspects of economic demand that were considered were trends in the distribution of manpower (for example, the rapid change in the computer industry since the impact of micro-computers after 1980), and graduate employment. 3 Regarding the latter, the Hong Kong Polytechnic records were studied, and previous employment rates were found to be virtually 100 per cent. This is not surprising, as there are generally too few people who have been educated at the tertiary level (see Table 21). Employment trends were also examined and it was noted that, for engineering graduates entering the manufacturing industries, numbers fell from 38 per cent in 1978, to 35 per cent in 1981, which matched closely the fall in the percentage of the work force in the manufacturing sector. 4 Conversely, the number of engineers entering the commercial sector rose from 15.8 to nearly 19 per cent over the same period.

1. Ibid., pp.17 and 18.
2. Ibid., pp.18 and 19.
3. Ibid., pp.99 and 100.
Turning again to social demand (see pages 204 to 208), which to some extent in Hong Kong is independent of economic demand, as just about every school-leaver who is offered a place in a polytechnic would wish to continue his studies.\(^1\) However, the distribution of applicants to the various courses depends largely upon the current state of the economy. A typical example is textiles. Here the numbers of applications (except in the areas of fashion and clothing) has dwindled, with the introduction of more restrictions on imports to overseas countries, and with the general decline of the industry. In fact, as already pointed out, the demand for places on polytechnic and technical institute courses, over many years, shows a strong corelation with the economic situation (see page 95).\(^2\)

Table 20 shows the ratio of job vacancies to graduate output at the Hong Kong Polytechnic, the Baptist College (see pages 25 and 26), and the two universities, as many of their higher technician and technologist level graduates are competing for jobs.\(^3\)

(While it is appreciated that these figures are now out-of-date, they are those actually used for planning the City Polytechnic (see pages 378 and 379 for 1984 figures concerning supply and demand)).

The figures for job vacancies are obtained from Training Council manpower surveys. It can be seen that there is considerable variation in the ratios: from six to one for accountancy, to 0.7 to one for production and industrial engineering (in the latter case there is an over supply of graduates). Table 20 shows that prospects are generally better in commerce than in the manufacturing sector. As these statistics are based on 1981 records, there is thus a danger that, by the time the City Polytechnic moves to

---

2. Ibid., p.100.
3. Ibid., pp.104 and 105.
its new campus, in 1988, the situation can be different. However these figures are seen as range targets which can, if necessary, be modified.

Table 20: Job Vacancies to Graduate Input Ratios in 1981 From the Hong Kong Polytechnic, the Baptist College and the Two Universities.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Job Vacancies</th>
<th>Graduate Input</th>
<th>Job Graduate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil and structural</td>
<td>325</td>
<td>171</td>
<td>1.9</td>
</tr>
<tr>
<td>Electrical</td>
<td>259</td>
<td>115</td>
<td>2.3</td>
</tr>
<tr>
<td>Electronics</td>
<td>110</td>
<td>127</td>
<td>0.9</td>
</tr>
<tr>
<td>Mechanical</td>
<td>170</td>
<td>117</td>
<td>1.5</td>
</tr>
<tr>
<td>Production and industrial</td>
<td>74</td>
<td>109</td>
<td>0.7</td>
</tr>
<tr>
<td>Building and surveying</td>
<td>272</td>
<td>134</td>
<td>2.0</td>
</tr>
<tr>
<td>Computing</td>
<td>461</td>
<td>107</td>
<td>4.3</td>
</tr>
<tr>
<td>Accountancy</td>
<td>1,808</td>
<td>304</td>
<td>6.0</td>
</tr>
<tr>
<td>Business studies</td>
<td>2,634</td>
<td>611</td>
<td>4.3</td>
</tr>
<tr>
<td>Social work</td>
<td>789</td>
<td>259</td>
<td>3.1</td>
</tr>
<tr>
<td>Total</td>
<td>6,902</td>
<td>2,054</td>
<td>3.4</td>
</tr>
</tbody>
</table>

The universities and overall co-ordination

As the title implies (see page 3), this study is concerned with craft and technician education rather than with university education. Also, except for a limited number of students on electronics courses, the Chinese University of Hong Kong does little in the technological field, although the University of Hong Kong offers degrees in various branches of engineering, as well as architecture, building, business and management. While in the past

1. Ibid., p.106.
there has been limited formal co-ordination between the universities, the Polytechnic, the Education Department and the Training Council, 1 the "Topley Committee" did consider university expansion. Its report made recommendations that the two universities should make provision, within their own development plans, for the expansion of courses in accountancy, business studies, computer studies, architecture, building and engineering. 2 Before this date, with a few exceptions; limited thought was given to manpower planning as it affected technological education. 3 For instance, ITAC was not concerned with technological level manpower studies. However its successor, the Training Council, did give limited consideration to this level of training. 4

Although geographically small, Hong Kong has been fortunate, in some respects, in that it has had a fairly "blank sheet" on which to plan, although, like many countries, it has tended to approach some aspects of educational planning in an unco-ordinated and isolated way. 5 As we have seen, the technical institutes have been fairly tightly centrally controlled, up to 1982, by the Education Department, and now by the VTC. In turn, the Polytechnic/Technical Institute Committee Complex (see page 258) has ensured that these two types of institutions have kept reasonably in step. However, co-ordination with the universities has not been so close, and the latter have tended to go their own way. It would thus appear that

3. Special Committee on Higher Education Interim Report 1966 (October 1966); and Special Committee on Higher Education Second Interim Report 1968 (June 1968).
better overall planning of the whole education system is necessary to attempt to avoid unnecessary duplication of efforts.

It is probable that with the establishment of the Education Commission, in 1984, whose job it now is to co-ordinate the work of the Board of Education (responsible for general education), the UPGC, and the VTC, that co-ordination will improve.\(^1\)

**Sir Sze-yuen Chung**

Probably of all the industrialists in Hong Kong, no one has played a more important part regarding the planning and development of technical education than Sir S.Y. Chung (see page 39).\(^2\) During the 1960s and 70s he served on numerous committees, such as the Productivity Council, the Management Association, and the 1979 Advisory Committee on Diversification. He is a past member of the Legislative Council and, at present, a member of the Executive Council. He has also chaired both planning committees for the two Polytechnics, and is Chairman of the Council for the Hong Kong Polytechnic. While not taking an active part in the running of the technical institutes, he has spoken on matters affecting them on many occasions, and he always has a good grasp of the situation.

For instance in 1978 in a discussion, which included K.W.J. Topley, Director of Education, he expressed the views that technical institutes should take a more active role in running technician programmes, and he supported the view that a number of these should be transferred from the Polytechnic to the institutes.\(^3\) He was also of the opinion that, while the basic equipment in the technical institutes was of a reasonable standard, more sophisticated and

---


specialised equipment was required, and that more money should be available to be spent at the discretion of those who were actually running the institutes.

Sir S.Y. Chung also felt that institutes, in the 1970s, depended too much on the Training Council, and that they should have their own advisory committees. He was of the opinion that, in the same way that Hong Kong has always been famous for its ability to alter plans quickly to meet changing circumstances, so too should the technical institutes try to emulate these attributes. There is no doubt that Sir S.Y. was more farsighted than most people in making the above proposals. While institutes were in their formative years, there was much to be said for their being Government institutions. However as they "grew up", they needed more flexibility than the Government could bestow.1 As a result the VTC, which now runs them, came into being (see Chapter 8). Also, as we have seen, courses have been transferred from the Polytechnic, and the institutes now run more technician programmes.

K.L.C. Legg

Keith Legg succeeded Charles Old, as the (second) Director of the Polytechnic, in 1975 (see page 159). From the start he let it be known that he placed emphasis on "open communications", especially with the technical institutes, and, to a large extent, he was responsible for enlarging the liaison committee complex between the two types of institutions (see page 258).2 There is no doubt too that Legg has foresight and courage and, shortly after his arrival in Hong Kong, he was saying that a second polytechnic would soon be required, and that the two polytechnics would have to offer degrees.3 In fact he was the

2. Bray, discussion with author, op.cit.; and Cameron, discussion with author, op.cit.
first person formally to make such statements, when no such developments were intended by the Government for several years to come.

There is no doubt too that Legg brought with him some good contacts in Britain, such as with the CNAA and other professional institutions and colleges. He has, however, on occasions, been criticised for not "thinking in the local context", and for setting up a British type polytechnic in the Hong Kong environment, although such criticism is, it is felt, in the main, unjustified, and any person who arrives in the Territory without local grass-roots experience must be allowed time to settle down.

Legg believes that the Polytechnic is doing a good job, and that the $410 million that it cost to run it in 1983/84 was money well spent. After all, he says, what better way can there be to invest in Hong Kong's future than to educate young people who are dedicated to self-improvement? He believes that the greatest achievement of the Polytechnic has been the production of highly-skilled technicians, with their Higher Diplomas in a wide variety of fields. Such people are much sought after by industry. However, Legg is quick to emphasize that the credit for the success of the Polytechnic should go to the staff and the students. Taking all in all, there is little doubt that not only has Legg been a good Director of the Polytechnic, but that he has done a great deal for technical education as a whole.

Conclusions

No system of manpower forecasting had been implemented when the case for founding the Morrison Hill Technical Institute was being prepared, and the submission was based on economic needs and on providing more opportunities for further study for school leavers. Limited economic statistics were also available for the planning of the Hong Kong Polytechnic, and, in this case, "student-population targets" were first fixed by the Government.

1. Kevin Sinclair, Polytech's high-flier has designs on the future, South China Morning Post (30 September 1984), p.15.
and plans were then laid to achieve these figures by the target dates.

However, by the time planning had commenced for technical institutes two to five, in the early 1970s, a system of manpower forecasting for the main manufacturing industries had been introduced and, to a large extent, social demands were subordinated to economic needs. As a result, calculating the required number of institutes became largely a matter of simple arithmetic, and figures were arrived at, regarding the total number of institutes needed, by manpower forecasting/technical education "balance sheets".

In keeping with a world-wide trend, technical education institutions in Hong Kong have tended to be built larger over the years, thus providing a greater student capacity than their older counterparts, although these have, in some cases, had extra floors and annexes added. Hong Kong has, in general, adopted the "two-tier systems", with the technical institutes running craft and technician courses, and the polytechnics running technologist, and higher technician and technician programmes, and there has been some over-lapping resulting in duplication of effort. Moreover, it is probable that the "polytechnic/technical institute profile" is top-heavy, with too few student-places in institutes to correspond to the numbers in the polytechnics. Entry standards of students to technical courses have also risen over time, although the provision of more senior secondary education has been opposed by some industrialists who were afraid that this would lead to many people being "over-educated" and to a dearth of operatives and craftsmen.

Hong Kong has considered, and in some cases has implemented on a limited scale, various alternative methods when accommodation has been in short supply. These have included the extended day/week/year, and the use of temporary premises.

In the early 1980s, after Hong Kong had become more affluent, greater attention began to be paid to the social aspects of technical education, and the need to provide more places for assimilating school leavers, in
addition to considering the economic aspects. The City Polytechnic, which commenced classes in transitional premises in 1984, has been planned on these lines.

With the establishing of the Education Commission in 1984, it is expected that co-ordination between the Board of Education, the UPGC and the VTC, and their related institutions, will improve in the future.
CHAPTER 5

THE PLANNING AND PROBLEMS OF GROWTH AND CHANGE

Introduction

The start of this chapter is devoted briefly to refreshing the reader's memory regarding the various types and the vast extent of change that has taken place, especially in the industrialised world, during the last 100 years or so. Special attention is paid to the wider scope and the rapid rate of change, which has gathered momentum since World War Two, not only in the developed states, but also in the newly industrialised countries such as Hong Kong.

This leads on to how technological, economic, cultural, social, educational and political change can affect a college, which is viewed as a goal-seeking open-system. This means that an institution must continually adjust in order to do its job efficiently. In this context the normal lengthy "periods of gestation", for establishing educational institutions, from concept to completion, are examined. The chapter continues by considering planning for growth and change, and by outlining some of the difficulties met, and by suggesting various ways in which they may be overcome, in order that institutions do not become straitjackets inhibiting flexibility. In this context, colleges are scrutinised under three main headings. These are accommodation and equipment, courses and curricula, and staffing. For example, ways are examined as to how accommodation can be designed to facilitate future change. In addition to spatial considerations however, the importance of the flexible installation of equipment, and especially adaptable services to which they are coupled, is highlighted.
The chapter then looks at the broad coverage of industries, by a wide variety of technical courses in institutions, and how these have developed especially since the early 1970s. This is followed by an examination of curricula, credit-units/modules, teaching methods, the medium of instruction, and examinations, with special reference to Hong Kong. A look is then taken at how the student population has changed over the years.

The last section analyses change in relationship to staffing, and how the number of teachers has dramatically increased. An examination is then made of the teams that planned the Polytechnic and the technical institutes, and how they were assisted by overseas advisers. It then continues by examining the supply of teachers, how they were selected and recruited, and the important part that staff development played. This is followed by a look at the attitudes of staff to growth and change.

Change

One of the most significant factors of life in the second half of the 20th century is the broad scope and the increasingly rapid rate of change.\(^1\) It is relevant, at this stage, briefly to compare the standards of technology in the world and the accepted mores of society, in say the year 1900, then immediately after World War Two, in 1945, in 1964, and again in the computer and the micro-chip age of today. Compare the rapid rate of change in recent years too with the long period of political, economic and intellectual stability enjoyed between the Congress of Vienna in 1814-15 and World War One. In the case of the explosion of knowledge and the rapid advance of technology, think of the transition from the horse and cart era to the motor vehicle, and from the passenger liner to universal

---

1. Thomas Shoesmith, United States Counsel-General, Continuity and Change Must be Balanced, address to Kowloon Lions Club, South China Morning Post (26 February 1979).

air travel, and then to the world of space ventures.\(^1\)

The power of wind and muscle which prevailed for so long, gave way comparatively quickly, to mechanical, then electrical, and now nuclear energy. New types of power plants, fuels and new materials have provided opportunities to create new products.\(^2\) The scope has been enormous and, over the years, the pace of development has quickened. There were approximately 65 years between the invention of the telephone and putting it into practical use, 35 years for the radio, but only 14 years for television.\(^3\) The accelerating speed of complex future developments, in laboratories and automated factories employing robots, will no doubt be even greater.

Probably during the period under review, microelectronics has generated more impact than any other technological development.\(^4\) The reason is, of course, that it has had implications, to some extent, in most industries, and there is considerable potential for a wide variety of applications in new technologies. Examples of the adoption of microelectronics includes machine tools, instruments, toys, communication systems, computers, word-processors and robots.

Where machine tools were originally largely mechanical, and, later, electro-mechanical, they now increasingly incorporate electronic control systems, with higher speeds, greater reliability and precision, superior performance and reduced maintenance. In recent years too the effects of electronics has made a massive impact, in Hong Kong, on such products as watches and calculators. While early computers required considerable power, a

---

specially-controlled environment, and filled a large room, microprocessors, which have greatly reduced the cost of the technological revolution and are now compact, have greater computing ability and reliability, faster speeds, and require little power. All this has meant revolutionary implications for automation and robotics, and for the processing, transmission and storage of information.¹

These developments, together with many others, have had immense implications on economic, social and cultural mores, including employment patterns and life styles. In addition private firms, governments, the mass media and education authorities have been forced to haul down barriers and to accept new ideas.

It has been suggested that society is subjected to two main forces.² The first is idealistic and seeks to reshape society and cure its ills. The second stems from our system of economic production which determines the material resources which are available to mankind. Occasionally the general direction of these two forces may coincide; for example the 1870 Education Act in Britain, or the introduction of free primary education for all in Hong Kong in 1971, which can both be viewed not only as triumphs for the social reformers but also as responses to needs in industry, which, at those times, had reached certain degrees of sophistication and needed better educated labour. Taking an extreme example: during the two world wars, even though people suffered hardships, no one objected to heavy industrial investment on some promising new weapon. In a similar but less significant way, economic development has sometimes led to pollution, including here in Hong Kong, and industrial processes have been the cause of disease.

While on the subject, nowhere has the pace of change been more spectacular than in the newly industrialised

1. Ibid.
countries such as The Republic of Korea, Taiwan and Singapore. In Hong Kong too, as we have seen, the pace of change, in many spheres, has been staggering, including the transition from the the sedan chair and the jinricksha to the motor car, with 11,206 vehicles registered in 1950 and 339,733 in 1982 (see also pages 8 to 18).

On the social scene, traditional Chinese moral principles and customs, although still firmly implanted in certain areas, have tended to give way to western values and concepts. Standards of living too have improved enormously, and people are now prepared to stand up and express their views, and to demand — and are able to pay for — more of the creature comforts of life. People now also live longer, are better housed, and work shorter hours, which means more time for leisure and more time for continuing education. Indeed the list of change is endless. In other words Hong Kong, like many other states, has been drastically transformed.

Change and the educational institution

An educational institution must be viewed as a goal-seeking open-system, because the objectives it is aiming for, and the pressures placed upon it by the outside world, coupled with internal pressures and demands, are constantly changing and new objectives need to be set. A typical example of a college, in diagrammatic form, is illustrated at Figure 9. This is shown with a number of inter-related parts, such as departments and sections, working both independently and jointly to form a complex but unitary whole in pursuit of common aims. No organisation can exist in isolation, and, as shown in the figure,

2. P.F. Leeds, The Development of Public Transport in Hong Kong - An Historical Review. Paper presented to Hong Kong Section Chartered Institute of Transport (November 1974), pp.7 to 11, and Appendix III; and Hong Kong 1983, op.cit., Appendix 36.
3. Hong Kong 1983, op.cit., passim.
Figure 9: The Transformation Process of an Educational Institution (Viewed as an Open System) as a Result of the Interrelationships of External and Internal Influences Affecting Policies and Decision-making.
external technological, economic, cultural, social, educational and political pressures are exerted on a college from the complex environment. It also has to work in conjunction with other organisations.

There is little doubt that the roles and goals of education are inextricably linked with complex issues of culture, which are entangled with changing life styles, Chinese mores, and growing community aspirations. There is also no doubt that technical education institutions in Hong Kong have been significantly affected and have been established and expanded at a rapid rate (see pages 18 to 31) mainly because of the speed of economic development and technological advancement.

Taking the growth of the Technical College/Polytechnic as an example (see Table 21): in 1957/58, by the time the Technical College had moved to Hung Hom, there were 345 full-time and 5,532 part-time (total 5,877) students. By 1981/82, however, these figures had increased to 7,217 and 17,261 respectively, plus 240 mixed-mode students (total 24,718).

Table 21: Build-up of Student Numbers in the Technical College/Polytechnic from 1947/48 to 1981/82

<table>
<thead>
<tr>
<th>Institution</th>
<th>Academic year</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Mixed-mode</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical College</td>
<td>1947/48</td>
<td>25</td>
<td>599</td>
<td>-</td>
<td>624</td>
</tr>
<tr>
<td>Technical College</td>
<td>1957/58</td>
<td>345</td>
<td>5,532</td>
<td>-</td>
<td>5,877</td>
</tr>
<tr>
<td>Technical College</td>
<td>1971/72</td>
<td>1,700</td>
<td>740</td>
<td>9,304</td>
<td>11,744</td>
</tr>
<tr>
<td>Polytechnic</td>
<td>1981/82</td>
<td>7,217</td>
<td>3,802</td>
<td>13,459</td>
<td>240</td>
</tr>
</tbody>
</table>

2. A Perspective on Education in Hong Kong, op.cit., p.12.
4. Opening Ceremony of the New Technical College by His Excellency Sir Alexander Grantham, GCMG (2 December 1957); and Hong Kong Polytechnic Prospectus 1976/77, p.33; and Education Department Annual Summary 1981-1982, pp.60 and 61.
As the above figures show, it is not to be wondered that the Director of the Polytechnic, Keith Legg, described its growth as "phenomenal". In terms of full-time equivalent students (FTEs), from 1973/74 to 1977/78, this amounted to, on average, 24 per cent a year. Since 1978 however, the growth rate has been somewhat slowed.

Similar expansion has also been recorded in the technical institutes. For instance, there were 217 full-time and 7,025 part-time students (total 7,242) in the one institute, in 1969. By 1981/82, in five institutes, these figures had increased to 3,516 and 26,747 (total 30,263) students respectively.

Naturally this phenomenal growth, coupled with other factors, necessitated and brought about over the years, drastic change. This will be examined in the following pages. However, before doing this, let us return to Figure 9, namely the transformation of an educational institution. For example, an appropriate mix of buildings, equipment, curricula, staff, and "green" students, together with funds, are fed in, and these separate parts unite into a more unified whole, within a college, in order to create "products"; the products in this case being mainly students on graduation. The general concept then is one of "holism", that the whole institution working together is greater than the sum of its separate parts.

A college exists in a wider community, and it cannot conduct its role efficiently in isolation. The "environment" and the other institutions with which a college interrelates, together with its own internal needs and interactions, are constantly altering, and thus a college has to be responsive and able to adapt to the changing environment, so as to maintain dynamic equilibrium and to

4. Education Department enrolment figures.
sustain itself and to be self-regulating.¹ This process is shown in Figure 9 as "feedback", and "adaptation and change-control mechanism". To be able to function as such, regular institutional evaluation programmes are required, such as curriculum reviews, staff-development programmes, and communications with external agencies. For example, if a well equipped and modern college with well-qualified staff fails to produce graduates who are sought after by employers, then remedial action is obviously necessary. Indeed it has been said that,

... if colleges are to maintain vigour, relevance and efficiency in their long-term offerings, they must, from time to time, renew themselves through acquiring new resources, developing new courses, and possibly reaching new, or at least different types of students.²

And in order to survive, an institution as an open-system must take steps to adjust and must acquire negative entropy or move towards disorganisation or "death".³

ACCOMMODATION and EQUIPMENT

Establishing a new institution

It is often not appreciated, even by many teachers, how long it takes to plan and establish a new college. For example in 1953, the Technical Education Investigating Committee reported that a technical college in Kowloon was essential,⁴ and a formal statement was made by the Government, in February 1954, to this effect. A site was

3. Organisations as Open Systems, typed notes, author and date unknown.
then reserved in Hung Hom, where the Polytechnic now stands, and planning commenced in January 1956. Once the construction of the superstructure started, the concrete frame of the main building began to rise in the not unfamiliar Hong Kong one-floor a week cycle. The College moved to the new site in November 1957. Thus, the planning and construction took less than two years. Although a new institution was not being established in this example, and it was a case of an existing college moving to a new campus, nevertheless, this progress may be considered as rapid by most standards. A great deal of the credit for this should go to the Principal at the time, S.J.G. Burt, a forceful personality who was also the chief adviser to the Director of Education on technical education. As a result, working within the Government system, Burt was, to a large extent, left free to get things moving (see also page 347).

By comparison, the construction of the Food Trades Department and Communal Building at Southampton Technical College, which took five years, may be cited. However, other examples in Britain include the Watford College of Further Education, where the tender was signed in December 1962, and work finished in December 1964. In the case of the Glasgow College of Further Education, construction began in August 1961, and the building was completed in August 1964. It must be stressed, however, that the above cases are actual building times and do not include pre-building planning.

1. Waters, A Series of Papers ..., Paper One - General, op.cit., Appendix H.
3. Recollections of past Technical College staff.
When pre-building planning is included, obviously the time is longer. For example, the initial educational planning for the Morrison Hill Institute commenced in January 1964, but site-formation work did not start until July 1966 (see page 229). The Institute was completed in August 1970. Thus the whole project, from initial planning to completion, took more than six and a half years.1

Experience would appear to show that a great deal of time is often wasted in the early stages of planning by both the educationalists and the architect.2 Also, delays are by no means uncommon in the approval of projects and in the granting of funds by the administrators, especially when costs have increased during a time of inflation. In some cases "corners are cut" and times reduced, but, normally, the period for planning and construction is still substantial. It can thus be seen from the foregoing that it is relatively impossible to plan the "ideal" institution with a non-variable plan, as with a long lead-time a college needs to modify itself during the process of its own creation. There should thus be, as we shall see later, an inbuilt provision, in planning, to cope with change.

When the Technical College moved to its new site in 1957, the buildings comprised a classroom/laboratory/ administration block, and a single-storey workshop block. A multi-purpose hall, a dyeing and finishing block, an electrical-laboratories block, a second workshop block, a wool school, a library, and an extension to the main classroom building were all added in the late 1950s and the 1960s.3 When the institution became the Polytechnic, in 1972, a four-phased building programme was set in motion, and, as a result, a new block consisting of high-ceiling workshops and laboratories, and over 100 classrooms,

1. Waters, A Series of Papers: Paper One - General, op.cit., Appendix G.
tutorial rooms, lecture theatres, a new library, and staff rooms, and a car park was completed in 1976. Among others, a sports centre and community building was finished in 1978, and the Fong Shu-chuen Hall in 1982. As at that date, the campus had a gross building floor area of 130,240 square metres, compared to 22,056 in 1968.

It would no doubt be correct to say that for those of us who played a part in planning the Technical College, in the 1950s, no one could have forecast that Hong Kong would change to such an extent, and, as a result, the Technical College/Polytechnic would develop at the rate it has.

Turning again to the Morrison Hill Institute: after an initial educational planning period of about two years the development plan was approved in December 1965, although architectural planning did not commence until 1967. This four-year hiatus was, to a large extent, because the Education Department was not convinced that such an establishment was necessary. From the time the development plan was approved until completion of the project, changes were generally frowned upon, although a few variations were permitted after a visit by H.E. Hammond, an educational adviser from the Ministry of Overseas Development in Britain, in 1968. It was originally hoped that the completion date of the building would be September 1969 but, after delays by both the administration and the contractor, the new institute was finished in August 1970.

1. Ibid.
2. Hong Kong Polytechnic Prospectus 1976/77, pp.34 and 35.
3. Hong Kong Polytechnic 10th Anniversary Supplement, op.cit., p.3.
4. Waters, A Series of Papers ... Paper One, op.cit., Appendix G.
5. ED 4605/54 (7 April 1964).
However, there is no doubt that during the four-and-a-half-year design and construction period, needs changed. For example, technical teacher training would probably have been better served if it had been situated in the Technical College (see page 155) rather than in the new Institute. Likewise, by 1969, there was a need for a department of printing at Morrison Hill. However, due to the rigidity of the administration, these changes could not be accommodated.

Each of the other four institutes (Kwai Chung, Kwun Tong, Haking Wong and Lee Wai Lee), which were planned in the 1970s, has taken, on average, about one year for educational planning, one year for architectural planning, and two years for building, making an approximate total of four years. In each case, one usually had the architects in the Government Public Works Department, understandably, pressing the Education Department for the academic development plan and the schedule of accommodation, so that they could get on with the time-consuming job of designing. This pressure was normally resisted by the Education Department, and J.R. Devereux, Principal of Kwun Tong Technical Institute, wrote, in 1977, regarding the proposed Kowloon Tong (now called Lee Wai Lee) Technical Institute,

... we are under some pressure from the Public Works Department to finalise our plans, however, I do not think we should be pushed into any hasty decisions at a time when we not only have to consider developments in industry and commerce but also the effects of the Apprenticeship Ordinance and the White Paper.

Under such circumstances, assuming that the opening of a new institution cannot be delayed, what can be done to shorten both the design and construction periods? There is no doubt that if industrialised (systems) building techniques are used, times can be significantly reduced. Such methods are based largely on factory-produced, pre-fabricated standard components, on the modular principle, which relate to one another as an integrated system of construction. Greater productivity results from the speed of modern factory production, and by carrying out the work in an environment free from delays such as those caused by the vagaries of the weather. On the other hand, industrialised building may not necessarily be cheaper. A common industrialised building often used for educational purposes, in Britain, is "CLASP". While there are a few isolated examples of systems building in Hong Kong and in Macau, it is not common. This is, to a large extent, because it is not so suitable for multi-storey structures, and also because the normal speed of in-situ concrete construction here is quite rapid. Systems building has not been used for educational buildings in Hong Kong.

In 1972 however, when the phased building programme for the Kwun Tong, Kwai Chung, Haking Wong and the Lee Wai Lee Institutes was being planned, it was decided that these should all be constructed on a semi-standard basis. The layout consists of an all-purpose hall partially surrounded by a range of buildings which includes classrooms, lecture-theatres, and other teaching rooms and administration space, designed on a standard plan. However each institute varies,

to some degree, not only because it had to be designed to fit its own site, but also because each specialises in some different disciplines (see Table 23). Thus, not all workshops are identical. The fact that a semi-standard plan was used helped to speed up the design process as, for example, many detail drawings could be reused or slightly modified.

As we have seen, the planning and construction of the Morrison Hill Institute took approximately six and a half years. During this time, naturally, the world did not stop turning, and, to some degree, the Institute was already "out-of-date" on completion (see page 230). Also, alterations and an additional floor were proposed within one year of it being completed. If the total planning/design/construction period could have been reduced, then there would have been less chance of major changes taking place, so that the institution would not have been partially overtaken by events by the time it was first opened.

Indeed about one year after a new college is established, and it has had a chance to settle down, it is useful to have a formal "post-mortem" to review any teething troubles. In this context the views of the principal, heads of departments, and indeed all members of staff should be sought. It will also be useful to seek the views of the students. Examples of actual information extracted from such reviews, in Hong Kong, have included such items as a shortage of storage space, better thermal insulation required on flat-roofs, inadequate security against break-ins, a shortage of notice-boards, and a recommendation that bamboo should be planted around a building to provide shade and a "blanket" to reduce noise. However, such a review should not be a once and for all operation, and there will be a constant need to monitor the performance of an institution so that corrective action can be taken.

Planning for change

As we have seen then, an educational institution is subjected to a wide variety of changes and pressures from the environment. These have to be identified, possibly with the help of advisory committees (see pages 31 to 39), and a decision has to be made to see whether the educational system needs to respond, and if so, how? For example new industries are introduced and existing ones change, and this can result in new or modified courses being required. New staff and equipment, and modified accommodation and teaching methods, may also be needed. Even if an institution's planning is not overtaken by externally impinging factors, however, so that when it first opens it matches the current needs of the community, it must be remembered that a college may need to fulfil its role, in some form, for anything up to 50 or more years, and, during that time, obviously, it is certain that many changes will take place which will have important effects upon it. Indeed, many of Britain's educational buildings are over 100 years old, and some attention has been given in recent years to the cost-benefits of "recycling" them and reusing materials and equipment where possible.1 A recycling project took place with the old Technical College building in Wanchai (see page 28), which originally opened in 1937. It became the Victoria Technical School in 1957 when the College moved to Hung Hom. The building was refurbished and handed over to the Morrison Hill Institute and the Technical Teachers College, for joint use, in 1981.

Such recycling is a major exercise. What can be done, in the way of planning, to allow a building to adjust to change more easily? Such changes, as we have seen, can include industrial and technological advancement,2 which

---

may necessitate new equipment in a college, new teaching techniques, such as discovery methods, team-teaching, and different size teaching/learning groups, necessitating different room sizes,\(^1\) or new administrative methods, such as the use of a computer.\(^2\) After all, it is axiomatic that good design should result in a college being more adaptable, and it should incorporate the essential long-term flexibility that is required to accommodate the new and unknown objectives of those staff who will be in post in the years to come.\(^3\)

Also, as we have already seen, a college should be planned, as far as practicable, for the integrated use of the whole institution rather than parts being "reserved" for persons, sections or departments, especially as a trend has developed for more inter-departmental and interdisciplinary work. These objectives are illustrated in Figure 10.\(^4\) To give an example: when the Technical College moved to Hung Hom in 1957, the main building had been planned so that there was either one or two teaching departments to each floor, and each head tended to consider his own area sacrosanct. This worked well during the day until the College built up to maximum capacity in 1966/67. Just before the new classroom wing was completed, to achieve maximum utilisation (see page 196), it was necessary to place the task of timetabling in the overall control of the Vice-Principal.\(^5\) However because the College had over 5,400

---

1. *A Perspective on Education in Hong Kong*, op.cit., pp.53 and 54.
5. Recollections of Technical College staff.
Figure 10: How Utilisation of Accommodation can be Improved

Accommodation should be:
- Flexible
- Adaptable
- Integrated-use

This should result in:
- High potentiality for multi-purpose use
- Ready convertibility with little interruption and at low cost
- As far as practicable not being allocated to a specific section/department

Teaching/learning accommodation

Improved utilisation efficiency
evening students in 1957, and a number of schools were used as external centres, in order to make full use of the main College building, timetabling for evening classes was put on a centralised basis immediately after moving to the new campus.

Turning to the Morrison Hill Technical Institute: this was, quite rightly, criticised by J.W. Gailer of TETOC (Technical Education and Training in Overseas Countries), in 1971, because, "the workshops and some of the laboratories are on the small side".¹ Like heavy laboratories, college workshops, especially over recent years, have moved towards the idea of the large open-plan on industrial lines (thus saving money because of the absence of partition walls), accommodating more than one class at one time, with several shops arranged around a common central store to simplify store-keeping and, thus, saving labour.² In this way, with open-planning, there is no need, in many instances, to allocate space to a particular purpose at an early pre-planning stage, or to construct permanent partition walls which may have to be demolished and rebuilt, in new positions, within a short time of a building being completed.³ (For example, when the Haking Wong Technical Institute opened, in 1977, a section of the workshops was left unused, largely because of lack of funds at the time to purchase the equipment.⁴ This space has since been utilised for engineering courses.)

However, it may be necessary to pay regard to zoning, whereby "clean" shops, such as painting, are separated from "dirty" shops, say bricklaying; or noisy areas divided from relatively quiet areas; or screens

⁴. (124)ED(TE)6713/136/2 (7 November 1979).
provided to hide the "flash" in welding shops.

In fact a lesson was learned from Morrison Hill Institute, and the workshops of the other four institutes are on open-plan lines, although the idea could probably have been carried further. However, the concept is not always popular with teachers, many of whom, in Hong Kong, feel that a small workshop with their own single class, where they are "head of their own domain", is more "secure". However overall observation in an open-plan shop, by a supervisor, possibly from a platform or "cockloft" at high level (as existed in the carpentry shop at the Technical College in the 1960s), is better and can improve safety standards.

In addition however offices, administration accommodation and communication teaching rooms can also be built using an open-plan, with provision being made for lightweight partition walls (when these are necessary) which can be easily removed and repositioned, without damaging the structure, to suit changing circumstances. To give an example. Full-time craft students in Hong Kong spend about 50 per cent of their time in workshops, while full-time technician students spend only about 30 to 35 per cent of their time there and the remainder of their studies in other types of accommodation (see pages 175 and 176). However, if the ratio of craft to technician students changes, then provision needs to have been made, at planning stage, so that alterations to teaching rooms can be easily effected. Also, the close relationship of technical education to technological developments means that the curriculum is likely to change, not only in content, but also in the proportion of theory to practice; this again can upset the balance of a room-loading schedule.

2. Recollections of past Technical College staff.
Future expansion

When a college is first designed, it is important that consideration is given to the possibility of future expansion, and provision must be made for it at the initial planning stage. In the case of the Technical College, land was reserved alongside the original six-acre site on the Hung Hom Reclamation. This additional land, giving a total area of about 25 acres, was utilised by the Polytechnic, in the 1970s, when it implemented its four-phase building programme (see page 228).

The Morrison Hill Institute's original site measured only 4,120 square metres, and this allowed, at the time (however see page 28), relatively no room for lateral expansion. Because of this, provision was made so that the foundations and the concrete frame of the building were strong enough to support an extra storey on the workshop wing. By 1971 the Institute was already too small, and an extra floor was added and the motor-vehicle workshop was enlarged. This work was completed in 1974. A further example of an institution being too small shortly after it was completed was the Lee Wai Lee Technical Institute, which was finished in 1980 (although part of the building was occupied and classes were run from the Autumn of 1979). A new floor and an annexe were soon needed, and these were completed in 1983.

There is no doubt that the Morrison Hill Technical Institute site was too restrictive, and, for this reason, the ITAC Committee on Technical Institutes, in 1969,

2. Opening Ceremony of the Polytechnic's first New Building, op.cit.
3. ED(TE)125/1.
5. (18)2/6692/64 IV (7 August 1974).
7. 55ED(TE)6711/103/5II.
recommended that all future institute sites should be at least one and a half acres in area.¹ This recommendation was later complied with. In fact the Lee Wai Lee's site, the largest of the five, measures 15,330 square metres.

There is no doubt that lateral expansion, such as building a new block, rather than making vertical extensions to an existing building, is to be preferred, and indeed H.E. Hammond, the Ministry of Overseas Development (MOD) consultant on the Morrison Hill Institute, in 1968, made this clear in his report.² However, the urban area in Hong Kong is heavily built on, and sites are hard to come by. For this reason, there is no option in some cases, to extending upwards. And, while there can be problems in the way of vertical materials handling and with the movement of students and staff, nevertheless, it is a problem that Hong Kong has learned to live with, and the seven-storey institute at Morrison Hill, with no lifts, seems to cause no major difficulties, with workshops using heavy and bulky materials being situated on lower floors. The other four institutes all have service lifts.

Equipment

While, as we have seen, planning for future spatial change is important, planning for the flexibility of services is probably even more important. This includes the layout of equipment and their services in laboratories and workshops, and the ability to be able to change them comparatively easily whether this involves water, vacuum, electricity, gas, exhausts, drainage or whatever.³ When the Technical College was planned at Hung Hom, in the mid 1950s, insufficient attention was given to this factor, and conduit for electrical wiring, for example, was often bedded in


concrete floors. However, the College quickly learned its lesson, and a flexible, overhead, busbar system was used when the production engineering equipment was installed in 1959. Also floor-troughs were constructed, to accommodate the various services in the electrical-machines laboratory, which was completed in the early 1960s. Similar flexible methods, which allow for expansion and changing needs, were used in the technical institutes.

Nor was it always remembered when planning the Technical College, that such things as concrete beds and plinths, for equipment and furniture, and the use of holding-down bolts for fixing machines (rather than using adhesive felt pads, as were employed in the technical institutes), inhibited flexibility. In a similar way, many of the workshops in the Morrison Hill Institute (where machines were installed with both imperial and metric calibration to prepare for the change over) were too small from the start, and were crowded with machines. When laying out new workshops and laboratories, it should not be forgotten that, in the future, new items of equipment will need to be added. This means some spare space will be required, and the services will need to be flexible so that machines can be easily coupled up. Another common fault is that, after a few additions, the electricity supply is overloaded. This happened at the Technical College in the early 1960s.

Another shortcoming that occurred at the College, and later in the technical institutes, was the rigidity of many of the built-in fixtures in laboratories. As far as possible, services should be kept out of furniture, and equipment should, preferably, be coupled up to service-

1. Recollections of staff.


3. Ibid., p.4; and Coopers Felt, The Croid-Cooper Method of Machinery Installation (England, undated), passim.


5. Recollections of past Technical College staff.
bollards placed in strategic positions. In turns heavy, cumbersome, built-in fixtures and furniture, which are commonly tailor-made to one activity and cannot easily be moved or adapted to other purposes; are inappropriate. Indeed accommodation should, as far as possible, be fitted out so that small scale changes can be made as decided on the spot by the user, be he teacher, technician or student. Such changes may mean the moving of a sliding sound-proof partition, to "throw" two rooms into one, or the rearrangement of furniture and the movement of equipment, mounted on trolleys or castors, constructed from slotted-angle. This aspect of planning has not, it is felt, been given sufficient thought in the past.

The equipping of technical institutions' laboratories and workshops has always been cause for concern. In some cases, it has meant installing expensive equipment only to find that, in a dynamic economy, within a few years, it is obsolete. This problem is quickly becoming more onerous, to a large extent because of the rapid advance of technology, but also because equipment is now not only more sophisticated but also more expensive. The use of accommodation

Cost studies conducted in technical institutions in Hong Kong have revealed that the utilisation of accommodation is sometimes low, especially for special rooms (see pages 334 to 336). While it is necessary for a college to have such accommodation, in order that certain classes can cover a given syllabus, nevertheless, as most of the time these rooms were idle and the taxpayers' money was not


2. Bashir A. Parvez, Equipping Technician Institutions, Colombo Plan Staff College (Singapore, 30 March 1976), passim.

3. Helmore, op.cit., p.22.
being properly employed, more thought could have been given, at planning stage, to dual or multi-purpose use being made of them. In this way they could possibly, for example, have been used for general teaching purposes when not in use as special rooms.

Laboratories are relatively expensive both in capital and running costs, and generally they are less intensively used than classrooms and similar accommodation.  

It is therefore important that everything possible is done so that they are used more effectively. With the trend for the introduction of more project work, in addition to the need for flexibility, there is a general move, as we have already seen, towards open-planning for laboratories and workshops. This means accommodation being less specialised and less rigidly laid out, as was the case in the past, with more clear floor-area, without a teacher's dais or a stepped or sloping floor (as in lecture theatres), with fewer fixed benches and with more mobile equipment.

Moreover, the Hong Kong Technical College administrators were always glad of extra rooms for evening classes, rather than using outside centres, and, if some of the laboratories with low utilisation had been designed for dual-purpose use, as classrooms or drawing offices, with equipment that could be locked away or, if heavy, fixed on castors so that it could be moved, this would have improved the utilisation factor.  

Laboratory benches could also have been made with knee-spaces under them, to allow students to sit more comfortably when attending lectures. Indeed, in a similar way, classrooms too can be designed with moveable benches at the sides and rear to allow simple experiments and practical work to be carried out.


It is also necessary for thought to be given to the types of courses and to class/group size so that rooms can be planned accordingly. A range of sizes may be required. In the technical institutes the normal class size has generally been 40 students, and the standard classroom has been planned accordingly. However student-throughput rates vary (see pages 329 to 332). It can thus be seen that many seats, especially towards the end of the academic year, are unoccupied.

The introduction of new teaching methods (such as team-teaching which includes lead-lectures supplemented by small discussion groups) and rising student/staff ratios, in Britain for example, have had their effects on room design and usage, and similar methods are in use at the Polytechnic in Hong Kong. While the latter has a basic class size of 40 students, this is usually reduced to 36 in the final year. In turn, many advanced classes have a limited enrolment - say 20 students. Also, many departments combine parallel classes for group lectures, totalling up to 120 or more. Again, for tutorials, group size may vary from 8 to 15 participants and, for seminars, from 12-20. For project work a group can consist of two to three students. While it is appreciated that a large proportion of students are at craft level, the technical institutes too could possibly shift to a more flexible class/group pattern in the future.

From the above examples, it can be seen that there are advantages in being able to break down "barriers". Thus partitions should be moveable or demountable, and reasonably sound-proof (care needs to be taken with the planning of lighting and ventilation), as it is now generally agreed that such subdivisions do not need to be evenly

3. Helmore, op.cit., p.29.
spaced, and that these need to vary with the life of a building. In addition, names on doors designating subject rooms, while posing no physical barriers, do tend, psychologically, to restrict flexibility.

Another change that has been witnessed, in many parts of the world, has been with libraries. These have altered from being solely for books, and for reading and research, to fully-developed resources-centres, with learning-packages, slides, films, models, charts, handouts, and similar types of software. Hardware, such as projectors, cameras and tape-recorders, may also be stored here rather than being kept by individual teachers which again makes for better integrated use.

When the Technical College moved to its new site in 1957, the library was located in what was intended to be a classroom. However a purpose-built, two-storey library was completed in the mid-1960s. This, however, was not large enough after the College became the Polytechnic, and a new four-floor library was officially opened, by Princess Alexandra, in February 1977. By 1982, this contained about 200,000 volumes, but the aim is to increase it to 500,000, providing one of the largest collections of scientific, engineering and business works in the Far East.

By comparison, the technical institutes have not been so fortunate. Various proposals have been made,

4. Recollections of past Technical College staff.
5. Hong Kong Polytechnic 10th Anniversary Supplement, op.cit., p.10.
commencing with the paper prepared by Timothy A. Chow, the Head Librarian of the Government Urban Services Department, for the Morrison Hill Institute, in 1968. Further detailed proposals were prepared by a team headed by B.L. Burton, Head Librarian at the Polytechnic, in 1976, and by C.H. Bleasdale, who was sponsored by the Commonwealth Fund for Technical Cooperation (CFTC), in 1977. The last two reports recommended a considerable expansion of library facilities in the technical institutes, with libraries being staffed by qualified librarians. Unfortunately, the recommendations were made at a time of recession. However since 1981, facilities have improved. In fact at Morrison Hill, and in some other institutes, classrooms are placed adjacent to the library, so that partition walls can be removed, if the need arises, for extending the library.

Communal facilities include assembly-halls, gymnasia, foyers, canteens, student and staff common-rooms, and other amenities. Some of these occupy large areas, and, in the case of the canteen say, are not very adaptable. An assembly hall, however, can be used, as in the technical institutes, as an all-purpose hall to serve as a gymnasium, an examination hall, for concerts and large lecture groups, and for similar purposes. It can also be hired out to external bodies (see page 336). It must also be remembered that, as a college develops and with the addition of new teaching rooms, so does the strain on communal accommodation increase. This must not be overlooked when planning phased expansion programmes, as have taken place at the Technical College/Polytechnic.

1. (42) CH1/23.1 (8 July 1968).
Disciplines

As we saw in Chapter 1, industry has developed in Hong Kong at a rapid rate. It has also diversified (see pages 15 to 18) and has moved into areas of higher technology and more sophisticated products. As this evolution took place, it was necessary for technical education to develop in a similar manner, in order to supply the educated manpower. To give some idea of the progress made: the Technical College, in 1964, comprised the following seven teaching departments: building, surveying and structural engineering; commerce and management studies; electrical engineering; mathematics and science; mechanical, production and marine engineering; nautical studies; and textiles. ¹

However by 1982, the numbers of disciplines covered in the Polytechnic and the technical institutes had increased considerably, as shown in Tables 22 and 23. ² In other words, in the 19 years up to that date, the numbers of departments/institutes/schools/centres had increased to 22 in the Polytechnic, and to 26 departments in the technical institutes, although some of them are similar disciplines and complement one another. In addition to the disciplines shown in Tables 22 and 23, other subjects are also covered. For example, the Industrial Technology Department in the Lee Wai Lee Institute runs courses in optics, footwear, and clock and watch repairing. This Institute also has a computer for teaching purposes with on-line facilities to the other institutes. It can thus be seen that, not only did the numbers of students grow (see pages 224 and 225), but also the range of subjects increased considerably. In a number of cases, as we shall see later under "staffing", this presented problems, for example with printing, footwear, and hotel and catering,

1. Hong Kong Technical College Prospectus 1967/68, passim.
2. Polytechnic and technical institute prospectuses, passim.
### Table 22: Departments/Institutes/Schools/Centres, as at 1982, in the Polytechnic

<table>
<thead>
<tr>
<th>Division of Applied Science</th>
<th>Division of Commerce and Design</th>
<th>Division of Engineering</th>
<th>Division of Construction and Land Use</th>
<th>Institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nautical studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accountancy</td>
<td>Electrical</td>
<td>Building and surveying</td>
<td>Medical and health care</td>
</tr>
<tr>
<td></td>
<td>Business and management</td>
<td>Electronics</td>
<td>Building services</td>
<td>Textiles and clothing</td>
</tr>
<tr>
<td></td>
<td>Computing</td>
<td>Mechanical</td>
<td>Civil and structural engineering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Design</td>
<td>and marine</td>
<td>Land and engineering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Institutional management</td>
<td>Production</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and catering</td>
<td>and industrial</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Languages</td>
<td>Industrial</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>centre</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 23: Departments, as at 1982, in the Technical Institutes

<table>
<thead>
<tr>
<th>Department</th>
<th>Technical institute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Haking Wong</td>
</tr>
<tr>
<td>Clothing</td>
<td></td>
</tr>
<tr>
<td>Commercial studies</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>x</td>
</tr>
<tr>
<td>Design</td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
</tr>
<tr>
<td>General studies</td>
<td></td>
</tr>
<tr>
<td>Hotel-keeping and tourism</td>
<td></td>
</tr>
<tr>
<td>Industrial technology</td>
<td></td>
</tr>
<tr>
<td>Marine and fabrication</td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td>x</td>
</tr>
<tr>
<td>Printing</td>
<td></td>
</tr>
<tr>
<td>Textiles</td>
<td></td>
</tr>
</tbody>
</table>
as little expertise was available locally to plan courses and it was necessary to obtain advice from overseas (see pages 280 and 281).

It should be mentioned here that modern thinking deems it better not to design courses to meet narrow specific objectives, but to concentrate on broad-based basic "core" studies, coupled with as many common units/modules as possible to provide the specialisms and options required.¹ This means large common areas of study, in such fields as engineering, business and mathematics, which have multi-discipline use. Such programmes can be modified relatively easily to meet industrial or social change without having to alter the entire course structure.

This approach provides more breadth of study and "thinking across disciplines" (and even across institutions) in order to encourage mobility and to give greater flexibility.² It has been found that tailor-made programmes are, in general, less efficient in meeting modern needs, as they tend to be inflexible and expensive, with heavy teaching loads. Also, they are not economic unless the group size is large and they can also lead to student and staff introspection. The programmes at the City Polytechnic have, in fact, been planned with the above points in mind.³

Courses

The Technical College, from 1963 onwards, ran courses at craft level (until these were transferred to the Morrison Hill Institute in 1969). It also ran Diploma and Certificate (technician) courses, and Higher Diploma and Higher Certificate (higher technician) programmes.⁴ In

---

¹ Legg, discussion with author, op.cit., and John Dockerill, Associate Director (Resources), City Polytechnic, discussion with author (6 July 1984).
² Keith Legg, Education and the Development of Human Resources: The Role of Tertiary Institutions, op.cit., p.5.
³ Dockerill, discussion with author, op.cit.
addition, a limited number of Higher Diploma holders were able to continue their studies by following one-year, full-time Associateship courses, which led to British professional institution examinations, such as the Part-Two Examinations of the Council of Engineering Institutions (CEI) (see page 271). Thus, the Technical College courses covered the entire spectrum from craft to technologist levels.

The Polytechnic Planning Committee, which was established in May 1969, recommended that the Polytechnic should run Professional Diploma courses, Higher Diploma and Higher Certificate courses, Technician Diploma and Certificate courses, and that degree programmes should not initially be mounted. It was also recommended that a reasonable proportion of programmes should be at technician level.

Nevertheless various low-level courses were, quite rightly, transferred from the Polytechnic to the technical institutes in the early 1970s (see pages 179 to 186). The bulk transfer of courses, however, did not commence until 1981. It is being phased over six years and, during that time, approximately 950 full-time, 840 part-time day and 7,500 evening technician student places will be transferred. The Polytechnic also commenced running five degree courses comprising electronic engineering, mechanical engineering, social work, mathematics and science, and computing studies, in 1983. There has thus been a gradual shift of emphasis in the Polytechnic and, instead of continuing with the rapid expansion of student numbers, focusing more on the development of higher-level programmes.

4. Hong Kong Polytechnic Triennial Academic Plan 1981-84, op.cit., pp.3 and 4 and Appendix A.
Another change that has taken place is the proportion of students by mode of study.¹ For instance in 1957, out of a total of 5,811 students at the Technical College, 5,432 were engaged in evening studies, 311 were full-time, and only 68 were attending part-time day classes.² This pattern has changed over the years and, in the Morrison Hill Institute in 1969/70, while there were only 41 part-time day and 217 full-time, compared to 6,984 evening students (total 7,242), by October 1981/82, the figures for all five technical institutes were 10,096 part-time day, 16,651 evening and 3,516 full-time students (total 30,263).³ The reason for the significant increase in part-time day students was largely because of the enactment of the Government Apprenticeship Ordinance, in 1976.⁴ The Polytechnic has also moved away from evening to more part-time day and sandwich courses.⁵ For instance, as at 31 December 1973, there were 2,141 full-time, 1,217 part-time day, and 11,217 part-time evening students on roll.⁶ By contrast, in 1981/82, there were 7,930 full-time (including sandwich), 4,680 part-time day, and a modest increase of 2,083, making 13,300 evening students.⁷ This is a natural development in a country as the gap between social and economic demand closes and as employers become more generous in granting time off for daytime study (see pages 188 and 189).⁸

---

3. Education Department enrolment figures.
7. Hong Kong Polytechnic, Annual Report 1981-82, p.120.
There has also been a move in Hong Kong, as elsewhere, to broaden technical courses in order better to prepare young people for future change (see pages 47 and 48). For instance if we look at the one-year, full-time, craft courses run by the Technical College in the 1960s, we shall see that they tended to be "narrow" (see page 78).

Curricula and syllabuses

It can be said that, to a large extent, the degree and duration of change is directly proportional to the intensity of the stimulus generated by spectacular ventures or projects. Turning to the United States and the USSR as examples: one only has to think of the effects the launching of the sputniks had on technological education in these countries. Looking for a comparison locally, albeit in a smaller way, the Hong Kong Government began, in the second half of the 1970s, to take a keener interest in the development of industry. Two obvious reasons for this were the growing protectionism in Hong Kong's principal overseas markets, for example textiles and clothing, and the competitive advantages of other Asian countries, such as South Korea, Taiwan and Singapore. One of the steps taken to help overcome such difficulties was the setting up of the Diversification Committee (see page 15), in October 1977. Concomitant with this was the greater emphasis placed on technical education in recent years.

It has naturally been necessary to match the different technologies by drawing up curricula and syllabuses, in the technical institutions, pitched at the correct levels. As previously mentioned, commencing in the late 1960s, ITAC prepared a series of useful publications giving the minimum

---

1. L.S. Chandrakant, Methodological Approaches to Planning and Designing Technician Education Systems, Colombo Plan Staff College (Singapore, undated), pp.15 to 20.
job standards and specifications for the principal jobs in the main industries in Hong Kong (see page 46). This work was continued, in the 1970s, by the Training Council. Working from such documents, it has been possible for the technical institutions to draw up curricula and syllabuses for the various courses. During the drafting of a syllabus, the observations of industry have also normally been sought (see pages 31 to 39), and the views of ITAC or its successor, the Training Council, were obtained, where applicable. However, care has also been taken that technical education courses have not been transformed into industrial training programmes, as a result of the recommendations of industrialists, who sometimes tend, quite naturally, to see education from a narrow standpoint (see pages 5 to 8). When drawing up curricula and syllabuses, local conditions have normally been kept in mind.4

There has always been a tendency for part-time Polytechnic and technical institute students to come from - and for full-time students later to be employed by - the larger and more enlightened firms utilising higher-level technology.5 As a result, syllabuses have been pitched at levels similar to those prevailing in industrialised countries, rather than catering to the needs of intermediate technology. This is evidenced by the fact that a number of courses have been recognised by British institutions (see pages 271 and 272), and that a number of students have won prizes in


5. Report of the Third Survey of Part-time Day Release Courses by the Committee on Technical Training in Institutions of the Hong Kong Training Council (August to September 1980), para.3.11(b).
international competitions. In turn, many employers have agreed that courses are related to the needs of industry.

**Curriculum development**

Curriculum development, broadly speaking, consists of deciding needs and the formulation of objectives, the selection of learning experiences, and the organisation of course content, as well as determining strategies of implementation and a system of evaluation (see Figure 11).

Leading on from there, it is necessary to provide guidelines as to how a lecturer teaches and what facilities should be made available for him to be able to do so. It is also necessary to resolve what sections of the curriculum examiners will evaluate and how this will be done. Decisions will also have to be taken on what role the students will play, and to what extent courses will be subject-centred or student-centred. And then, regarding the "end product", what kind of a college leaver will an employer be able to recruit?

All the above decisions are, obviously, interrelated and linked with the types of buildings, equipment and teachers required.

Curriculum change, by its very nature, can result in severe ramifications throughout the educational system.

---


5. L. Alan Hough, Planning and Analysing Courses Using a Table of Specification and Behavioural Objectives, Colombo Plan Staff College, country course in Indonesia (September 1976), passim.
Figure 11: The Curriculum Development Process

1. Needs and objectives

2. Selection of learning experiences

3. Course content

4. Strategies of implementation, organisation and integration of learning experiences and content

5. Evaluation of (i) teaching/learning process and (ii) performances of students in industry
and elsewhere, including in the economy, when the students later take up employment. For instance, as the curriculum changes in response to developments in industry, so teachers may be required to receive up-grading training, new equipment may have to be purchased, and accommodation may have to be modified. It may be desirable for greater emphasis to be placed on the use of educational technology. It will also be necessary for the effects of the changes in the curriculum to be evaluated.

There is no doubt that more attention should have been paid to curriculum development in the Technical College, in the 1950s and the first half of the 1960s. However, most teachers had student-contact amounting to about 24 hours a week, and heads of departments also had heavy teaching loads. In addition, there was preparation of lectures and marking and administration to be done and, consequently, this left limited time for such "frills" as curriculum development. Nevertheless the Technical College was small, and a quite good "old boy" network had developed between the staff, industry, and other educational institutions, and it was generally known, by the College teachers, what kind of students were required by employers, even though it was not always spelled out on paper. This lack of formal curriculum planning, however, is by no means unusual in an emerging country, especially in the early stages of the development of technical education.


2. R.S. Punia, Educational Technology in Theory and Practice, Hong Kong Technical Teachers College (circa 1975), passim.

3. Curriculum Evaluation, Syndicate IV, Colombo Plan Staff College Study Conference (Singapore, 8 to 24 November 1976), passim.


5. Recollections of past Technical College staff.

More attention was, however, paid to curriculum development as the College progressed. Also, in the Building Department for example, detailed lecture-by-lecture notes were drawn up by full-time staff, for part-time teachers to use, in order that, when a number of parallel evening classes were run, they could progress reasonably in step. However, while such notes were welcomed by some lecturers, others were not in favour and preferred greater freedom in the classroom. By the time the Morrison Hill Institute was being built, in the late 1960s, curriculum development was, by then, being taken more seriously, and the views of industry and other sectors of the community were given more formal consideration.

A Curriculum Development Committee complex was established in the Education Department in 1972, and a specialist in the subject, Morgan Owen, visited Hong Kong from Britain, in 1974. His brief included reviewing the work of the Curriculum Development Committee and its existing projects, advising on the formulation of curriculum objectives, suggesting priority areas for development, advising on effective co-ordination between the various agencies involved in such work, and advising on training for staff engaged in curriculum development. However, this Committee is largely concerned with the curriculum in schools, and its work does not directly affect the technical institutions with their vocational type courses, although it is necessary to marry up the curricula in such institutions with those in the schools.

A wide variety of subjects, by various modes of study, are run in the polytechnics and the technical institutes, and, by and large, staff in these institutions are responsible for curriculum renewal. In the past, this

---

1. Recollections of past Technical College staff.
3. Education Department Annual Summary 1980-81, p.11.
included submitting draft syllabuses, and other details of technical institute courses, to the Training Council (see page 252) for its comments. In a similar way, the Polytechnic submitted its proposals to its own advisory committees (see page 36). Before the craft courses and some technician courses were transferred from the Technical College to the Morrison Hill Institute, in 1969, an overall review was conducted of the course structure and the curricula. As a result, all the syllabuses were revised and a number of courses were re-named. For example, the pre-apprenticeship courses became basic craft courses.\(^2\) This also meant direct contacts with industry, especially when trades were not covered by ITAC.

However, while more interest was taken in formal curriculum development, in the late 1960s and early 1970s, still more could have been done, and one of the criticisms by Houghton and his associates from ILEA, in 1971, was that more attention should have been paid to curriculum development in the technical teacher training courses run, at that time, by the Morrison Hill Institute. Later in the 1970s however, still more interest was taken in the planning and development of the curriculum, as, with the big increase in the numbers of students and different types of courses being run, it was no longer possible to work using the informal and often ad hoc methods that were practicable previously when a single Technical College was in operation.

In addition to liaising with schools and the Advisory Inspectorate in the Education Department, in order to ascertain the standards which school leavers have reached in such subjects as English, mathematics, physics and

2. For example: Hong Kong Technical College, Department of Electrical Engineering, Curriculum and Syllabus, Full-Time Pre-apprenticeship Course (September 1967); and Morrison Hill Technical Institute, Department of Mechanical Engineering, Engineering Craft (Apprenticeship) Course, Syllabus (May 1971).
technical subjects, it is necessary for technical institutes and the polytechnics to work closely together.\(^1\) This is because, for example, many technical institute Certificate leavers carry on at the polytechnics for their Higher Certificate studies. A polytechnic/technical institute committee complex has been developed over the years, commencing in 1973 with a single committee, which grew, in the 1970s, to a main and supporting committees and a number of sub-committees covering common disciplines.\(^2\) The members from the polytechnics and the technical institutes who sit on these committees, among other things, examine the division of work between the two types of institutions, as well as various aspects regarding the curriculum, including its development, methods of teaching, and the use of educational technology.

Later, in 1982, the VTC also set up departmental boards, together with course and subject committees for the technical institutes, with members nominated both from the various institutes and industry.\(^3\) These committees are again involved with curriculum development. With the rapid expansion and changes that have taken place in technical education, this also brought curriculum development more into the limelight. As a result, various training programmes have been held, and some research has been undertaken.\(^4\) The Technical Teachers College (see pages 290 to 293) has been very much involved.

A comparison of curricula between Hong Kong, Korea and Singapore

Let us now make a comparison between the curricula of full-time technician courses in three newly developed

---

2. Waters, A Series of Papers ... Paper I - General, op.cit., p.17; and Education Department and Polytechnic Liaison Complex, Composition and Terms of Reference of Committees and Sub-Committees (April 1978), AS735/578.
4. Typical examples: Seminar on Curriculum Development, Prevocational Schools (Forms I to III) (26 July 1979), passim; and R.S. Punia, Designing a Unit for TEC Programmes, Technical Teachers College, MA in Education dissertation, University of Lancaster (England, June 1978), passim.
countries, namely The Republic of Korea, Singapore and Hong Kong. In Korea, such courses are run in technical colleges and polytechnics and are of two-years' duration. The curriculum is broadly composed of 20 per cent of general studies and 80 per cent of technical studies, and, of the latter, 50 per cent is devoted to "practice and experiment". By contrast, similar polytechnic and technical college courses in Singapore are of three-years' duration for the GCE Ordinary Level students, and two years for their GCE Advanced Level Counterparts. Much of the additional year, for the former, is spent studying such subjects as engineering mathematics, physics, materials, engineering drawing and technical English.

In Hong Kong, two-year, full-time, technician courses are run both in the polytechnics and in the technical institutes (although the polytechnics also run three-year Higher Diploma (higher technician) programmes). Turning now to a breakdown of such courses.

Table 24: Comparison of Ratios of Broad Groupings of Subject Areas on Full-time Mechanical Engineering Technician Courses in South Korea, Singapore and Hong Kong

<table>
<thead>
<tr>
<th>Broad groupings of subjects</th>
<th>Korea</th>
<th>Singapore</th>
<th>Hong Kong</th>
</tr>
</thead>
<tbody>
<tr>
<td>General subjects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numbers of subjects</td>
<td>6</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>Percentage</td>
<td>20</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Theory</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numbers of hours/week</td>
<td>14.25</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td>77</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Practice</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numbers of hours/week</td>
<td>10.75</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td>77</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>33</td>
<td>30</td>
</tr>
<tr>
<td>Numbers of hours/week</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Percentage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Lee Jang-Bock, A Comparative Study on Technician Education in Korea and Singapore, Colombo Plan Staff College (Singapore, June 1981), pp.38 to 43.

2. Polytechnic and technical institute prospectuses.

Referring to Table 24: in Korea, general subjects, which take up 20 per cent of the time, include national ethics, Korean history, physical education, military drill, English, Korean and mathematics; while technical subjects will naturally vary upon the trade being taught. In the case of Singapore, 23 per cent of the curriculum is made up of technical English, engineering mathematics, and physics, and these are regarded as general subjects. However, Hong Kong students spend eight hours in Year one, and seven hours in Year two (average 25 per cent) a week, on general studies. These include general and communication studies, mathematics and physical education. Regarding the theory to practice ratios of technical subjects: these amount, on average, to 53 to 47 for Korean students, 57 to 43 for Singaporean students, and 56 to 44 for their Hong Kong counterparts. Thus, the variation between the three countries is not great.

It can also be seen that Korean students study for 36 hours a week, compared to 33 for their Singaporean and 30 hours for their Hong Kong equivalents. It will also be noted that, in Korea, a large proportion of general subjects are contrasting studies, while in both Singapore and Hong Kong they are mostly complementary (see pages 264 and 265). The above comparisons are for full-time mechanical engineering programmes. Naturally, details vary depending upon the course.

Credit-units

Both the Polytechnic and the technical institutes have implemented a credit-unit system (see page 79). In the case of the Polytechnic, while the UPGC supported the concept, it also cautioned that care should be taken to provide a balanced programme, and that a considerable demand could be made on resources. In the light of these remarks, the Polytechnic approached the introduction of a credit-unit scheme with some degree of caution.

---

1. Hong Kong Polytechnic/Technical Institutes, Education Department, Hong Kong Government, Joint Guidelines on a Credit-Unitary System for Technician Study Programmes at the Polytechnic and the Technical Institutes (April 1977), passim; and D.D. Waters, Technical Education in Hong Kong (October 1976), para.44.1 to 44.11.

Such a system can have three stages of implementation, each representing greater flexibility in course structure and student choice. The first degree of implementation restructures the curriculum and takes the existing courses into unit form. The second stage incorporates the concept of awarding a credit for the satisfactory completion of a unit, and allows for a flexible system for students to accumulate them. This permits students to progress through a programme at different rates, largely depending on their background, academic ability, and time available for study. The third stage of implementation allows for students to study the same course via a variety of modes of attendance.

The Polytechnic had, by 1980, reached stage two of implementation in the case of a few disciplines, such as the Department of Applied Science, Mathematical Studies, Management and Catering Studies, and the Institution of Textiles and Clothing; while the Department of Computing had progressed to the third stage, having enrolled a number of mixed mode of attendance students. However, while the technical institutes have also implemented a credit-unit scheme, commencing in 1977, to some degree in parallel with the Polytechnic, the progress reached up to 1980, was, with few exceptions, not generally beyond stage one. Many of these programmes in the technical institutes are validated by TEC (since 1983 BTEC (the Business and Technician Education Council)) in Britain. In addition, a module system for craft courses has been introduced into the technical institutes.

1. Ibid., pp.15 and 16; and Keith Legg, Technical Education in an Industrializing Society, Technical Education and Industry, Report of a Commonwealth Regional Seminar/Workshop, Hong Kong, 28 September - 7 October 1976, Commonwealth Secretariat, pp.56 to 88 (pp.64 and 65).

The introduction of units/modules, in the late 1970s and early 1980s, in Hong Kong, meant the largest curriculum development exercise the technical education institutions have ever been involved in. (The same could probably be said in the case of Britain with the introduction of TEC and BEC units.\(^1\)) Although curriculum development has been going on at various times, with varying degrees of magnitude and thoroughness, the introduction of units/modules has proved a trying experience and has meant a considerable amount of extra work for a large number of teachers.

In fact, the drawing up and revising of curricula and syllabuses, which was often the preserve of the head of a department or a few senior staff, has now become very much a team job, involving teachers at all levels, with more curriculum development committees being formed, and with more consultation with industry and other bodies. For technician courses, this has included objective comments on programmes by TEC advisers, who have also appointed external moderators to make certain that courses are properly conducted, and TEC itself also monitors the examinations. This has all helped to raise standards.

However, while Hong Kong was the first place overseas to have TEC validated programmes,\(^2\) The Republic of Korea, whose educational system was modelled on the American pattern, has had its technical courses based on the credit principle for a number of years.\(^3\) Their two-year, technician programme, for example, covers 120 credits, and a minimum of 90 are required before a student can graduate. A credit consists of 16 hours of instruction for lectures, or 32 hours for practical work. However in the early 1980s, the British Technician Education Council assisted the Korean

---

2. (88)ED(TE)110/18/2 (21 May 1980); and Industry Course Scores a First, South China Morning Post (11 December 1979).
Education Department to establish a credit-unit system based on TEC principles. ¹

**Liberal studies and extra-curricular activities**

Another change that has taken place in Hong Kong has been the introduction, on a relatively larger scale, of liberal studies and extra-curricular activities, although still more, it is felt, needs to be done. ² In fact an attempt was made to introduce liberal studies at the Technical College in the late 1950s, but, as neither the students nor the staff were really interested, as they wanted to get on with the job of learning a trade, the idea was dropped. ³ Another scheme implemented at the Morrison Hill Institute, in 1970/71, met with a similar fate. Mainly for the above reasons, it was decided by the Working Party on Senior Secondary and Tertiary Education, in 1977, that liberal studies, as a course subject, should not be introduced into technical institutes at that stage. ⁴ However, communications and General Studies is a requirement for the courses validated by BTEC and, as a result (no doubt correctly), the subject has also been introduced into such programmes in Hong Kong. ⁵

In addition extra-curricular activities, organised mainly by far more active students' unions than we knew in the past, now play an important part in the life of the

---


3. D.D. Waters, *Technical Education in Hong Kong* (October, 1976), paras.35.1 to 35.14; and Helmore, op.cit., p.11.


5. (8) in ED(TE)110/5 (19 May 1980).
technical institutions. However, largely because of the lack of time available, part-time students do not play an energetic role.\(^1\) As is to be expected with a generally older and better educated student population, greater progress in these areas has been made in the Polytechnic,\(^2\) and students take an active part in many activities in the Hong Kong community alongside the student unions of the two universities. Extra-curricular activities now constitute a vital part in the overall curriculum at the Polytechnic, and play a quite different role to that in its predecessor the Technical College.

"The informal curriculum" does, of course, have an important part to play in supplementing liberal studies, for which some people prefer the title "contrast ing and complementary studies",\(^3\) and in this context, it is interesting to look at what happens in other countries. Turning to page 260, it can be seen that South Korea places some emphasis on such contrasting subjects as national ethics, Korean history and military drill; but then it is appreciated that this country has to face a special political situation. By contrast, general studies in Singapore are complementary, with such subjects as technical English, engineering mathematics and physics. Industrial studies, providing an overall appreciation of how industry works, has also been included on some part-time and full-time technician courses.\(^4\)

While Hong Kong has introduced liberal studies, as previously outlined, it too has tended to be of the complementary rather than of the contrasting kind. For

\(^1\) (134)HKTC/COR/CM(V) (10 October 1979).


example "industrial knowledge", introduced at the Morrison Hill Institute in 1970, was on the lines of that taught in Singapore.\(^1\) Again, in the BTEC programme (see pages 260 to 263), general and communication studies form about 15 per cent of the curriculum. This too consists of complementary studies, with English and industrial organisation, including business units, employment ordinances, industrial training, industrial laws, and health and safety.\(^2\)

Principals of technical institutes had mixed feelings towards the introduction of liberal studies,\(^3\) and, while some staff felt that contrasting studies would serve a useful purpose, others doubted whether time could be made available, especially on part-time courses. For that reason, most preferred complementary studies. Nevertheless some people, Alex Wu, a businessman and Legislative councillor, for example, would have preferred to inject a greater degree of contrasting studies into technical institutes.\(^4\)

The Director of Education however, in 1978, in reply to Wu's suggestion, said,

> we should be very clear ... what new targets we are aiming at ... I should not like to see our technical institutes suffer a sea-change to perform vague, ill defined roles in our community.\(^5\)

All these changes regarding liberal studies that have taken place, are, it is felt, a step in the right direction, as young people need to have a broader approach to life if they are to fill their rightful place in modern

---

1. The Morrison Hill Technical Institute, Specimen Syllabus "Industrial Knowledge" (24 November 1969), TI/111/1.
3. Communications and General Studies (C. and GS.) Summary of Comments by Principals (June 1980), (TE)110/5.
society. It is open to question, however, whether things have gone far enough, and whether contrasting studies should have been introduced into the technical institutes. Probably under the circumstances, with few suitable teaching staff for the subject, and a shortage of library facilities in the 1970s, the correct action was, in fact, taken. However, with more people stating that there is a growing need to "humanise technical education", it will probably be necessary to introduce some form of contrasting studies into full-time courses at some stage in the future.

Other changes

Other changes that the technical education institutions have had to cope with have included the gradual introduction of SI Units (metrication), commencing in the early 1970s, to replace the Imperial System, although some traditional Chinese weights and measures are still used in some sectors of the economy (for example local food produce). There has also been far more emphasis on the teaching of safety during recent years. For instance in the 1960s, the use of safety helmets on building sites, or the wearing of goggles or safety glasses in workshops, was rare.

Teaching methods

In the Technical College teaching methods, in line with many Asian countries, tended to place emphasis on formal lectures and were teacher-centred, and discovery-learning, team-teaching and individual or small group instruction played a limited role. "Chalk and talk" and

---

1. Education Department, Technical Education Committee (1 November 1977), p.1, (3)ED(TE)10/2426/77.
3. SI Units, A Polytechnic Handbook (July 1977); and ED(TE)/116/73 (1/12/77). 
5. A Perspective on Education in Hong Kong, op.cit., pp.53 to 56; and Curriculum Evaluation, Syndicate IV, Colombo Plan Staff College (Singapore, 8 to 24 November 1976), p.5.
"teaching from the book", with the teacher dominating the class, have been (and still are in many cases) common methods of teaching in Hong Kong, and the teacher has tended to look upon his discipline as his private domain and unrelated to other subjects. There is also a tendency to relegate workshop classes to an "inferior" position. Students also tend to spend too little time in critical or analytical thinking\(^1\) and, while their mathematics and science background is usually of a high standard, their ability to converse in English often presents problems when it comes to discussion groups or asking questions. In turn, rote learning and Confucian ethics (including self-discipline, orderliness, dedication and respect for the teacher) have always played an important part in traditional Chinese education.

Since the Polytechnic came into being, in 1972, it has made progress in improving the quality of learning and in introducing new teaching methods. These steps have included the general reduction of the students' class-contact hours, thus leaving greater scope for the encouragement of self-learning.\(^2\) In addition, as was mentioned earlier, the Polytechnic does not depend to the same degree on a fixed class size, as do the technical institutes with their more traditional teaching style, and student numbers vary depending upon the methods used, whether this be, for instance, group discussion or lead-lectures.\(^3\) There is also much better support available today in the Polytechnic, from its Educational Technology Unit, than there was in the Technical College.\(^4\) An "industrial centre" has also been formed in the Polytechnic, combining a large number of workshops under a head, thus giving enhanced status to practical classes.\(^5\)

---

1. A Perspective on Education in Hong Kong, op. cit., p.57.
In the case of the technical institutes however, although some progress has been made in the creation of better teaching/learning strategies, and in the implementation of more student-centred situations, unlike the Polytechnic, it has not been so simple. This is, to a large extent, because most of the students are younger and studying at craft level, and, after being brought up in the Hong Kong education system, the change in adjusting to a more student-centred approach is not always easy to accept. Indeed many teachers too have difficulty in adjusting to student participatory methods, although, as we shall see later in this chapter, training programmes run by the Technical Teachers College have done a great deal to improve the situation.

The medium of instruction

In the Technical College most of the courses were taught in English, and the same is true in the polytechnics with their almost entirely post form-five students. In the technical institutes however, when the running of craft courses started on a large scale, in 1970, it soon became evident that such students, with only nine years (or less) of general education, were not capable of learning in any medium other than their mother tongue. However, there is no doubt that the change from English to Chinese, as the teaching medium, was not always popular with some teachers who themselves had been taught in English.

An added complication was the fact that there was, and still is in some areas (in common with many developing countries), a shortage of suitable instructional materials.
in the vernacular, and there were often no suitable translations for some technical terms.\(^1\) As a result, many classes in technical institutes are still taught in a mixture of Chinese and English (sometimes called "Chinglish"), with the spoken word in the Cantonese dialect, except for technical terms and written work which are, to varying degrees, in English. Many teachers overcome these difficulties by preparing their own handouts in Chinese, nevertheless, since the early 1970s, more printed teaching material has become available and Chinese glossaries of technical terms have been prepared.\(^2\) There is no doubt that the learning of English (as a second language), in Hong Kong, is for many a privilege, but for the less gifted it can be a burden.\(^3\) There has been a gradual move to the greater use of Chinese by the Government\(^4\), ever since there was pressure in this direction by certain sectors of the public in the early 1970s. Also today for example, student-union activities are conducted mainly in Chinese.

Looking at other countries in the region, such as Japan, Taiwan and South Korea,\(^5\) the language of instruction is normally the vernacular, with English taught as a foreign language. In this regard, there is little doubt that the mother tongue is the best medium for learning.\(^6\) Singapore, however, with its multi-racial society, where Malay, English,

---

2. A Perspective on Education in Hong Kong, op.cit., p.56; and, for example, *Manual of Technical Terms for Use in Technical Institutes*, vol.II (March 1977).
4. Hong Kong Government Year Books, various.
6. A Perspective on Education in Hong Kong, op.cit., p.28.
and various Chinese and Indian dialects are spoken, is an exception, and, because Singapore is cosmopolitan and depends heavily on international trade, parents prefer to send their children to English medium schools (as in Hong Kong), as they believe, with a greater command of English, they will have better prospects. In this context the Prime Minister, Lee Kwan-yew, although stressing the importance of bilingualism, believes that, in Singapore's case, English will be the language of the future.

Examinations

Evaluation of any education system is obviously important, so that we are able to know the standards reached and whether objectives have been met. Evaluation may be divided into two main areas: firstly, the evaluation of students' performance during, and at the end of a course, and, secondly, how they discharge their responsibilities, in employment, after they have left an institution. And one not uncommon criticism that is often levied by employers is that technical education is not sufficiently responsive to industry's needs, and more consultation is necessary (see pages 37 to 39).

Hong Kong has been criticised on numerous occasions for allowing examinations to dominate the curriculum. This is not really surprising as academic examinations are said to have originated in China, many hundreds of years ago, and the curriculum in most Chinese societies tends to be "examination driven". While this still applies to a large degree, there have been moves, especially in recent years in Hong Kong, to reduce the number of examinations in the education system overall, and to introduce some form of

5. A Perspective on Education in Hong Kong, op.cit., pp.31 to 39.
internal (progressive) assessment, rather than the "sudden death" type of terminal examination which existed in the Technical College. In those days little weight was given to course-work, and a border-line candidate was seldom given "grace marks" if he fulfilled certain criteria.

A number of courses at the Technical College, starting in the early 1960s, were recognised by British professional institutions, and external examiners were appointed for three-year Diploma courses going back to the early 1950s. The polytechnics have extended this policy, and students are encouraged to sit the examinations of external bodies. These range from the Chartered Institute of Building, to the Institution of Electrical Engineers; and from the Australian Society of Accountants, to the Institute of Bankers.

Also, academic departments in the polytechnics engage external examiners to moderate the standards of individual examinations for specific study programmes. In addition, each teaching department makes provision for a moderator to oversee its work in general, and to give advice on such subjects as curriculum development and planning, practical training, research, and consultancy. However, in spite of the above remarks, most students are studying for internally assessed polytechnic examinations.

The technical institutes also have a number of their courses recognised by British professional institutions, including, for example, the Society of Electronic and Radio Technicians, the Institution of Electrical and Electronic Technician Engineers, and BTEC (see pages 261 and 262). Also, in

1. Ibid; and recollections of past Technical College staff.
3. Hong Kong Polytechnic Prospectus 1983/84, pp.81 to 83.
4. Ibid., p.80.
the case of craft classes, a small number of students have sat City and Guilds of London Institute examinations. However, most of the technical institute examinations are internally set and assessed.

There is little doubt that achieving internationally recognised standards has been assisted by linking some courses, both in the polytechnics and in the technical institutes, to overseas bodies.¹ Such an arrangement, in a small place like Hong Kong, has provided a framework in which new disciplines could be introduced without the problem of having to develop, simultaneously, a new system of validation. Not everyone, however, is fully convinced of the advantages of linking examinations to overseas professional bodies, as it can lead to some lack of relevance to the local situation,² although, in the case of BTEC, most syllabuses have been drawn up to suit Hong Kong's special circumstances.

The student population

There has also been a marked change in the academic standards of the student population since 1957. As late as the second half of the 1960s at the Technical College, and in the first half of the 1970s in the Morrison Hill Institute, students were accepted on craft courses who had only completed form-one or form-two in secondary school.³ Indeed many were admitted to building courses, and many registered apprentices to other part-time courses, who had only completed primary-six, as the latter who were under the age of 19, in designated trades, were compelled by law to attend classes after the Apprenticeship Ordinance had been introduced in 1976.⁴

¹. Ibid., and Helmore, op.cit., p.25.
². Helmore, op.cit., p.25; and Waters, The Technical Institutes in Hong Kong ... op.cit., pp.110 to 116.
However, as throughout the 1970s more secondary school places became available for primary school leavers, and, in 1978, three years of universal, free, compulsory, secondary schooling was phased in for the 12 to 15 age group, this means that now virtually all craft students have completed at least nine years of general education (see page 192). We thus have, today, education for the masses, an undreamed of milestone in the 1960s.

Also, because of the increasing number of form-five school leavers, competition became much keener throughout the 1970s, and entry to any technical institute technician course was, in the mid 1970s, fixed at form-five. However at the Polytechnic in 1979/80, the number of students attending the two-year, full-time Diploma courses, who had qualifications above the minimum required, amounted to 49 per cent. These included one or more "A" level passes in the GCE and, in some cases, even University Matriculation.

An unforeseen problem has, however, arisen during recent years. In the past, the gift and zest for learning demonstrated by the young in Hong Kong have been admired by many. However, some of the ramifications of nine years of compulsory, full-time education are now becoming clear, and there are forebodings and foreshadowings of an upsurge in delinquency in some schools. While the problem of indiscipline is not so bad as is often expressed in the West, it is in contrast to the pre 1971 days when education was considered a privilege (see pages 74 and 75).

To be able to complete 11 years of general education in the 1960s, and to enter the Technical College, was indeed an advantage to be enjoyed by the few, although this meant teacher-dominated instruction (which one finds in

2. Waters, Technical Institutes in the 1980s, op.cit., p.9; and Polytechnic figures (28 November 1979).
3. A Perspective on Education in Hong Kong, op.cit., pp.51 and 52.
most oriental societies) to a class of relatively passive but highly motivated students. However that is now changing, and the technical institutes in Hong Kong have experienced discipline problems, especially among some of the craft students (for example registered apprentices who are compelled to attend day-release classes) who resent being obliged to study.¹ There is no doubt that new approaches and alternative teaching methods will be required,² with greater student participation, if such problems are to be solved.

**STAFFING**

Teachers have been described as "the heart of good education",³ and while, if money is available, colleges can be built and equipped, unless they can be adequately staffed, limited progress can be made.⁴ This is a common problem in the Third World, including for example in South Korea, where staffing difficulties have been encountered.⁵ Increase in numbers of technical teachers

Some teachers look back with some degree of nostalgia, to a time when the work of a college was comparatively stable and the job of teaching could be done simply and well.⁶ Apart from the immediate post-war years, such a period of stability, with limited change, has never really existed in Hong Kong since the early 1950s. In addition, such memories are usually an illusion, as classes in the early post-war years often consisted mainly of chalk and talk, and equipment was frequently lacking.

---

¹ D.D. Waters, Technical Institutes in the 1980s, op.cit., pp.16 and 17.
During the 1954/55 academic year, there were about 20 full-time teachers at the Technical College, in Wanchai, and, by the time it moved to Kowloon in 1957, the number had risen to 29.¹ In 1970/71, this figure (plus vacancies) had increased to 151.² By 1981/82, the corresponding number at the Polytechnic was 831.³ This represented in excess of 27 fold growth, in full-time teachers, in the 25 year period up to 1982. By comparison, the first technical institute commenced with one full-time academic; the Principal of Morrison Hill, D.D. Waters, in 1968, and, by 1981, the number in the five technical institutes, excluding vacancies, had increased to 313 (see Table 25).⁴

Table 25: Increases in Numbers of Full-time Academic Staff, Including Principals and Vice-Principals/Director and Deputy Director, in Technical Education Institutions

<table>
<thead>
<tr>
<th>Year</th>
<th>Technical College/ Polytechnic</th>
<th>Year</th>
<th>Technical institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954/55</td>
<td>20</td>
<td>1968</td>
<td>1 (one institute)</td>
</tr>
<tr>
<td>1957/58</td>
<td>29</td>
<td>1981</td>
<td>313 (5 institutes)</td>
</tr>
<tr>
<td>1970/71</td>
<td>151</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981/82</td>
<td>831</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: For 1984/85 figures see Table 43.

This growth in numbers of academic staff, in the Technical College/Polytechnic and the technical institutes, compares with a more modest increase in full-time teachers - from about 5,000 in 1946, to 50,000 in 1970, to 76,000 in

---

1976 - employed in further education in England and Wales. These figures give a nine-fold expansion in 24 years, or an approximate 14-fold growth in 30 years. The smaller build-up in Britain is, understandably, because of the rapid increase in population and the greater demand for education, in Hong Kong, over the past 20 or so years. There have, however, been cases of exceptionally rapid growth in Britain, and Portsmouth Polytechnic is an example. Here the increase in academic staff, from 1964 to 1967, amounted to 22.5 per cent per annum. 3

The planning team

The initial Polytechnic Planning Committee, which was chaired by the late Tang Ping-yuan (see pages 157 to 159), comprised a total of 20 Chinese and Europeans who were all long-standing residents. Of this number, 15 were civil servants and ex-officio members of the Committee, representing the interests of various Government departments, such as Education, Public Works, the Financial Secretary, the Establishment Secretary, and the Principal Assistant Colonial Secretary (Social Services). The Polytechnic Planning Committee was supported by various sub-committees in such areas as director-selection, finance, legislation, scope of initial courses, sites and buildings, and staff and pay. Dr. (now Sir) S.Y. Chung was the Vice-Chairman of the main Committee, but he occupied the Chair upon the death of the Chairman. A great deal of the preliminary planning was done by the Principal, Y.K. Ching, and the Vice Principal, C.L. Mawhood, both of the Technical College (see page 158). The first Director, C.L. Old, took up his appointment in August.

2. A Perspective on Education in Hong Kong, op.cit., p.87.
5. Ibid., Appendix E, Annex 4.
1971. By 1976/77, the senior staff included K.L.C. Legg (the second Director), Y.K. Ching, a local Deputy Director, and R. Neale and D.J. Peake as Associate Directors. Neale had been in Hong Kong since 1965, while Peake was a recent arrival. Of the 20 heads of departments, six were local Chinese, albeit in some cases with overseas experience, or Europeans who had lived locally for several years, while the remaining 14 were expatriates who had come to Hong Kong to join the Polytechnic. It can thus be seen that most of the initial planning was done by locals or by expatriate long-term residents, while, after the Polytechnic was established, a preponderance of the senior posts were filled by staff recruited from overseas.

Indeed it must be remembered that, since the Technical College moved to its new site, in 1957, the College/Polytechnic had six different principals/directors (S.J.G. Burt/H.K. Watt/S.Z. Sung/Y.K. Ching/C. Old/Keith Legg) over the 25 year period up to 1982. This means, on average, each principal/director served just over four years, a quite rapid turnover. While each one, naturally, had to work within established policy, a principal or, even more so, a director, does have a considerable degree of freedom to plough his own furrow. This meant that the Technical College/Polytechnic would assume slightly different roles and would set different objectives, thus modifying the initial concepts on which it was founded, as a new head took his place. In addition, it should be remembered that change is more likely if the principal/director is appointed from overseas, as an "insider" is less inclined to introduce new ideas. The bringing in of new blood from overseas has, it would appear, generally worked well, as in spite of the Government policy of localisation for technical institutes (with locally qualified candidates being given preference in the filling

1. Ibid., p.9.


of posts), which also applies to a degree (mainly for the more junior grades) at the polytechnics, this has prevented excessive "inbreeding" (see pages 283 to 285). ¹

The initial planning for the Morrison Hill institute, which commenced in 1964, was mainly carried out, in person, by Watt Hoi-kee, the then Principal of the Technical College (see pages 110 and 111) who was also chief adviser to the Director of Education on technical education.² He was, in turn, advised by his heads of departments and other key staff. Later, a considerable amount of detailed planning, such as drawing up equipment lists and preparing layouts and drawings, for the first institute, was done in early 1968, by Technical College staff.³

D.D. Waters commenced working, full-time, on the planning of the Technical Institute in May 1968, although he was not officially appointed to the post of principal designate until July 17 of the same year.⁴ That was, approximately, 14 months in advance of the opening. The Vice-Principal and heads of departments were mainly appointed to their new posts during the first half of 1969. While a Senior Education Officer (Technical) post had been created in the Education Department, and filled by Y.K. Ching on 1 May 1967,⁵ the detailed planning for the first technical institute was mostly done by the principal designate and his newly appointed skeleton staff, together with some staff at the Technical College.

From the experience gained, it was decided before planning commenced in 1972, for the four additional institutes, that the future organisation for planning would

---

². *Proposals of a Technical Institute, Revised (March 1964)*, passim.
⁵. *Staff Biographies, Hong Kong Government 1972*, p.31.
have to be strengthened. Measures taken included the establishing of a technical section (later to be known as the Technical Education Division) in the Education Department, as originally recommended by Watt Hoi-Kee in 1953. This section came into being on October 1, 1971, when the new post of Assistant Director of Education (Technical) was created. This was filled by N.E. Barnes. His section, at the time, included one Senior Education Officer (Technical) and two Education Officers (Technical). Prior to this, the top post had been combined with further education; namely it had been titled, "Assistant Director (Further and Technical)", and it had always been filled by a general educationalist, as opposed to an officer with a technical education background. A Deputy Director of Education, A.J. Kingwell, was also in post from February 1973 to June 1977 (see page 21). J.R. Clark, an educational adviser from Britain, had recommended in 1969, that such a post be created.

In addition, in order to expedite planning, Waters, the Principal of the Morrison Hill Institute, was transferred as from August 1, 1972, initially for a period of three months, to the Education Department Headquarters to plan the four additional institutes. He never returned to Morrison Hill, and remained in the Technical Division of the Education Department. It was also agreed that, whenever possible, the posts of principals and heads of departments for new technical institutes should be filled, preferably in April, when an institute was due to open in September of the following year.

---

2. Staff Biographies, Hong Kong Government 1974, p.5.
3. Education Policy (April 1965), pp.67 and 68; and Hong Kong Report of Education Commission 1963, pp.91 and 92, paras.9 to 12.
5. Waters, A Series of Papers ... Papers One to Four, op.cit.
6. Ibid., Paper Four, Appendix XIV.
so that key staff would be able to assist with the involved preparatory work, as well as undergoing in-service training.¹

It can be seen then, that the planning for the first technical institute was carried out largely on an individual basis, initially by the Principal of the Technical College, and, later, by the Principal of the new institute. By contrast, the planning for the next four institutes was more of a team effort, involving the Technical Division of the Education Department, working parties, as well as staff who were appointed early to fill new institute posts.² Industry's views were also taken into consideration far more, for institutes numbers two to five, than for the first institute. This greater participation by more people, as a co-ordinated team effort, meant of course, generally, better planning.

Educational advisers

While, as we have seen, most of the detailed planning for the technical institutes and the Polytechnic was undertaken by local or long-time residents, and, in the case of the Polytechnic, newly recruited expatriate staff, nevertheless, some overseas consultants did come to Hong Kong to advise on various aspects of technical education. These visits were often arranged through the Ministry of Overseas Development, TETOC, or the Commonwealth Fund for Technical Cooperation, all with their headquarters in Britain. The visits by these consultants or "experts" as they are sometimes known, may be divided into four main groups.

Firstly, there was the general type of visit to report on the education system as a whole. A typical example was the 1971 visit by the late Sir William Houghton, Education Officer, who was accompanied by Dr. L.W.H. Payling, Chief Inspector, and W.R. Lee, Senior Inspector for Higher and Further Education, all of the Inner London Education Authority (ILEA).³ One of the main purposes of this visit

¹. Ibid.
². Ibid., Paper Two - Equipment, p.2, para.3.3.
³. Sir William Houghton et.al., op.cit., passim.
was to explore the possibilities for co-operation between Hong Kong and ILEA in three broad areas, namely, curriculum development, teacher training and adult education. The second type of visit was where a consultant came to advise the Technical College, the Polytechnic or technical institutes in general terms. These include the visits by the late J.W. Gailer of the Ministry of Overseas Development, in 1966/67, and his next visit, in June 1971 (see pages 180 and 181).  

A third type of visit was that in which a particular aspect of technical education was studied. This area includes, for example, a visit by D.C. Gladwell, from TETOC, in 1974, to look into the setting up of hotel, catering and tourism courses. In addition advice was received, including in report form, from educationalists and trainers who were resident in Hong Kong. Ian Grant of the ILO, who spent two and a half years in Hong Kong, up to December 1969, was a typical example. He was attached to the Government Labour Department to advise on vocational training.

Most visits were in the region of two to three weeks' duration. One however (Gailer's second visit), lasted only three days; while the attachments of C.H. Bleasdale, to advise on libraries and resources centres in the technical institutes and the Technical Teachers College, in 1977, and another by S. Straw and R.G. Barber, who ran tool and die courses, from 1975 to 1977, were of approximately three months and 20 months respectively. Many of the reports by the above named consultants are referred to in this thesis.

2. D.C. Gladwell, 'A Hotel, Catering and Tourism Department, TETOC (May 1974), (35)ED(TE)1/18/6712/72.
4. C.H. Bleasdale, Libraries and Resources Centre in the Technical Teachers College and Technical Institutes in Hong Kong, CFTC (March 1977), (29)ED(TE)121/1.
5. S. Straw and R.G. Barber, ED(TE)21/3149/72.
Supply of teachers

The Education Department has sometimes been criticised regarding the quality and quantity issues surrounding the teaching service. These have been described as being so large and multi-dimensional that bold and urgent policy responses are required. The Report by a Visiting OECD Panel, in 1982, states;

We found little evidence of a staffing strategy with projections, forecasts, targets, and timetables for meeting teaching force requirements.¹

A serious attempt was however made, in 1972/73, to anticipate staffing needs for the four additional technical institutes, largely because of lessons learned in recruiting teachers for the Morrison Hill Institute.² This manpower plan recognised that difficulties would be encountered in filling some posts and estimated that the following approximate numbers of technical teachers, instructors, training officers, and the like, would be required from 1973 to 1977:³ Morrison Hill Institute 20, new technical institutes 312, the Polytechnic 550, prevocational schools 259, secondary technical schools 170, secondary grammar schools 22, the Technical Section Education Department 7, the Government Labour Department 53, other Government departments (prisons, social welfare etc.) 53, voluntary agencies 20, training officers and instructors in industry 325, industrial training centres 70; making a total of 1,861 over a period of five years, or about 372 a year. Adding


² Waters, A Series of Papers ... Supplement to : Paper Four - Staffing and Manpower Plan, op.cit., passim.

³ Ibid., Paper Four - Staffing and Manpower Plan, p.10.
three per cent to this figure to cover wastage due to transfers, retirements, deaths, dismissals etc., this gave a grand total of 383 full-time staff a year on a territory-wide basis; a sizeable figure indeed. It was also anticipated that there would be keen competition between the various establishments for recruits.

However this estimate proved to be incorrect, and the actual rate of development of technical education was slower than anticipated. For instance in the technical institutes, the estimated expansion in the numbers of teachers, of 38 per cent per annum, in practice, became 32.5 per cent between the years 1974/75 to 1979/80.¹

**Staff recruitment and selection**

The Polytechnic Planning Committee was convinced from the start, that one of the most serious problems confronting the Polytechnic would be the recruitment of teaching staff.² This proved to be the case, and, for this reason, a considerable amount of recruiting was done overseas. For example, during the 1976/77 year, out of a total of 374 teaching staff, approximately 111 (30 per cent) were expatriates.³ This compared with only nine expatriates, out of a total of 367 (2.5 per cent) full-time teaching posts (which included 27 vacancies) in the five technical institutes, in 1979/80.⁴ The reasons for this striking difference was that the staff of the institutes were civil servants, and, as we have seen, a policy of localisation applied. Also, as a large proportion of the work of the institutes was at craft level (64 per cent in 1979/80),⁵

---

3. Hong Kong Polytechnic Prospectus 1976/77, pp.15 to 27.
4. Education Department staffing records.
persons who are proficient in Chinese are required. This is a difficult language for foreigners to master.

One problem with Hong Kong is that, as it is a small place, with a staffing policy of localisation (see page 277), there is a danger that many teachers will have attended the same technical education institution, and thus they have been subjected to similar experiences. Inbreeding is therefore a threat which makes staff development, with a liberal inclusion of overseas training where possible, even more important.

There is a great deal to be said for bringing in senior staff from overseas, as has happened at the Polytechnic. In such cases, there is normally less dependence on local past experience and more on the evaluation of evidence when decisions have to be made. However, naturally, the local man usually understands the Hong Kong economic scene and the cultural mores of society better.

It can also be seen that, with 27 vacancies in the technical institutes in 1979/80, out of a total of 367 posts, recruitment often proved difficult. This was, to some extent, because the talents required were not available, perhaps because remuneration was more attractive in industry and people did not wish to take up teaching as a profession. There was, for example, a staff shortage in some areas such as television, printing, and tool and die work. In addition, the fact that civil servants were being recruited, in the case of the technical institutes, meant a long and often tortuous procedure, and, while if things went smoothly and readvertising was not necessary, staff could be recruited in a period of five to six months, if complications arose,


2. Education Department records; and Waters, A Series of Papers ... Supplement to Paper Four - Staffing and Manpower Plan, op.cit., passim.


then the process could take considerably longer.\textsuperscript{1} All this was a handicap to the technical institutes, although the Polytechnic, not being a Government institution, had a more flexible recruitment programme. The need for malleable procedures, when a rapid expansion programme is underway, is obviously paramount.\textsuperscript{2}

The 1973 Report on manpower planning made a number of recommendations on how flexibility in recruiting could be increased.\textsuperscript{3} These included a more effective system of approval of courses and recruitment, new posts to be created earlier so they could be filled by the start of the academic year, engaging some local officers on contract terms, the extension of service of officers who were due to retire, and making greater use of part-time teachers. A number of these recommendations were eventually adopted.

Conditions of service

The 1973 Report also stressed;

Providing that salaries, fringe benefits and conditions of service are comparable and competitive with those which a person can obtain in other fields ... there will be no major problems in recruitment.\textsuperscript{4}

At various stages, new staff and salary structures for technical teachers, which were different to those for general subject teachers, were advocated.\textsuperscript{5} However these never materialised, and a chartered engineer who joined a Government technical institute as a senior lecturer had a lower salary and less chance of promotion than if he were to join, say, the Public Works Department as an engineer.\textsuperscript{6}

\begin{flushright}
1. Ibid., p.14.
4. Ibid., p.25, para.2.25.1.
6. Ibid., p.2; and Waters, A Series of Papers ... Paper Four op.cit., pp.25 to 28.
\end{flushright}
Also, because it had higher status and in some regards better conditions of service, a person generally preferred to join the Polytechnic rather than a technical institute. This state of affairs has, unfortunately, often militated against technical institute recruitment (see pages 326 and 327).

The staff working in technical education felt strongly about many of these new conditions of service, some of which were proposed in 1965,\(^1\) based on the (Marsh and Sampson) Report of the Education Commission,\(^2\) and which were finally introduced in the early 1970s. Indeed the Executive Committee of the Technical College Teachers' Association inserted a statement in the South China Morning Post, in 1971, strongly protesting against the introduction of the new grade and salary structure.\(^3\) This was an unprecedented step for civil servants to take, especially in those more tranquil days. However limited notice was taken of the protest, and the new structure was finally implemented largely because the teachers were unable (or not prepared) to bring any real pressure to bear, and also because, the following year, the Technical College became the Polytechnic with its own conditions of service.

Staff development

Teachers as a body tend to be conservative, and they need to be carefully conditioned to change and the new technologies of education and industry, and staff development must play an important part.\(^4\) A technical teacher who spends, say, 25 years in the profession, will meet many changes in technology, subject areas and methodology, and he needs to eliminate out-of-date practices. If he is to remain effective

---

1. Education Policy (April 1965), passim.
3. Advertisement, South China Morning Post (16 April 1971), p.3.
4. A. MacLennan, Staff Recruiting, Training and Development in Education, Colombo Plan Staff College (Singapore, January 1976), passim.
as a teacher, he must adjust to such changes by continuing his own education.  

By providing the right atmosphere in a college, as well as a sound programme of staff development, much can be done to counteract resistance to change. 

Generally speaking, a considerable amount has been done in the way of staff development by the Polytechnic and the technical institutes, and J.W. Gailer wrote, in 1971, regarding the Morrison Hill Institute: 

Of particular interest are the arrangements for staff development which are being pursued with imagination and vigour. 

Staff development, for the institutes, has taken a variety of forms, and included courses and attachments to industry (both overseas and locally), seminars and short specialist courses. These ranged from seminars titled, "Education and Management Today" and "Management for Senior Staff in Educational Institutions", to a short course on teaching methods for part-time teachers, and another on resource-based learning. In some cases, overseas experts were flown to Hong Kong to conduct courses on such topics as skills analysis or teaching techniques (including micro-teaching). 

In fact, during the ten-year period up to June 1980, arrangements were made for 1,082 technical course, seminar or attachment, training or study places, either locally or overseas. As there were only 337 teaching staff

1. L.S. Chandrakant, Staff Development in Technical Education, Colombo Plan Staff College (Singapore, 20 January 1976), passim.
in the technical institutes in June 1980, this meant that some teachers attended a course or attachment several times. The objectives of staff development for the technical institutes are illustrated in Figure 12. This shows the various routes that can be followed, either locally or overseas, and the type of course or training that have been undertaken.

In a similar way, the Polytechnic placed a large number of its staff on courses, or nominated them to attend conferences. To quote a typical year, during 1978/79, 45 attended local and 22 overseas programmes, and 62 attended conferences. In the latter half of the 1970s, annual expenditure in the Polytechnic, on in-service training, varied between one-quarter and one-half of a million dollars.

There sometimes tends to be an over-emphasis on academic qualifications in developing countries, and, because the bulk of industry has usually only comparatively recently been developed, teachers often lack adequate industrial experience. Unless a teacher is prepared to keep in contact with industry, the standards of his professional knowledge suffer. Both the Polytechnic and the institutes have made conscious efforts to overcome such difficulties by seconding staff to industry, both locally and overseas. The Polytechnic also has a well established industrial centre for students in which staff can also undergo training programmes.

While more staff development could certainly have been done, nevertheless it is felt that a significant amount

1. (39)ED(TE)134/7III (3 June 1980).
3. Hong Kong Polytechnic Triennial Academic Plan 1981-84, op.cit., pp.41 to 43.
Figure 12: Staff Development in the Technical Institutes

<table>
<thead>
<tr>
<th>Education/Training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>On-the-job</strong></td>
</tr>
<tr>
<td>1. Teaching practice</td>
</tr>
<tr>
<td>2. Training posts</td>
</tr>
<tr>
<td>3. Understudying</td>
</tr>
<tr>
<td>4. Job rotation</td>
</tr>
<tr>
<td>5. Projects</td>
</tr>
<tr>
<td>6. Research</td>
</tr>
<tr>
<td><strong>Formal</strong></td>
</tr>
<tr>
<td>1. Courses</td>
</tr>
<tr>
<td>2. Seminars</td>
</tr>
<tr>
<td>3. Workshops</td>
</tr>
<tr>
<td>4. Up-grading of skills (e.g. in workshops)</td>
</tr>
<tr>
<td>5. Research</td>
</tr>
<tr>
<td><strong>In industry</strong></td>
</tr>
<tr>
<td>1. Attachments</td>
</tr>
<tr>
<td>2. Visits</td>
</tr>
<tr>
<td>3. Consultancy</td>
</tr>
<tr>
<td>4. Projects</td>
</tr>
<tr>
<td>5. Research</td>
</tr>
</tbody>
</table>

Select type of training e.g. either:
(i) individual training or
(ii) group training

Training and staff development

To raise standards of staff

To meet needs in manpower plan by identifying staff potential and developing teachers to fill higher level posts

Objectives

In Hong Kong

Overseas (could be exchange scheme)
of money was spent and a great deal was achieved. However, with the development of technical education still heavily underway, and costs of attendance on courses increasing overseas, it is suggested that still more money will be required for staff development in the future if dilution of standards is not to take place. One criticism is that staff development was, at times, a bit disjointed and not always looked at as a whole. Also, although it was done at certain periods, a "profile" could have been kept for each member of staff, showing the training that he had already received and what would be beneficial for him in the future. Also, greater emphasis could have been placed on schemes where teachers are exchanged either between a technical institution in Hong Kong and a similar institution overseas, or with industry either overseas or locally. There is no doubt that for a person to move between full-time teaching and properly planned job rotation in industry can be an enriching experience.

The Technical Teachers College

Apart from the odd part-time course for technical teachers or instructors, little was done by the Technical College in the way of teacher training. The first major move was the setting up of the Department of Technical Teacher and Workshop Instructor Training, in 1969, at the Morrison Hill Institute (see pages 154 and 155). It was

soon apparent, however, that the degree of development and change in this area merited something larger, and the Technical Teachers College came into being in 1974.¹ The College runs pre-service and in-service courses, by various modes of study, for student-teachers in schools, technical institutes, the polytechnics, and other types of institutions running vocational type courses, for example prisons.² It also runs courses for teachers in special education, and for instructors and training officers in industry. The Education Technology Unit, at the Polytechnic, also undertakes some training, mainly for its own staff.³

Looking at a typical year, say 1982/83, the Technical Teachers College had 162 full-time and 362 part-time students on roll.⁴ However of the former, only 23 were attending the one-year, full-time, pre-service technical institution training course, as the remainder were being prepared to teach technical subjects in schools. Sixteen short courses and seminars were also run by the College during that year, as well as an in-service, two-year, part-time, day-release course for staff of the Polytechnic, the technical institutes and the colleges of education.⁵ In order not to place too many teachers on pre-service courses, estimates of requirements are revised annually, in order to attempt to balance supply with demand.⁶ However, most of the

---

¹ Working Party on Technical Teachers College Report (April 1978), p.1; and Technical Education in Hong Kong (October 1976), paras.53 to 55; and The Hong Kong Education System (June 1981), pp.102 and 103; and The Hong Kong Technical Teachers College Responsibilities and Objectives (September 1976), ED(TE)1/126/74II.


³ Hong Kong Polytechnic Prospectus 1983/84, p.68; and Newsletter Education Technology 1976-1979, Hong Kong Polytechnic, passim.


⁵ Ibid., p.10.

teaching staff for the polytechnics and the technical institutes are recruited direct from industry, and, naturally, there is a limit as to the number that can be released for in-service training.

As at 1983, just under 170 full-time teaching staff in the technical institutes, or about 45 per cent (out of a total of approximately 370), had a teaching qualification, although this figure included workshop instructors many of whom had attended a ten or 18 week part-time course. If instructors are excluded from the survey, the proportion is about 55 per cent. A number of these teachers, however, obtained their qualifications elsewhere, either locally or in Britain, other than in the Technical Teachers College. It is also interesting to record that, up to 1980, 710 training places had been taken up by technical institute staff on courses (including short courses) and seminars at the Technical Teachers College. With such figures the technical institutes cannot afford to be complacent, and it is recommended that such training be further increased, although it is appreciated that there are difficulties such as releasing staff to attend in-service courses.

At various times proposals have been made that the Technical Teachers' College should become part of the Polytechnic, but the Director of Education was of the opinion that, as one of its main functions was the training of technical teachers for schools, the College should remain within the Education Department. There is, in fact, a great deal to be said for the three colleges of education and the Technical Teachers College retaining their separate collegiate system, but becoming part of the new City

3. Ibid.
Polytechnic, either fully integrated or federated in some way.¹ Such cross-fertilisation with a broad-based institution would provide better back-up, and the range of facilities available to the Technical Teachers College, which it has lacked in the past, would be improved, at the same time its status would be enhanced and student-teachers would mix more with students in other disciplines (see page 187). It is felt that had the College become part of the Polytechnic, in the 1970s, that more money would have been spent on technical teacher training, and the College would have been in a stronger position today.

As we saw in the previous pages, a great deal has been done since the Technical Teachers College was established in 1974. On the other hand, as the Llewellyn Report says about teacher training in general, far more needs to be done if the education system is not to become "a horse-and-buggy operation in a jet age".² For example, there needs to be a greater provision of in-service training so that teachers can up-date themselves and adjust as technological, social and educational change can make current professional practices obsolete, or relatively ineffective, in a short space of time.³ In addition however, morale can be stimulated and maintained through in-service education.⁴ For such courses to be conducted, there must be sufficient "slack" in the system so that staff can be released for training.⁵ Teachers should, in addition, be encouraged to accept some responsibility for their own professional growth and adaptation to change.

Attitudes to growth and change

Growth and change are, for many people, human nature being what it is, often frightening prospects. Indeed

---

1. A Perspective on Education in Hong Kong, op.cit., pp.98 and 99.
2. Ibid., pp.92 and 93.
4. A Perspective on Education in Hong Kong, op.cit., p.93.
5. Waters, A Series of Papers' ... Paper Four - Staffing and Manpower Plan, op.cit., p.41.
as Machiavelli said:

There is nothing more difficult ... to handle than to initiate a new order ... (It) has enemies in all who profit by the old order, and only lukewarm support from those who would profit by the new order.¹

The purpose of the teacher is, in effect, to act as a "change agent", and to bring about desirable change by imparting knowledge, skills, or new attitudes in his students.² And yet, many teachers will themselves stubbornly resist change and block new ideas with comforting thoughts, and become frightened when they have to depart from the "platform of experience" to actions which are different from the time-tested conventional pattern. The above can be very real problems for "managers" in education, because, as changes are introduced, morale can be affected and staff's expectations can alter accordingly.

A typical example of change in Hong Kong was in 1972, when the Technical College became the Polytechnic. The College's full-time staff were Government servants, and they thus had the choice of remaining as such, and, in due course, being transferred back to the Education Department, or leaving the Government and remaining with the autonomous Polytechnic. For many, the formation of the new institution brought a threat to their sense of job security, and some felt, to use a teacher's words, that they had been "selected for rejection". At the time, morale suffered.³ A number of Government teachers seconded to the Polytechnic, who were "passed over" for promotion when new senior staff were recruited (often from overseas), felt they had "lost face", and opted to return to the Education Department, and to

remain as Government servants, with a so-called "iron (unbreakable) rice bowl", which provides greater job security. For example, on completion of certain conditions of service a retired Government servant receives a pension, which many believe is better than the mixed-service pension scheme (for staff who transferred from the Education Department to the Polytechnic) offered by the Polytechnic.\textsuperscript{1} In addition, if a Government officer dies, his wife and children receive benefits from the widows' and children's pension fund. Some also feel that being a civil servant carries more status.

There is no doubt too that a number of the less able teachers, who were not so confident of doing a good job, realised that the Polytechnic had greater power to "hire and fire", and that as Government teachers, unless they did something drastically wrong, their jobs were relatively secure. Others appreciated that promotion, which is usually internal in Government service, depends, to some extent, on seniority, while Polytechnic posts are usually advertised. This means that a Polytechnic member of staff, who is less able or not so well qualified, has less chance of climbing steadily up the ladder as he probably (but not necessarily) would in Government service. On the other hand, many of the more capable and better qualified staff preferred to teach the higher-level courses at the Polytechnic (rather than the craft and technician classes in technical institutes) and, at the same time, welcomed the challenge this new institution presented, with a greater degree of freedom and less bureaucracy.

At the time of the Technical College/Polytechnic change over, in 1972, the staff association was not particularly strong and, for example, teachers did not have the bargaining power of the Kowloon-Canton Railway (KCR) Government staff who, before the railway became a public corporation, in 1983,\textsuperscript{2} had the power of strike action with

\textsuperscript{1} Ibid.
\textsuperscript{2} Ibid; and Hong Kong 1983, op.cit., p.175.
severe disruption to the travelling public. Because of this such staff, when the KCR became a corporation, received generous terms. However, although seconded Government teaching staff at the Polytechnic did not have the same clout, they did try to create greater "leverage" by playing "hard to get", by many saying that they wanted to return to the Education Department. In this way, it is probable the offers that staff were eventually made, such as the "mixed-service pension scheme," were improvements on what they would otherwise have received.

Of those who decided to return to the Education Department, many became key staff in technical institutes, where a number have done sterling work and have since been promoted. In fact, no member of staff who returned to the Education Department from the Polytechnic has expressed any regret at making such a decision. In the same way, nobody who opted for a post at the Polytechnic either has admitted to making a mistake in his choice.

It was not of course only in the Polytechnic, as we have seen, that drastic changes were taking place. There is no doubt that, in the Education Department too, staff concerned with achievement looked upon such developments as the setting up of the technical institutes in a spirit of adventure, and many placed in such an atmosphere of risk, tension and struggle "grew" with the challenge, while others fell by the wayside. In the latter case, the danger is that a member of staff just "switches off", or withdraws to the relative safety of his own subject and past experience. In such circumstances he may, for example, think, "I do my teaching, and I leave the principal and the heads of departments to run the college". And, with the quite

widely prevailing colonial attitudes in Hong Kong up to the late 1960s, such a view was not unusual. There has, however, been a distinct change during more recent years, and junior staff are now generally more willing, and indeed on occasions eager, to participate in helping to run their departments.¹

Indeed the role of the technical teacher, in Hong Kong, was, to a large extent, fashioned anew as a result of the expansion and restyling during the 1970s; and yet the industrial action and frequent resignations which are sometimes a part of teacher behaviour in the West, during similar periods of growth and change, were, in the main, absent. Perhaps the reasons were that teachers' unions lacked clout, and that the Chinese teacher is generally better prepared (or willing) to accept change.²

Conclusions

Remarkable technological, economic, and social change have affected most aspects of life, especially since World War Two, but, as we have seen, in few places can this have been greater than in Hong Kong, where considerable effort has been made to provide a more affluent way of life for the rapidly increasing masses. All these changes, many of which impinged on the educational institutions, have brought about wide-ranging ramifications. A corollary of this has been the rapid build-up in enrolments, courses, and teachers, owing to the extensive demand for technical education. This rapid increase in numbers of students, in Hong Kong, has been accommodated in a variety of ways, as probably no single solution would have been able to provide the answer. These have included upgrading and expanding the Technical College to become the Polytechnic, and by setting up five new technical institutes and, shortly after their completion, by adding extra floors and annexes to them.

² A Perspective on Education in Hong Kong, op.cit., p.87.
Coupled with the rapid build-up of numbers of students has been the fashioning anew of technical education. This has included more sophisticated and expensive buildings and equipment - the prime example being the Polytechnic - although probably more could have been done to plan for future change by providing for a greater degree of flexibility. There is no doubt, however, that the Education Department learned from experience, and the first technical institute at Morrison Hill provided a valuable "pilot-scheme" and improvements such as larger and better equipped workshops, on open-plan lines, and better facilities and amenities, were incorporated into subsequent institutes.

There have, naturally, been many pressures, such as rapidly advancing science and technology - which have resulted in broader-based courses and the upgrading and changing of the curriculum - and western teaching methods have impinged on our educational thinking, which have resulted in change. For example units/modules have been introduced, and syllabuses, taught mainly in SI units, are now less examination oriented. Other shifts have included attempts to depart from excessive "chalk and talk", rote learning, and teaching in watertight compartments, to a more flexible, student-centred, participatory, self-learning, integrated approach, with greater emphasis on libraries and resources-centres, especially in the Polytechnic and the Technical Teachers College with their more mature students.

The student population has also changed dramatically in that many craft students, in the early 1970s, had barely completed primary education, but, commencing in 1978, with the introduction of nine-years of free, full-time, general education for all, standards in technical institutes have risen considerably. However, because education is now compulsory, and because some craft apprentices are required by law to attend part-time day classes, this has resulted in some delinquency, although not so severe as is often experienced in the West, and there is not now always the same zest for learning, in Hong Kong, that typified the privileged few who were fortunate enough to receive education in the 1950s and 1960s. However, there are still insufficient places to accommodate all the applicants and, at the
Polytechnic for example, this has resulted in some students who could be construed as being "overqualified" for technician courses being admitted. Another change, starting in the early 1970s, has been the striking increase in the proportion of part-time day classes.

Technical education planning, in the 1960s, depended a great deal on individuals, but, in the 1970s, it became, quite rightly, more of a team effort, which included advice from overseas educationalists. It was appreciated too, especially from about 1970 onwards, that the planning of human resources, namely the teachers, would present problems, and that steps would have to be taken to prevent a serious dilution of standards in the large scale staff recruitment exercises that were to follow. \(^1\) To overcome a drop in standards, a more intensive staff-development programme was implemented. In addition, in 1974, the Technical Teachers College was established.

Although the pace and scope of growth and change outlined above was probably as great as that experienced by any other state, most of the changes were, in many ways, similar to those met elsewhere. \(^2\) However, Hong Kong was also faced with various problems which would not be encountered by the average western country, such as the language of instruction issue and the shortage of teaching materials and technical vocabulary in the vernacular. However, Hong Kong tends to be a follower and not an originator, and most of the ideas and changes, such as more sophisticated technology, new methodology, or different teaching techniques, are usually copied from the West and then are sometimes modified. There is also, sometimes, a relatively long time-lag, from the time new methods are first introduced in the West, before they are "imported" into Hong Kong.


\(^2\) Helmore, op.cit., p.10.
One of the key factors in the implementation of change is the degree of urgency, and it has been said that a decade is a relatively short period in the educational field. For example to ascertain the need, to obtain policy approval and release of funds, to recruit staff, and to mount, say, a new three or four-year, full-time course, and, later, to appraise the graduates on-the-job by means of, for example, a tracer-study, at the end of the first cycle, can take approaching a decade. With that in mind, what is perhaps striking about Hong Kong’s case is the amount of change and the speed with which it was implemented, and, in this regard, the 1970s was an impressive decade. After all, most upheavals caused by limited change can be faced with a certain degree of equanimity if they are not aggravated by the need for haste.\(^1\)

No rational person could have expected the planners, in the 1950s and the 1960s, to have been able to forecast the extent and scope of growth and change up to the 1980s, in the same way that nobody can accurately forecast now what the position will be by 1997. It has been argued that we who are working in education are not particularly good at managing growth and change, especially when they are imposed, as they often are, from without.\(^2\) Nevertheless it can, it would appear, be argued that Hong Kong has coped reasonably well with the planning of its technical education evolution.\(^3\)

Some institutions and education systems change, to some degree haphazardly by academic drift, and they evolve, adjust and re-adjust seemingly affected to a limited extent by the conscious efforts of the incumbents. In turn, rapid unplanned growth and change can produce certain undesirable results if allowed to go unchecked, such as shortages of lower-level (say craft) personnel, in the scramble for

---

2. Ibid., p.174.
institutions to upgrade themselves. In Hong Kong's case however, it would appear that any upheaval caused was more the results of the dynamics of planned change rather than haphazard drift.\(^1\) For example, a deliberate attempt was made to upgrade the Polytechnic, rather than allowing academic drift to take place.

It has sometimes been said that, bearing in mind the complex issues of culture and life styles, and their effects on the education system, that more could have been done to adapt what we have learned from overseas to fit better the local situation.\(^2\) For example, there is some resistance to student-centred learning by many conventional Chinese, and some prefer the present examination system rather than heavy dependence on internal assessment, with its opportunities for favouritism and corruption.\(^3\) However while there is no proof, as far as is known, that teaching methods that are the most successful in the West are necessarily the most suitable for Chinese students, young people, no matter from which culture, accept change and different teaching methods relatively easily. And, in this regard, the more expatriate teachers that are brought into Hong Kong, as in the case of the polytechnics, the more rapid, obviously, the importation of western ideas.

There is no doubt that one of the major reasons for being able to implement change in the Territory, to the extent that it has been, was because the teachers were, generally, committed to it.\(^4\) Although teachers are often accused of being conservative, nevertheless, this is probably only a half-truth, and change is usually welcomed when it coincides with perceived personal or institutional interests.

---


3. Ibid.; and A Perspective on Education in Hong Kong, op. cit., p.38.

4. Bob Allaburton, Planning for Introduction of Change, Colombo Plan Staff College (Singapore, April 1980), pp.5 to 8; and Helmore, op.cit., pp.5 and 28.
For example, the rapid growth of technical education in the 1970s brought many opportunities for promotion, and, as a result, it was often approached in a spirit of expectation and adventure. However on other occasions, as we have seen, there was some resistance to change, understandably, when it could directly affect a teacher's livelihood.

The case of the Technical College becoming the Polytechnic has earlier been quoted. A second example is the new salary scales and staffing structure, first proposed in the mid 1960s, and finally implemented, in a modified form, in the 1970s. The first example quoted above was eventually solved, for the most part, amicably. The reason the second was finally implemented was, to a large extent, because the staff associations lacked clout and the will to prevent it. And, in this regard, if Hong Kong were more trade-union minded, and people were not generally so cooperative, it would appear that many of the changes quoted in this chapter would not have been possible within the time span in which they were implemented.

In summation then it would appear that the craft and technician education institutions in Hong Kong, in spite of some teething troubles, have generally measured up quite well to the traumata of growth and change to which they have been subjected.
CHAPTER 6
FINANCING AND COSTING

Introduction
This chapter examines the financing and costing of craft and technician education in Hong Kong. It begins by assessing the Territory's general wealth, and by looking at the amount of money that has been spent on education, and, in particular, on craft and technician education. Evidence produced in a number of costing exercises is then analysed, including expenditure on buildings and equipment. The thesis then continues by examining the costing of individual courses and the effects of such factors as staffing, class size, student wastage, the utilisation of accommodation, materials for students' exercises, administration and supervision, and students' fees. This chapter also looks at what it costs to produce a graduate, how much should be spent on education, and the "rate of return analysis" in the Hong Kong setting. A number of conclusions are then drawn from the chapter as a whole.

It should be pointed out here that the evaluation of any organisation must, of necessity, include a large subjective component. This is especially so in education where the teacher is, to a large extent, autonomous in the classroom, and his mission is, to some degree, open-ended, and there is no single definitive concept of cost, especially

in relation to effectiveness, and no single answer as to how much money it takes to produce a graduate.

In addition, because of such factors as increases in prices, differing methods of costing and definitions of sub-heads between institutions, and, in the case of international comparisons, varying financial exchange rates and costs of living, one is not always sure whether one is really comparing like with like. Because of these factors costs, in this chapter, should be taken as approximate indicators, rather than as indisputable writ. However, while educational benefits are not easy to calculate, and costs are often not easy to identify or measure, nevertheless greater exposure of what data are available on finance and costing, even if it leaves something to be desired, must, in general, be in the public interest.

Turning again to the increase in prices, with regard to Government expenditure in Hong Kong (see Table 26): it can be seen that there was no increase in overall costs from 1968 to 1969 and prices remained stable. However to take another year, an item that cost $100 in 1980 would have increased to $115.90 by 1981. Table 26 has been arrived at by deflating (or in some cases by inflating) a specially constructed salary rate index for Government employees (for example technical institute staff), and it covers salary increases including inflation. In turn, the purchasing of goods and services has been arrived at by deflating (or

4. A Perspective on Education in Hong Kong, op.cit., p.18.
5. Estimates of Gross Domestic Product 1966 to 1983, Census and Statistics Department, Hong Kong 1984, pp.46 to 49; and Yip Hak-kwong, Senior Statistician Education Department, discussion with author (28 August 1984).
Table 26: Deflators of Gross Domestic Product and Its Components

Government Consumption Expenditure (1980=100)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Deflator</td>
<td>35.1</td>
<td>35.5</td>
<td>36.4</td>
<td>36.4</td>
<td>39.7</td>
<td>41.5</td>
<td>46.5</td>
<td>52.0</td>
<td>59.0</td>
<td>61.2</td>
<td>65.6</td>
<td>69.9</td>
<td>74.1</td>
<td>83.3</td>
<td>100</td>
<td>115.9</td>
<td>133.1</td>
<td>142.5</td>
</tr>
</tbody>
</table>

inflating) a specially constructed price index for Government purchases of goods and services calculated from Government records. Again the increase in costs includes inflation. 

Hong Kong's 'economic ranking'

Countries are often known as "developed" (industrialised) or "developing" (emerging). However, these definitions are obviously too simplistic, and, for this reason, states have sometimes been further categorised as under-developed, partially-developed, semi-advanced and advanced. While under-developed countries have been defined by the United Nations as those having an annual per capita income (GNP) of US$120 or less (as at the mid 1970s),¹ such groupings should be seen as a continuum rather than as four distinct categories. Typical examples of countries and their classifications are given in Table 27, together with their per capita GNPs.²

Table 27: Financial Standing, by GNP, of Various Countries as at 1981

<table>
<thead>
<tr>
<th>Classification and GNP (US$) of Country</th>
<th>Under-developed</th>
<th>Partially-developed</th>
<th>Semi-advanced</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhutan</td>
<td>80</td>
<td>Malaysia</td>
<td>Greece</td>
<td>Japan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4,420</td>
<td>10,080</td>
</tr>
<tr>
<td>Chad</td>
<td>110</td>
<td>Pakistan</td>
<td>Singapore</td>
<td>New Zealand</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5,240</td>
<td>7,700</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>140</td>
<td>Thailand</td>
<td>Spain</td>
<td>United Kingdom</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5,640</td>
<td>9,110</td>
</tr>
</tbody>
</table>

No GNP figures are available for Hong Kong.³

However GDP figures, which do not include net earnings from investments abroad and are therefore less difficult to

calculate (there is unrestricted flow of money in and out of Hong Kong), are obtainable. As we have seen (pages 11 and 12), the per capita GDP for Hong Kong varied from about $1,450, in the early 1950s, to $35,229 (US$5,420) at 1982 exchange rates. It must be remembered, however, that we cannot strictly equate GNP with GDP, figures, and that a true comparison cannot be made between countries as a given sum will have greater purchasing power in one place than in another. It would appear however that Hong Kong, like other newly industrialised countries such as Singapore, South Korea and Taiwan, should be classified as semi-advanced.

Money spent on education

In 1956/57, the Hong Kong Government spent $1,267,323 on education (see page 347). By 1982/83, the amount had reached $4,915,239,716. In turn, in 1975/76 and 1976/77, 19.6 and 19.4 per cent respectively of the total Government financial expenditure were devoted to education, while in 1980/81 it had dropped to a low of 14.9. These figures may be compared to 20.7 for Japan, 14.9 for the Philippines and 13.9 for the United Kingdom during average years.

Let us now look at the amount of money Hong Kong spent on education compared to other newly industrialised, semi-advanced countries (see Table 28). The 1976/77 year

---

1. C.P. Haddon-Cave, Financial Secretary, Government explains errors in GDP figures, South China Morning Post (circa 1976).
7. World Bank Comparative Education Indicators (1 April 1979).
8. Ibid.; and A Regional Study on Education (27 September 1980); and Selected Statistical Indicators No.5/80, Education Department (July 1980), p.4.
Table 28: The Percentage of Public Expenditure on Education in Hong Kong Compared to Other Newly Industrialised Semi-Advanced Asian Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Expenditure on education as a percentage</th>
<th>Expenditure on education as a percentage of:</th>
<th>Percentage distribution of expenditure on third level of education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Recurrent</td>
<td>Capital</td>
<td>GNP</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1976/77</td>
<td>93.9</td>
<td>6.1</td>
<td>2.8(GDP)</td>
</tr>
<tr>
<td>Korea</td>
<td>1976</td>
<td>87.7</td>
<td>12.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Singapore</td>
<td>1977</td>
<td>91.3</td>
<td>8.7</td>
<td>Not available</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1975</td>
<td>Not available</td>
<td></td>
<td>3.2</td>
</tr>
</tbody>
</table>

* Including technical and vocational education
is taken for Hong Kong, as this is about halfway through the period when Sir Murray MacLehose was Governor in which rapid development took place. Figures are not, however, available for the other countries during exactly the same period. It can be seen from Table 28 that Hong Kong spent a larger percentage of its annual budget on education than many countries (although this varied from year to year), and a considerable amount of this was at the tertiary level.

One of the main reasons for this was that during the 1970s, as we have seen, the Polytechnic and four technical institutes were established. It is also interesting to see that, in 1980/81, the Hong Kong Government spent US$920 per head of population, which amounted to 0.63 per cent of GDP, on the universities, the Polytechnic, the Technical Education Division (including the technical institutes) and the Further Education Division of the Education Department, and the approved post-secondary colleges.¹

Turning back to Table 28, it can be seen that 25 per cent of the expenditure on education is at the tertiary level, which includes technical and vocational education. When making a comparison with Britain, which is a developed industrialised country, it must be remembered that Hong Kong is usually classified as a semi-advanced state (see page 307). Thus the Territory's economic and educational systems can probably, on average, be equated roughly with Britain 20 or so years ago. Therefore, if we look at the United Kingdom in, say, 1961: at that time, 14 per cent of Government expenditure on education was at post-secondary level.

However at the end of the decade (1968/69), to make another comparison, 15 per cent was being spent on further education (non-advanced 7 and advanced 8) and 14 per cent on higher education.² It would thus appear by such standards, that

Hong Kong's figure of 25 per cent in 1977 (see Table 28) is reasonable.

Returning to the decrease in educational expenditure, from a peak of 19.6 per cent of total Hong Kong Government expenditure in 1975/76, to 14.9 in 1980/81: it is interesting to read that this was a world trend during the 1970s, particularly in developing countries.\(^1\) As we shall see later (pages 347 to 353), it is probable that even more should have been spent on education in Hong Kong.

**Financing education and training**

In line with most countries, Hong Kong provides a system of education at the taxpayers' expense (although a large private sector also exists (see page 21)), which includes craft and technician education. This, in theory, is supposed to include,

... theoretical knowledge ... and such practical training as is necessary to illustrate the theory.\(^2\)

In turn, during the period under review, on and off-the-job industrial training was supposed to be financed entirely by industry. In practice of course, it is not always possible to separate clearly technical education from training (see page 8), and, as a result, some training was inevitably carried out in technical education institutions.\(^3\)

**Costing exercises**

It is appreciated that the idea of costing education may be anathema to many dedicated teachers.\(^4\) This was evidenced in the reply by Principal C.J. Driver of Island School (in the letters to the Editor column of the South

---

China Morning Post), in 1981, in answer to an article, "Making sure we get value, looking at the cost of learning", by Ray Simpson, a Reader at the Hong Kong University.¹ Simpson made a number of suggestions regarding cutting costs in education, and the fact that value for money is important.

A number of costing exercises has been conducted, on an ad hoc basis, in Hong Kong. The first, which was conducted at the Technical College in 1967/68 by the Cost Investigation Section of the Finance Branch of the Colonial (now Government) Secretariat, was the most comprehensive.² Another study was carried out by the Finance Branch into technical institute costs in 1977.³ As we shall see later, other cost investigations have been made by the Accounts Section and by the Technical Education Division of the Government Education Department, and by the Polytechnic.⁴

It is also interesting to know that, in 1967, when advice was sought on the "systematic costing of courses in technical colleges" from the Department of Education and Science in London, no similar work had, up to then, been carried out in England.⁵ Indeed even today, while some papers and books have been written on the costing of education,⁶ actual costs, especially on technical education, are not easy to come by, and thus suitable yardsticks against which to measure one's own educational costs are

1. C.J. Driver, Putting a price tag on education, South China Morning Post (9 November 1981); and Ray Simpson, Making sure we get value for money, looking at the cost of learning, South China Morning Post (2 November 1981).


3. (86)FIN36/41/24II (17 August 1977).

4. Eg. ED(TE)112/1/2 (April 1980); and (63)ED(TE)110/21 (9 March 1982).


difficult to obtain. 1

The cost of running an educational institution

The total annual cost of running a technical institute, as at 1979/80, compared to the Technical College, as at 1967/68, is shown at Table 29. In some instances, costing exercises are carried out which give total recurrent expenditure only, and a charge on capital is omitted. As a further alternative, direct recurrent expenditure (staffing, consumables and supplies, equipment and space maintenance) is sometimes given which provides the marginal cost of teaching and omits indirect costs (staff overheads, library, computer centre, education technology unit, student affairs unit, administration and the directorate, and all other expenditure). 2 Obviously it is important to compare like with like. Turning again to Table 29, it can be seen that the various sub-heads and their percentages of costs, for the Technical College and an average technical institute, are similar, and any marked dissimilarities are probably accentuated by what the sub-heads include. For instance, "maintenance" for the average technical institute has been included under "other miscellaneous direct expenses". The various sub-heads, as shown in Table 29, will be discussed in the following pages.

Costing of courses

The most detailed costing of individual courses was carried out, at the Technical College, in 1967/68, when 26 full-time, 8 part-time day release, 46 evening, and a number of short courses were costed. 3 A typical example is


2. Hong Kong Polytechnic Supplementary Report to the Triennial Estimates 1981/82 to 1983/84, p.i.

Table 29: Total Annual Cost of Running an Average Technical Institute at Full Development as at 1979/80 Compared to the Technical College as at 1967/68

<table>
<thead>
<tr>
<th>Item</th>
<th>Technical Institute</th>
<th>Percentage</th>
<th>Technical College</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charge on capital</td>
<td>$(millions)</td>
<td>Percentage</td>
<td>$(millions)</td>
<td>Percentage</td>
</tr>
<tr>
<td>(land, buildings and equipment)</td>
<td>1.5</td>
<td>10</td>
<td>1.6</td>
<td>17</td>
</tr>
<tr>
<td>Staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salary of full-time staff</td>
<td>6.5</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff on-costs</td>
<td>2.6</td>
<td>16</td>
<td>5.4</td>
<td>57</td>
</tr>
<tr>
<td>Part-time teachers</td>
<td>1.5</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other miscellaneous direct expenses</td>
<td>1.2</td>
<td>8</td>
<td>0.6</td>
<td>6</td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(including Education Department Headquarters, Government Secretariat etc.)</td>
<td>2.3</td>
<td>15</td>
<td>1.7</td>
<td>18</td>
</tr>
<tr>
<td>Maintenance</td>
<td>(buildings, equipment)</td>
<td>-</td>
<td>-</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>15.6</td>
<td>100</td>
<td>9.5</td>
<td>100</td>
</tr>
</tbody>
</table>

the costing of the full-time radio officers course illustrated at Table 30. It can be seen that costs totalled $61,262, from which was deducted the revenue, in the shape of students' fees, amounting to $9,880. Thus the course was subsidised by $51,382, which comprised 83.87 per cent of total costs. With 25 students in the class, and 1,170 hours

1. (20)ED(TE)110/21 (April 1980).
3. Ibid., Appendix N13.
Table 30: Typical Example of Costing for a Course at the Technical College in 1967/68

Department: Electrical engineering
Course: Second class PMG (Post Master General) radio officers
Duration: One-year full-time
Level: Technician

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct cost:</strong></td>
<td></td>
</tr>
<tr>
<td>Teaching staff</td>
<td>$32,819</td>
</tr>
<tr>
<td>Laboratory assistant fees</td>
<td></td>
</tr>
<tr>
<td>Attendants' allowances</td>
<td></td>
</tr>
<tr>
<td>Classroom costs</td>
<td>114</td>
</tr>
<tr>
<td>Workshop/labouratory costs</td>
<td>4,426</td>
</tr>
<tr>
<td><strong>Total direct cost:</strong></td>
<td>$37,359</td>
</tr>
<tr>
<td><strong>Overhead cost:</strong></td>
<td></td>
</tr>
<tr>
<td>Course supervision</td>
<td></td>
</tr>
<tr>
<td>General administration</td>
<td>23,903</td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td>$61,262</td>
</tr>
<tr>
<td>Deduct revenue</td>
<td>9,880</td>
</tr>
<tr>
<td><strong>Total subsidy</strong></td>
<td>$51,382</td>
</tr>
<tr>
<td>Percentage of subsidy to total cost</td>
<td>83.87</td>
</tr>
<tr>
<td>Number of classes</td>
<td>1</td>
</tr>
<tr>
<td>Subsidy per class</td>
<td>$51,382</td>
</tr>
<tr>
<td>Average number of students per class</td>
<td>25</td>
</tr>
<tr>
<td>Total contact hours per class</td>
<td>1,170</td>
</tr>
<tr>
<td>Subsidy per student</td>
<td>$2,055</td>
</tr>
<tr>
<td>Subsidy per student hour</td>
<td>$1.76</td>
</tr>
<tr>
<td>Tuition fee per student</td>
<td>$400</td>
</tr>
<tr>
<td>Tuition fee per student hour</td>
<td>$0.34</td>
</tr>
</tbody>
</table>
of instruction a year, the subsidy per student amounted to $2,055 or $1.76 per student/hour.

There are three main groups of courses, namely full-time and sandwich, part-time day (day release and block release), and evening only. Details of actual costs can be seen at Table 31.

Table 31: The Average Total Cost per Student in Technical Institutes in the Various Groups of Courses in 1977/78

<table>
<thead>
<tr>
<th>Type of course</th>
<th>Mode of study</th>
<th>Level</th>
<th>Actual cost ($) per student based on enrolment</th>
<th>Hours of instruction a year</th>
<th>Cost ($) per hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical and other</td>
<td>Full-time</td>
<td>Technician</td>
<td>15,900</td>
<td>1,170</td>
<td>13.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Craft</td>
<td>10,250</td>
<td>1,170</td>
<td>8.8</td>
</tr>
<tr>
<td>non-commercial</td>
<td>Part-time</td>
<td>Technician</td>
<td>3,310</td>
<td>370</td>
<td>8.9</td>
</tr>
<tr>
<td></td>
<td>day release</td>
<td>Craft</td>
<td>2,270</td>
<td>370</td>
<td>6.1</td>
</tr>
<tr>
<td>courses</td>
<td>Evening only</td>
<td>Technician</td>
<td>420</td>
<td>180</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Craft</td>
<td>340</td>
<td>180</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Assuming that full-time students, on average, study for 30 hours a week for 39 weeks a year, part-time day release for 10 hours a week (six hours in the day and four in the evening) for 37 weeks, and evening only students for six hours a week for 30 weeks. Then, as can be seen from Table 31, costs per hour will range from $13.60 for full-time technician courses, to $1.9 for evening craft courses.

As we shall see later, technician classes are generally taught by more highly paid teachers, and the evening component of part-time day classes and evening only classes, in technical institutes, are taught by part-time teachers whose rates of pay are less than for full-time teachers. In addition, part-time students do a great deal of

1. Technical Institute Comparison Study for the Academic Year 1977/78, Technical Education Division, Education Department (April 1979), p.3.
their practical training actually on-the-job, thus less equipment and fewer workshops are required than for full-time classes.

Also, with part-time courses consisting of fewer hours of instruction than for full-time courses (see Table 31), total costs of running part-time courses are considerably less. As another example, the City Polytechnic reckons that 1,000 evening students correspond, on a work generated basis, to only 170 full-time students. It is for these reasons it has often been suggested, from the financial aspect, that more part-time courses should be run. Taking another point of view, however, there is much to be said for full-time tuition, where a student does not have to study after a hard day's work, and where he has more uninterrupted time to concentrate on a wider range of subjects without having to hold down a job at the same time. In some cases, also, the cost in loss of students' leisure time may be a considerable deterrent to evening studies, although this does not apply to the same extent in Hong Kong, where the Chinese are prepared to work long hours if it means personal advancement.

Costing of disciplines

Courses in some disciplines are more expensive to run than others, and Table 32 gives the average cost (each department runs several different courses) for one enrolled day student, in the various departments in technical institutes, in 1980/81. Taking the technician courses first: it can be seen that a place on a printing course, on average, is the most expensive ($27,180), while the cheapest is a place on a commercial course at Morrison Hill Institute.

2. P.R.C. Williams, Application of Rate of Return Analysis to Educational Planning in Hong Kong, Paper II (13 March 1978), p.9; and P.R.C. Williams, Economic Bases for Educational Planning in Hong Kong: Some Reflections, Paper III (13 March 1978), para.9.
Table 32: Total Cost per Student Enrolled by Department, Mode and Level of Study in Technical Institutes in 1980/81

<table>
<thead>
<tr>
<th>Technical institute</th>
<th>Department</th>
<th>Cost per student enrolled ($)</th>
<th>Full-time</th>
<th>Part-time day-release (day-time component only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technician</td>
<td>Craft</td>
<td>Technician</td>
<td>Craft</td>
</tr>
<tr>
<td></td>
<td>Construction</td>
<td>-</td>
<td>2,990</td>
<td>3,050</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering</td>
<td>18,180</td>
<td>10,540</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>Hotel-keeping and Tourism</td>
<td>19,830</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Marine and Fabrication</td>
<td>21,430</td>
<td>10,800</td>
<td>8,280</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering</td>
<td>16,220</td>
<td>11,680</td>
<td>4,560</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commercial Studies</td>
<td>17,540</td>
<td>10,230</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Clothing Industries</td>
<td>-</td>
<td>19,950</td>
<td>3,920</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering</td>
<td>17,160</td>
<td>12,940</td>
<td>5,890</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering</td>
<td>17,820</td>
<td>15,700</td>
<td>4,010</td>
</tr>
<tr>
<td></td>
<td>Textile Industries</td>
<td>21,300</td>
<td>23,940</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clothing Industries</td>
<td>-</td>
<td>11,570</td>
<td>5,380</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering</td>
<td>18,380</td>
<td>11,990</td>
<td>3,730</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering</td>
<td>18,120</td>
<td>12,380</td>
<td>4,030</td>
</tr>
<tr>
<td></td>
<td>Printing</td>
<td>27,180</td>
<td>11,570</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Textile Industries</td>
<td>21,390</td>
<td>15,990</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commercial Studies</td>
<td>19,130</td>
<td>10,130</td>
<td>4,070</td>
</tr>
<tr>
<td></td>
<td>Design</td>
<td>21,060</td>
<td>13,530</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>General Studies</td>
<td>-</td>
<td>15,030</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Industrial Technology</td>
<td>22,510</td>
<td>-</td>
<td>12,260</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering</td>
<td>20,680</td>
<td>-</td>
<td>4,710</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commercial Studies</td>
<td>12,720</td>
<td>9,080</td>
<td>2,480</td>
</tr>
<tr>
<td></td>
<td>Construction</td>
<td>15,320</td>
<td>-</td>
<td>3,210</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering</td>
<td>15,850</td>
<td>11,930</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering</td>
<td>17,010</td>
<td>13,020</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>General Studies</td>
<td>-</td>
<td>12,080</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Data in parentheses are approximate and subject to change.
($12,720). However, it is interesting to see that the average cost of a student place on a commercial course at Kwai Chung ($17,540) is much higher.

Turning to full-time craft courses: the most expensive is a student place on a textile course ($23,940) at Kwai Chung Institute, although a similar place at Kwun Tong is less expensive ($15,990). In turn, the cheapest (as for technicians) is a place on a commercial course at Morrison Hill ($9,080). The reason why costs of student-places in the same discipline vary from institute to institute is, among other things, because the "mix" of classes in two departments may be different. Also, one department may have more highly paid staff. In addition, a class may not be fully subscribed, thus spreading total costs over fewer students (see pages 340). Again, in the case of Morrison Hill, because it is an older institute, charges on capital are less. The fact that commercial courses are, on average, cheaper to mount is not surprising, as they require little expensive equipment. There are also few "split classes" (for practical work) with 20 students or less to a group.

Carrying the above figures a stage further; it has also been estimated that, all other things being equal, the cost per student in a large institution or a large department tends to be less than for their smaller counterparts. This, to a large extent, is because overheads and capital costs, as well as some direct costs, are distributed over a greater number of students (see pages 175 to 179).

A wide range of costs may also be seen in the Polytechnic, with the technical subjects costing more to run than commerce courses. As for the technical institutes, in the Polytechnic, higher-level courses cost more to mount than lower-level courses (see Table 33).

1. Keith Legg, discussion with author, op.cit.; and Keith Legg, Education and the Development of Human Resources: The Role of Tertiary Institutions, op.cit., pp.13 and 28; and Keith Legg, Paper D, Programme Design (July 1977), pp.14 and Figure 5.
3. Ibid., p.ii.
Table 33: Overall, Average, Direct Unit-Cost Per Annum, as at 1978/79, Per Student Place in the Polytechnic

<table>
<thead>
<tr>
<th>Type of programme</th>
<th>Mode of study</th>
<th>Cost/Student ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associateship</td>
<td>Full-time</td>
<td>15,220</td>
</tr>
<tr>
<td>Higher Diploma</td>
<td>Full-time</td>
<td>9,430</td>
</tr>
<tr>
<td>Diploma</td>
<td>Full-time</td>
<td>9,610</td>
</tr>
<tr>
<td>Higher Certificate</td>
<td>Part-time day</td>
<td>4,275</td>
</tr>
<tr>
<td>Certificate</td>
<td>Part-time day</td>
<td>3,025</td>
</tr>
<tr>
<td>Higher Certificate</td>
<td>Evening only</td>
<td>930</td>
</tr>
<tr>
<td>Certificate</td>
<td>Evening only</td>
<td>685</td>
</tr>
</tbody>
</table>

It can be seen from Table 33 that annual direct costs (see page 312) per place vary, from $15,220 for a full-time Associateship (technologist) course, to $685 for an evening only Certificate course. Again, the difference in costs between the various levels and modes of study is considerable.

Buildings and equipment

The first phase of the Technical College's buildings, on the new campus at Hung Hom, was completed in 1957. It was made possible by a donation of $1,000,000 by the Chinese Manufacturers' Association which the Government matched with an equal sum as well as providing the land.¹ As we have seen (page 228), various buildings were added in the late 1950s and the 1960s. From 1972 to 1982, after the Technical College became the Polytechnic, again a number of buildings were added (see pages 228 and 229). Because of this piecemeal development, over a period of 25 years, it is not possible to do any worthwhile costing even if all the required figures were obtainable.

Turning to the technical institutes: the costs of building and equipping these are shown at Table 34.²

---

¹ Opening Ceremony of the New Technical College ..., op. cit., p.6.
² ED(TE)110/21 (July 1980); and M17ED(TE)6692/14/1.
Table 34: Expenditure on Buildings and Equipment for the Five Technical Institutes

<table>
<thead>
<tr>
<th>Institute</th>
<th>Year completed</th>
<th>Expenditure ($ millions)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Buildings</td>
<td>Equipment</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Morrison Hill</td>
<td>1970</td>
<td>4.56</td>
<td>6.43</td>
<td>10.99</td>
<td></td>
</tr>
<tr>
<td>Kwai Chung</td>
<td>1975</td>
<td>10.81</td>
<td>9.54</td>
<td>20.35</td>
<td></td>
</tr>
<tr>
<td>Kwun Tong</td>
<td>1975</td>
<td>13.17</td>
<td>11.59</td>
<td>24.76</td>
<td></td>
</tr>
<tr>
<td>Haking Wong</td>
<td>1977</td>
<td>9.56</td>
<td>7.74</td>
<td>17.30</td>
<td></td>
</tr>
<tr>
<td>Lee-Wai Lee</td>
<td>1980</td>
<td>19.00</td>
<td>9.52</td>
<td>28.52</td>
<td></td>
</tr>
</tbody>
</table>

This table shows expenditure on buildings. It also includes the purchasing of additional equipment up to 31 December 1979, and the extra floor at Morrison Hill which was completed in 1974. It must be remembered, however, that since the various sums in Table 34 relate to different dates, they are not directly comparable owing to the effects of inflation. Later, it was in fact estimated that to build and equip an institute, at April 1981 prices, was approximately $60,000,000.

According to the Government "deflators of gross domestic products and its components" (see Table 26), prices increased by about 3.2 times from 1968 to 1981, although the original cost of Morrison Hill Institute, without the additional floor and with its initial equipment only, was as little as $6.86 million. The cost of an institute thus increased by approximately 8.7 times over the same period. However, a straight comparison cannot be made because when tenders were submitted for Morrison Hill, in 1968, there was a recession in the building industry; whereas, in 1981, there was a construction boom and prices

1. (18)2/6692/64IV (7 August 1974).
2. Education Department records.
4. ED(TE)110/21 (July 1980).
were high. In addition, institutes have become more sophisticated over time, and Morrison Hill, without the additional floor, was planned for 1,300 to 1,400 students compared to 1,500 plus for subsequent institutes. It can thus be seen that no real trend can be traced for capital costs of technical institutes.

It has been stated that a saving of 15 per cent\(^1\) can be achieved if a college is constructed in one operation, rather than in stages as happened at Morrison Hill and Lee Wai Lee. While the actual figure must obviously vary depending on circumstances, there is little doubt that, if the project can be effected as one operation, the saving can be significant, but obviously this will only apply if all the (eventual) building can be economically utilised from the outset. In the case of Morrison Hill, the cost of building and equipping the original six-storey Institute, with a total floor area of about 10,597 square metres, was of the order of $6.86 million. On the other hand, the cost of building and equipping the 663 square metre sixth floor on the workshop wing, which was added at the start of a building boom in 1973/74,\(^2\) was $1.03 million. There were also the added problems of carrying out the work while the Institute was in session and having to work at a height. Taking these factors into account, the cost of the original Institute was $647 per square metre of floor area, compared to approximately $1,554 a square metre for the addition.

While there is obviously a need for low-cost buildings for technical education in order to save much needed capital, such factors as maintenance, value for money, efficiency and running costs have also to be considered. For instance the low-cost, single-storey, Technical College Workshop, at Hung Hom, lost part of its roof in Typhoon

---

2. (18)2/6692/64IV (7 August 1974).
Wanda, in 1962. With a more substantial building this would probably not have happened. As another example; large, relatively inaccessible, glass areas can prove expensive when it comes to regular cleaning bills over a long period of time.

Generally speaking, buildings for technical education are more expensive to provide than buildings for general education, for the following reasons. In addition to normal teaching rooms, among other things, workshops and laboratories, with expensive and heavy equipment, are required. This necessitates increased load-bearing capacity in a multi-storey building as well as complicated services.

The cost of equipping various departments of the institutes, as at April 1980, are given at Table 35. It can be seen that costs vary considerably. For instance the more expensive disciplines, with their heavy equipment, are mechanical engineering and printing, while costs for clothing, general studies, commerce and construction are much lower. It must be remembered, however, that Morrison Hill moved into its new building in 1970, while Lee Wai Lee was not completed until 1980 after costs had increased considerably (see Table 26). Also, funds for Haking Wong were cut back, in 1976, because there was a recession (see page 236).

As we have seen, building and equipment costs (see Table 34) have to be included in total costs. Looking at a costing exercise for an average technical institute amounting to $26 million for the building (estimated life 40 years) and $16 million for equipment (estimated average life ten years) at 1980 prices. Thus the capital expenditure per year was ($26/40 + 16/10) $2.25 million. It was also assumed that the institute would accommodate 960 full-time, 2,800 part-time day, and 880 evening only students, amounting to 2,040 full-time equivalent student-places. Thus the capital

---

1. Recollections of past Technical College staff.
3. Y.M. Mo, Capital Expenditure for a Full-time Equivalent Student Place per year in a Technical Institute, Education Department (1980).
Table 35: Cost of Equipment for the Five Technical Institutes

<table>
<thead>
<tr>
<th>Department</th>
<th>Morrison Hill</th>
<th>Kwai Chung</th>
<th>Kwan Tong</th>
<th>Haking Wong</th>
<th>Lee Wai Lee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing</td>
<td>-</td>
<td>0.44</td>
<td>0.43</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.50</td>
<td>0.54</td>
<td>-</td>
<td>-</td>
<td>0.77</td>
</tr>
<tr>
<td>Construction</td>
<td>0.84</td>
<td>-</td>
<td>-</td>
<td>0.47</td>
<td>-</td>
</tr>
<tr>
<td>Design</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.97</td>
</tr>
<tr>
<td>Electrical engineering</td>
<td>1.74</td>
<td>1.39</td>
<td>2.26</td>
<td>1.41</td>
<td>-</td>
</tr>
<tr>
<td>General studies</td>
<td>0.15</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.48</td>
</tr>
<tr>
<td>Hotel-keeping</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.57</td>
<td>-</td>
</tr>
<tr>
<td>Industrial technology</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.22</td>
</tr>
<tr>
<td>Marine and fabrication</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.47</td>
<td>-</td>
</tr>
<tr>
<td>Mechanical engineering</td>
<td>2.69</td>
<td>3.65</td>
<td>3.45</td>
<td>2.79</td>
<td>4.08</td>
</tr>
<tr>
<td>Printing</td>
<td>-</td>
<td>-</td>
<td>3.13</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Textiles</td>
<td>-</td>
<td>2.86</td>
<td>1.31</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Non-departmental</td>
<td>0.51</td>
<td>0.66</td>
<td>0.69</td>
<td>1.03</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6.43</strong></td>
<td><strong>9.54</strong></td>
<td><strong>11.27</strong></td>
<td><strong>7.74</strong></td>
<td><strong>9.52</strong></td>
</tr>
</tbody>
</table>

Expenditure amounted to about $1,103 per student place a year. This is of course an average, as it will vary from course to course. Also, if the institute is not running at maximum capacity, the figure would be inflated.

Donations

A wide variety of donations has been made to technical education during the period under review, commencing with the $1,000,000 by the Chinese Manufacturers' Association, in 1957, for the establishing of the new campus for the Technical College. Indeed it was estimated, in 1967, that

---

1. Opening Ceremony of the New Technical College... op.cit., pp.10 and 11.
of the total building costs of approximately $7.5 million, some $4.8 million (64 per cent) had been donated, and similarly $2.4 million (40 per cent) had been donated towards the cost, or was the estimated value of donated equipment, out of a total value of $6 million.\(^1\) One has only to walk around the Polytechnic today, and to see, among others, the Michael Clinton swimming pool, the Fong Shu Chuen Hall, and the Pao Siu Loong Marine Engineering Laboratory to realise that this custom has continued.\(^2\)

In a similar way, as at September 1980, the percentage of capital expenditure of buildings and equipment for the five technical institutes, raised by donations, was Morrison Hill 81.2, Kwai Chung 5.0, Kwun Tong 5.2, Haking Wong 23.9, and Lee Wai Lee 14.0 per cent.\(^3\) Two of the largest donations were made by gentlemen after whom the last two institutes have been named, who each gave $5,000,000. The British Government also gave £100,000 worth of equipment to the first four institutes, in the mid 1970s, and the Royal Hong Kong Jockey Club donated $7,000,000 for the founding of the Morrison Hill Institute in 1969. In addition to the above, during 1980, a total of $171,628 worth of scholarships and prizes was donated to the five technical institutes and the Technical Teachers College.\(^4\)

There is no doubt that the many donations that have been made, by a wide range of people and organisations (but mainly by industrialists), have done a great deal to assist the Government in promoting technical education. Nevertheless, all offers had to be examined carefully before being accepted, especially if there were conditions attached which could cause embarrassment or if a donation could incur future recurrent expenditure.

---

3. M19ED(TE)692/111/1 (3 September 1980).
4. (80)ED(TE)133/1 (22 May 1980).
Chinese tend to be generous by nature, and a certain amount of "face" is gained by making a donation which many believe will bring blessings not only in this life but in the life hereafter. It must also be remembered that, during the period under review, with the standard rate of salaries tax at 12.5 per cent up to 1966, and thereafter at 15 per cent, and profits of unincorporated businesses and corporations taxed at flat rates of 15 and 16% per cent respectively (no tax is levied on profits made outside Hong Kong), people can afford to be more generous.

Staffing

By far the largest contributing factor to the costs of education is the staff, and the labour component is higher than for almost any other "industry" with a resulting low capital to labour ratio. The City Polytechnic, for example, reckons that academic staff represent some 60 to 70 per cent of the recurrent budget.\(^1\) Turning to Table 29: if annual charges on capital are excluded, total staff costs and staff on-costs, for running a technical institute, amount to 75 per cent of the recurrent expenditure.\(^2\) The staff on-costs include such factors as pensions, housing, medical attention and other fringe benefits. Because of such additional expenses as housing and passages, expatriates, other things being equal, cost more to employ than local staff. Staff on-costs, on average, for technical institutes, can vary from about 40 to 50 per cent of teachers' salaries.\(^3\)

It is not straightforward to illustrate how teachers' salaries have increased with time, as new staff structures, with new ranks, have been introduced. (Also cost-of-living and expatriation allowances, in addition to basic salaries, were paid up to the early 1960s). It is possible, however, to pick out some ranks, as "benchmarks", which have remained basically the same. These are shown in Table 36.

---

2. (20)ED(TE)110/21 (April 1980).
3. (63)ED(TE)110/21 (9 March 1982).
Table 36: A Comparison of Basic Salary Scales (dollars per month) for Some Technical Teaching Posts in the Technical College in 1957 and in the Technical Institutes in 1982

<table>
<thead>
<tr>
<th>Technical College rank</th>
<th>Salary as at 1957</th>
<th>Technical institute rank</th>
<th>Salary as at 1982</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vice-Principal</td>
<td>$2,620 to 2,900</td>
<td>Vice-Principal</td>
<td>$18,225 to 20,685</td>
</tr>
<tr>
<td>Education Officer</td>
<td>$1,460 to 2,170</td>
<td>Principal Lecturer</td>
<td>$15,280 to 17,405</td>
</tr>
<tr>
<td>(Technical)</td>
<td></td>
<td>Workshop Instructor</td>
<td>$4,400 to 6,890</td>
</tr>
<tr>
<td>Workshop Instructor</td>
<td>$465 to 780</td>
<td>Workshop Instructor II</td>
<td></td>
</tr>
</tbody>
</table>

It can be seen that of the ranks selected, salaries have risen, over the 25 year period, by somewhere in the region of seven to ten fold. It is also interesting to record that, over the same period, the cost of living increased by approximately four and a half times.³

It should also be noted that within the profession, as a general statement, the higher the level of education the more remuneration the teachers will received. Thus, in Hong Kong in technical institutes, non-degree holders mainly teach craft classes, with graduates teaching mostly technician classes. In addition teachers in the polytechnics, with their technologist, higher technician and technician courses, are, on average, more highly paid than technical institute teachers with their technician and craft courses. This is illustrated for a typical year at Table 37.

---

1. Civil Service List Hong Kong 1957, Forty-Seventh Issue, passim.
2. Staff List Hong Kong Government 1982, Seventieth Issue, passim.
Table 37: A Comparison of the Salary Scales for Teaching Staff in the Polytechnic and the Technical Institutes as at 1978

<table>
<thead>
<tr>
<th>Polytechnic</th>
<th>Technical institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade of staff</td>
<td>Monthly Salary Scale ($)</td>
</tr>
<tr>
<td>Head of Department</td>
<td>11,050 minimum (12,060 average)</td>
</tr>
<tr>
<td>Principal Lecturer</td>
<td>8,185 to 10,100</td>
</tr>
<tr>
<td>Senior Lecturer</td>
<td>6,665 to 8,945</td>
</tr>
<tr>
<td>Lecturer</td>
<td>3,685 to 6,626</td>
</tr>
<tr>
<td>Assistant Lecturer</td>
<td>2,695 to 3,665</td>
</tr>
<tr>
<td>Workshop Teacher</td>
<td>2,995 to 5,865</td>
</tr>
<tr>
<td>Workshop Instructor</td>
<td>2,425 to 4,435</td>
</tr>
</tbody>
</table>

It can be seen from this table that while titles in the two types of institutions may differ, staff can be "paired off". It should be noted that, in the case of the technical institutes, the official rank of a head of department is Principal Lecturer.

Other factors that affect costs are staff-student contact hours, staff-student ratios, and manning scales, and these may be used as "control devices" for expenditure. In the Technical College, the general policy was for all ranks of lecturers to have similar student-contact hours, although workshop instructors, because they have less preparation and marking, had a higher contact figure. However later, in the Polytechnic and the technical institutes (in keeping with Britain for example), the more senior staff, who usually teach the higher level classes, had lighter teaching loads.

Typical teaching hours, in a technical institute in Hong Kong, are illustrated at Table 38.1

Table 38: Grades of Teachers in Technical Institutes Showing Typical Staff-Student Contact Hours

<table>
<thead>
<tr>
<th>Grade</th>
<th>Hours/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of Department</td>
<td>(Varies depending upon size and type of department)</td>
</tr>
<tr>
<td>Senior Lecturer</td>
<td>15</td>
</tr>
<tr>
<td>Lecturer</td>
<td>18</td>
</tr>
<tr>
<td>Assistant Lecturer I</td>
<td>20</td>
</tr>
<tr>
<td>Assistant Lecturer II</td>
<td>22 - 23</td>
</tr>
<tr>
<td>Workshop Instructor I</td>
<td>22 - 23</td>
</tr>
<tr>
<td>Workshop Instructor II</td>
<td>25</td>
</tr>
</tbody>
</table>

This illustrates again why teaching costs are higher for technician courses, which are generally taught by more senior staff, than for craft courses.

The 1967/68 Technical College study also revealed that the cost of teachers for the 85 full-time and part-time day release classes, involving some 2,000 students, amounted to $3,632,440 a year, while the corresponding figure for 490 evening classes, for about 15,000 students, operated on a total of $1,773,780.2 With the teacher-contact hours for the day and evening classes at 77,356 and 76,577 hours respectively, it is obvious that costs are considerably lower for running evening classes. This is borne out by the fact that student-hours in the evening section amounted to 2,417,481, while in the day section they totalled 1,829,296.3 In fact during 1967/68, at the Technical College, the average subsidy for day and evening classes per student amounted to $3,039 and $127 respectively.4

1. D.D. Waters, A Series of Papers ... Paper Four ... , op. cit., Appendix IV.
3. Ibid., p.3.
4. Ibid., p.17.
This is largely because an evening course has a limited range of subjects, and an evening lecturer is paid for the actual hours he teaches and no allowance is made for preparation and marking as for a full-time teacher. A full-time teacher is also often called upon to do some administration, and he is also entitled to paid holidays and fringe benefits. As we have seen the cost of running evening classes, per student place and per hour, has continued to be considerably lower than for full-time classes (see Table 33):

Because part-time courses are generally more cost effective, accountants often recommend that more emphasis should be placed upon them. For the same reason Legg, Director of the Polytechnic, in 1978 said,

... we should seek more cost-effective ways of achieving the maximum educational effectiveness and opportunity. This suggests a high degree of part-time work.

However as we saw on page 188, under certain circumstances, there are distinct advantages in full-time study. Nevertheless, largely for the reasons of cost effectiveness, and the fact that people are able to work and can study in their spare time, Hong Kong has, in the past, tended to concentrate on evening classes. As a result we find that, in the Technical College in 1957/58, there were 5,532 part-time students and only 345 full-time students. However by March 1982, in the Polytechnic, there were 13,459 evening students and 11,019 day students (see Table 21).

Numbers of students in a class and student wastage

As we have seen (page 243), the technical institute classes normally have a nominal capacity of 40 students. The Polytechnic, on the other hand, has a more flexible system, and works with smaller groups, with more time for self-study.


criticised for their large classes. In the interests of lower costs, there is no doubt that accountants would like to see larger classes. However, this was not really why the class size was increased, from 36 to 40 students, in the 1960s. The main reason was that Technical College - and later technical institute - staff did not like the idea of turning away many qualified applicants, and thus the class capacity was increased in order to admit extra students.

Staff-student contact hours and the size of classes is often regarded by colleges as a status symbol, and teachers frequently resist strongly any sign of an increase in their workloads. However, no real resistance was met in Hong Kong when it was decided to increase the number of students in each class in the 1960s. It seemed to be appreciated that we had (and still have) a burgeoning student population and a limited budget, and that there would be little, if any, lowering of standards by increasing class size.

(A theoretical alternative (no doubt unacceptable to staff) would have been to increase numbers of teachers, reduce salaries - which would probably mean lowering standards - and reduce class size.)

Nevertheless, on many occasions, often to satisfy requests from the Government Labour Department, in order to get apprenticeship schemes and related part-time day release courses 'going,' classes with as few as 15 students were started. Understandably, accountants did not look upon

5. Recollections of past Technical College staff.
6. Ray Simpson, Making sure we get value for money - looking at the cost of learning, op.cit.
7. Technical institute records.
such action favourably as, if a course ran for three or four years, and there was high wastage, at the end of the course the class might have as few as five or six students. Because of such factors, it was common to provide two sets of figures for the cost of a student-place. One would show the cost per place provided, and the second the cost per student enrolled. Thus, for example, in the technical institutes during 1980/81, while the average cost per craft student place on part-time day release classes was $2,370 per place provided, it amounted to $2,960 per student enrolled. From these figures it can be seen that, in the above example, the increase in costs caused by enrolling fewer students than the number of planned places amounted to about 25 per cent, a not insignificant figure.

The average through-put ratio for courses in the technical institutes, as at July 1979, amounted to 68 per cent for full-time, 67 per cent for part-time day, and only 34 per cent for evening students. It can be seen from these figures, that one of the disadvantages with evening classes is their high drop-out rate. On the other hand, the education of the so-called "failed students" is not entirely wasted, and they can often make a useful contribution to industry. This tends to contradict the views of many specialists in the economics of education who assume that there is little value in an incompleted certificate. However, while the immediate rewards for completing two years of a three-year diploma course may be less than two-thirds of a graduate, this differential can disappear with time, depending upon the practical skill and work performance of the craftsman or technician on-the-job. In fact, the private sector is usually more concerned with whether a person can actually do the job rather than with what

certificate a craftsman holds. In addition, "rescue operations" can also be mounted so a failed day student can re-take his examination, or can obtain a "second chance" in an evening class.

Smaller classes

A great deal has been written on the subject of class size and the impact on the quality of teaching and learning, and not everyone agrees that smaller classes, especially with passive students and authoritarian teaching methods, necessarily mean better learning. However the fact that Hong Kong, certainly in the Technical College and the technical institutes, has depended on large classes (although student wastage later in the academic year has reduced the size, often considerably) has resulted in more students being admitted to study and a saving of public funds.

R.F. Simpson, a Reader at the University of Hong Kong, wrote, in 1967 (about schools in general), that to keep down costs, all things considered, Hong Kong should aim at maintaining its present class size for the next decade or two. More recently, writing in the same vein, the OECD Panel that visited Hong Kong in 1981/82, described our classes as very large by western standards, with 35 to 45


pupils (in schools) being not unusual. However, the report goes on to say that while a strong case can be made for substantial reductions in student-teacher ratios, such a policy and the large financial outlay involved would only be worthwhile if teachers are able to work differently with their fewer students.

However, in order to be able to capitalise on the potential high-yield investment in class-size reduction, resources would have to be allocated simultaneously to allow for in-service training to help teachers adapt their teaching styles to this new situation. There would appear to be no advantage in reducing numbers unless concomitant steps are taken to improve teaching methods and the additional expenditure involved could be wasted.

It was stated in the 1978 White Paper that, in schools, no lowering of the maximum class size could be expected for some years hence, although it should be a goal for the mid 1980s. However, it could be wise for the technical institutes to follow the lead of the Polytechnic and to develop more flexible teaching group methods (see page 243). In this way, institutes can probably operate more efficiently with greater economic benefit to the community.

Rationalisation of courses

Another way in which funds can be saved is by the rationalisation of courses. During the period under review, the Government run technical institutes were under the charge of the Education Department, which exercised strong centralised control. This generally prevented, say, two small common classes being run, in two different

---

1. A Perspective on Education in Hong Kong, op. cit., p.87.
institutes, when one class would have been adequate. A close liaison was also kept between the Education Department, together with the technical institutes, and the Polytechnic, to attempt to avoid wasteful overlapping of efforts. While in the case of the Polytechnic attempts were not always entirely successful, as the Polytechnic was outside the direct control of the Director of Education, nevertheless a great deal was achieved (see page 258).¹

Utilisation of accommodation

As we have seen (pages 196 and 197), use has been made to varying degrees of the extended day/week/year to obtain better utilisation of accommodation, in times of shortages, and, in 1969/70, both the Technical College and the first technical institute were housed in the same building. In a similar vein, thought has been given to working out the maximum student capacity of institutes both with and without an extended day.²

In 1982 a study revealed that, for day classes, the utilisation of accommodation was 86 per cent for five drawing offices at Haking Wong, with the lowest figure being 28 per cent for the use of six laboratories at Lee Wai Lee.³ Looking at evening classes, three drawing offices at Morrison Hill were utilised 100 per cent, and the lowest figure recorded was 13 per cent for three special rooms at Kwai Chung. Twilight classes, generally, have still lower utilisation. However in 1981/82, when this utilisation study was conducted, not all institutes had built up to maximum capacity.

Turning again to the 1967/68 Technical College costing exercise: this revealed that the average utilisation of classrooms was 58 per cent (for evening classes 99.66 per

cent), and that there was scope for a limited degree of expansion. 1 During the previous academic year, before the new wing was completed and when the College was employing an "extended day", utilisation had been considerably higher although no data are now available. 2 Such figures compare with 67 per cent overall utilisation at Cricklade Tertiary College, and 71 per cent for general teaching rooms at Stockport College of Technology, both in England. 3 When considering individual workshops and laboratories in Hong Kong, however, many had a low utilisation factor. Typical examples for day classes were foundry 124 hours, engine-shop 195 hours, metrology laboratory 195 hours, textile chemistry laboratory 117 hours, mechanics laboratory 117 hours, business-machines room 78 hours, with a potential usage of 1,365 hours, in each case, for a teaching year. 4

The above accommodation contained expensive equipment. These low figures led to high hourly cost-recovery (of capital and recurrent expenditure) charges. In fact, the report stated that this under-utilisation of some rooms was perhaps the most disturbing outcome of the whole investigation. 5 Nevertheless to be fair, to give other examples, the dental mechanics laboratory was utilised 100 per cent, and the two machine-cum-fitting workshops 91 per cent of the time available. However, generally, workshops are not so much in demand and are not so economical to operate as classrooms. For instance in the 1967/68 costing exercise at the Technical College, of the 85 full-time and

2. Recollections of past Technical College staff.
5. Ibid., p.16 and Appendix G.
part-time day release classes, 69 (81 per cent) used work­shops, whereas only 201 of the 490 evening classes (41 per cent) utilised this type of accommodation. How to improve utilisation has already been dealt with (see pages 241 to 245).

A certain amount of sharing of accommodation has taken place between the technical institutes, as well as with the Polytechnic, when accommodation was in short supply, or when utilisation of a particular room was low. For instance, the Morrison Hill Institute pattern-making students used the foundry at the Polytechnic. It is probable that this sharing could have been extended still further; however, there is no substitute for each institution having its own facilities if it is economical for it to do so. The utilisation of accommodation could also be improved by hiring it out to responsible persons or bodies, to a greater degree. In such cases, charges for charitable organisations are usually lower.

Regarding workshops however, one sometimes wonders if, for part-time day students for example (who attend classes for, say, one day a week), whether one can afford to allow them to engage in projects of long duration, where each student may require considerable floor space for the "storage" of his project. This is wasteful of space and thus expensive. In this regard, it is possible for brickwork exercises to be carried out on low, purpose-made trolleys, which may be wheeled to the side of the shop for storage. This was done at the Technical College in the second half of the 1960s.

Materials for students' exercises

It is interesting to read, in the 1967/68 costing report, that only 1.6 per cent of the Technical College

1. Ibid., p.6.
2. Recollections of Morrison Hill Technical Institute staff.
4. Recollections of past Technical College staff.
expenditure was on stores and on the replacement of, or additional, equipment.¹ To give another example: the 1970/71 allowance for consumable materials for students' exercises, per student/hour in technical institutes, varied from only 13 cents for plumbing, to 30 cents for television mechanics, to 60 cents for painting.² It was generally felt, by the teachers, that such allowances were insufficient. It is also interesting to record that the average expenditure, for consumable materials, for one student enrolled in a technical institute in 1975/76, stood at $781; however by 1979/80 the figure had dropped to $728.³ In effect, with inflation being taken into account, this meant it was reduced to about 72 per cent of its original value over a period of four years. In other words, financial cuts by the Government Finance Branch had been excessive in spite of protestations by technical institute staff.

**Administration**

This sub-head tends to vary from costing exercise to costing exercise and from institution to institution (see Table 29). It generally includes, in the case of the technical institutes for example, Education Department Headquarters and Government Secretariat related on-costs. It also includes administrative expenses in the institution concerned. A typical figure that has sometimes been used to cover this sub-head is 20 per cent of the salaries and on-costs of teachers, "other charges" (miscellaneous direct expenses), and the charge on capital.⁴

**Students' fees**

The 1967/68 Technical College costing exercise revealed that the average fees paid by both day and evening students amounted to about 30 cents for each hour of instruction.⁵ However, the number of students on roll in an

---

² Teachers' records.
³ Table 1 Other Charges - Sub-head 008 (1980).
⁴ Costing for TI Courses (9 March 1982), (63)ED(TE)110/21; and Technical Institute Comparison Study for the Academic Year 1978/79, p.8, Appendix I.
evening class, on average, was more than in a day class, thus generating more revenue in relation to costs which, in turn, reduced the subsidy. It can be seen from Table 30 that the tuition fees amounted to 16.13 per cent of the cost of running the course. However, full-time technical institute students can apply for fee remission, in the case of financial need, and free-places may be granted. By comparison, the students in the Polytechnic receive grants in the case of financial hardship, and also, unlike students in the technical institutes, they may apply for loans. During 1977/78, 55 per cent of the post form-five students in the institutes received financial assistance, compared to 23 per cent in the Polytechnic.

There has always been a fairly strong lobby among taxpayers, in Hong Kong, who feel that those who desire further education should contribute a substantial part towards it, as it is maintained that the student will later receive a good economic return for his investment. Indeed this fact is appreciated, and it is common for a student to borrow money from a relative or friend to further his education either in Hong Kong or overseas. Fees in Hong Kong, however, are generally low, and, in 1978, they varied from 3.2 per cent (technician) and 1.2 per cent (craft) for full-time courses, to 4.2 and 5.2 per cent respectively for part-time day, to 12.6 to 17.5 per cent for evening classes of total course costs. Brief thought was given by the Education Department, in 1977, to introducing some form of "voucher system" (which could be "cashed" for further education at any time during a person's lifetime), but it was generally felt that such an idea, in Hong Kong, was

1. Technical Institute Prospectus 1981-83, pp.11 and 12; and The Hong Kong Education System (June 1981), pp.88 and 89.
2. (31)ED(TE)1/119/77 (9 November 1978).
3. A Perspective on Education in Hong Kong, op.cit., p.63.
4. Education Department records (26 April 1978).
ahead of its time. This was no doubt correct. It is also interesting to record that the Government subsidy, in 1967/68, contributed 84.74 per cent towards the overall cost of operating the Technical College. This was made up of 88.79 per cent for full-time, 94.46 per cent for part-time day release, and 72.95 per cent for evening classes. For full-time courses there is limited variation; from 88.63 per cent for technician programmes to 96.85 per cent for some short courses. However, the subsidy for evening courses varied from 64.2 per cent for some short courses to 80.9 per cent for craft courses. The degree of subsidy has obviously varied over the years although students' fees have been increased at intervals. For instance in 1967/68, fees for full-time craft and technician students were $120 and $400 a year respectively. By 1982/83, however, the equivalent fees in the technical institutes had increased to $150 and $800, and fees for full-time technician students in the Polytechnic were $1,900 per year. In order to try to make craft courses more attractive, fees have always been kept considerably lower than for technician courses, although for the latter, Polytechnic fees are much higher than in the technical institutes. In some cases, when special courses have been mounted on request which benefit, say, only one firm, then full costs have been charged. Typical examples include courses for training trade instructors of the China Light and Power Company, courses for the Telephone Company and the


Hong Kong Polytechnic Prospectus 1982/83, p.94.
Mass Transit Railway. Such a practice would appear to be correct and fair.

Cost of a student-place

Thus, from the foregoing, it can be seen that the short answer to the question, "what is the cost of a student place?", is that it varies. Obviously it will increase with inflation, and it will differ from country to country and from institution to institution. However, among other things, it will vary upon the discipline being taught (see Table 32), and, normally (on an hourly basis), full-time study will cost more than part-time study. In addition, as a general statement, a craft place in Hong Kong will cost, on average, about 80 per cent of a technician place.

Another costing exercise, carried out by the Technical Education Division of the Education Department, in 1977/78, at the time of the Working Party Report on Senior Secondary and Tertiary Education, is shown at Table 39. This compares the recurrent expenditure of full-time equivalent student places in various types of institutions. It can be seen that the full recurrent expenditure for a student place in the Polytechnic was $17,180, or 105 per cent more than a place in a technical institute, which was $8,380. This is in keeping with the 1977 Working Party Report on Senior Secondary and Tertiary Education, which stated that recurrent costs for full-time equivalent students are much higher at the Polytechnic than at a technical institute, "possibly of the order of twice as high". It can also be seen, from Table 39, that expenditure on the Polytechnic and the technical institutes represented 7.2 and 1.4 per cent respectively of total Government recurrent educational expenditure for 1977/78, a typical year. It would thus appear that the amount spent on technical institutes is too low (see

3. Director of Education 1977-78 Annual Summary, Table IV; and ED(TE)110/21 (7 January 1980), Appendix B.
Table 39: Educational Recurrent Expenditure for 1977/78

<table>
<thead>
<tr>
<th>Institution</th>
<th>Number of students on roll</th>
<th>Recurrent expenditure ($)</th>
<th>Percentage of total expenditure on education</th>
<th>Expenditure per full-time equivalent student ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary schools</td>
<td>588,461</td>
<td>707,335,701</td>
<td>46.8</td>
<td>1,202 (1,476)</td>
</tr>
<tr>
<td>Secondary schools</td>
<td>456,458</td>
<td>391,245,197</td>
<td>25.9</td>
<td>857 (989)</td>
</tr>
<tr>
<td>Colleges of education</td>
<td>777 FT + 1359 PT</td>
<td>18,046,487</td>
<td>1.2</td>
<td>14,671 (25,551)</td>
</tr>
<tr>
<td>Technical Teachers College</td>
<td>132 FT + 349 PTDR</td>
<td>3,216,771</td>
<td>0.2</td>
<td>15,924 (28,371)</td>
</tr>
<tr>
<td>Technical institutes</td>
<td>1,827 FT + 3,438 PTDR</td>
<td>21,454,803</td>
<td>1.4</td>
<td>8,380 (12,845)</td>
</tr>
<tr>
<td>Polytechnic</td>
<td>5,548 FT + 2,461 PTDR</td>
<td>109,406,644</td>
<td>7.2</td>
<td>17,180 (19,682)</td>
</tr>
<tr>
<td>Universities</td>
<td>8,833 FT + 460 PT</td>
<td>197,414,601</td>
<td>13.1</td>
<td>21,770 (22,704)</td>
</tr>
<tr>
<td>Others</td>
<td>62,355,790</td>
<td></td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,510,475,994</td>
<td></td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Key: FT: full-time  PT: part-time  PTDR: part-time day-release  FTE: full-time equivalent

Figures in brackets are derived from a second costing exercise (see text)
also pages 187 to 192). In passing (see Table 39), the reason for the high cost of a primary school place ($1,202) was because there are now, due mainly to the decline in the birth rate, fewer children in that age bracket, and a large number of primary school classes are heavily under-subscribed.

A second costing exercise, carried out by the Accounts Section of the Education Department (see Table 39, figures in brackets), showed the recurrent expenditure of the Polytechnic at $19,682 per full-time equivalent student place compared to $12,845 for the technical institutes. This exercise included a proportion of overheads such as external Government administrative costs. The above two studies (see Table 39) also show that expenditure is significantly less in technical institutes than in colleges of education or in the Technical Teachers College.

It must be remembered, however, that different institutions are organised in different ways which can affect a straight comparison of costs. For instance, full-time staff teach college of education evening classes, without extra pay, and they get time off during the day in lieu (this also applies in the Polytechnic to some degree), while technical institutes engage part-time staff or pay full-time staff "overtime". Also, colleges of education have the extra expense of students' loans and grants. It must be borne in mind that a large proportion of the students in the Polytechnic are studying at higher technician level, with some on technologist programmes, whereas the technical institutes, like the Polytechnic, run technician classes, but the majority of their students are at craft level. This again is bound to make the Polytechnic classes more expensive because they are taught by more highly paid staff.

A further comparison of the cost per student place on Diploma and Certificate courses, in the Polytechnic and technical institutes, is given in Table 40.

---

Table 40: Comparison of Expenditure (dollars) Per Student Place on Diploma and Certificate Courses in the Polytechnic and the Technical Institutes in 1979/80

<table>
<thead>
<tr>
<th>Courses</th>
<th>Full-time</th>
<th>Part-time day</th>
<th>Evening</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technical</td>
<td>Poly-</td>
<td>Technical</td>
</tr>
<tr>
<td></td>
<td>institutes</td>
<td>technic</td>
<td>institutes</td>
</tr>
<tr>
<td>Commercial courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct costs</td>
<td>5,430</td>
<td>6,929</td>
<td>1,300</td>
</tr>
<tr>
<td>Indirect costs</td>
<td>4,050</td>
<td>5,692</td>
<td>790</td>
</tr>
<tr>
<td>Total</td>
<td>9,480</td>
<td>12,621</td>
<td>2,090</td>
</tr>
<tr>
<td>Non-commercial courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct costs</td>
<td>6,900</td>
<td>9,839</td>
<td>1,640</td>
</tr>
<tr>
<td>Indirect costs</td>
<td>4,320</td>
<td>7,143</td>
<td>850</td>
</tr>
<tr>
<td>Total</td>
<td>11,220</td>
<td>16,982</td>
<td>2,490</td>
</tr>
</tbody>
</table>

In all comparisons, in Table 40, the costs in the technical institutes are considerably lower than in the Polytechnic. It will be noted that for full-time, non-commercial courses the total increase amounts to about 51 per cent, while for part-time day programmes the difference is as much as 141 per cent. However, accurate comparisons are not easily obtainable, as the technical institute indirect costs of running evening classes have been included in the full-time and part-time day course costs, as they could not be easily identified. ¹

Again, however, a straight comparison cannot really be made between the Polytechnic and the technical institutes because the quality of education (covered in Chapter 5 under such headings as "teaching methods", "teacher training" and "curricula") has to be taken into account. ² As a very general statement, the better a thing is the more it will cost. In this regard, there is little doubt that the facilities at the Polytechnic, such as buildings (although those of the technical institutes are by no means of low.

¹ Ibid., p.133.
² Waters, The Technical Institutes in Hong Kong ... op. cit., Chapter 6.
quality), and student and staff amenities are of superior standards. Also, as we saw in Table 37, staff in the Polytechnic are more highly paid, although this does not necessarily imply that they are better teachers.

At this stage, it would have been interesting to make a comparison of the costs of a Technical College place, say, in 1960, with 1980 rates in a technical institute. However, costs in the 1950s and early 1960s are not easy to come by, and Technical College expenditure is generally grouped with technical schools. Nevertheless the cost of running a one-year, full-time, commercial (secretarial) course in the Government technical college, in 1967/68, was $5,427 \(^1\) per student compared to $19,130, in 1980/81, for a similar course at Lee Wai Lee and $12,720 at Morrison Hill Technical Institute (see Table 32). To make another comparison, it cost $2,426 at the Technical College, in 1967/68, for a place on a one-year, full-time, electrical engineering pre-craft (later renamed craft) course, \(^2\) compared to $10,540 for a similar course at Haking Wong, or $12,940 at Kwai Chung Technical Institute (see Table 32) in 1980/81.

It is not really possible to draw any firm conclusions, however, from the above, other than to say that, obviously, costs increased substantially. This is because costs for running similar courses in technical institutes vary considerably (see Table 32), and also because the two types of institutions are not the same and one is not comparing like with like.

A comparison with Singapore

Britain has done some work on the costing of student places, \(^3\) but actual figures are not easy to come by. In any case, because of similarities already pointed out (see page

---

2. Ibid., Appendix N22.
124), a comparison between Hong Kong and Singapore is more relevant.¹ It can be seen, from Table 41, that, during 1978/79 (a typical year), Hong Kong spent $1,887,600,000 (2.73 per cent of GDP) on education or of the order of 57 per cent more than Singapore which spent HK$1,202,000,000 (3.00 per cent of GDP). Turning to Table 42 (more up-to-date costs are not easy to obtain), Hong Kong spent $156,600,000 on craft and technician education and on institutional industrial training which, in turn, was 26 per cent more than Singapore which spent $124,300,000. Regarding the above figures, Singapore dollars have been converted to Hong Kong dollars at the then applicable rate (S$1 = HK$2.3).

Bearing in mind that Hong Kong's population at five million (in 1979) was more than double that of Singapore, at 2.36 million, and that teachers' salaries in Singapore are generally lower than in Hong Kong, Singapore appears to have spent, at that time, more on craft and technician education/training than Hong Kong on a per capita basis, although this can only be a rough order of costs as different conditions prevail.

Table 41: A Comparison Between the Financial Expenditure on Education in Hong Kong and Singapore in 1978/79

<table>
<thead>
<tr>
<th></th>
<th>Hong Kong</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total expenditure on</td>
<td>(HK$)</td>
<td>(HK$)</td>
</tr>
<tr>
<td>education</td>
<td>1,887,600,000</td>
<td>1,202,000,000</td>
</tr>
<tr>
<td>GDP at 1978 market</td>
<td>69,169,000,000</td>
<td>40,073,000,000</td>
</tr>
<tr>
<td>Educational expenditure as a percentage of GDP</td>
<td>2.73</td>
<td>3.00</td>
</tr>
</tbody>
</table>

¹ Bray and Leung, Report on a Study Tour to Singapore, op.cit., pp.34 and 35; and Summary of Expenditure, Estimate for FY80 (Singapore 1979).
Table 42: A Comparison Between the Financial Expenditure on Education in Hong Kong and Singapore in 1979/80

<table>
<thead>
<tr>
<th>Hong Kong</th>
<th>HK$</th>
<th>Singapore</th>
<th>(HK$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical institutes</td>
<td>32,300,000</td>
<td>Vocational and Industrial Training Board including Singapore Technical Institute</td>
<td>60,300,000</td>
</tr>
<tr>
<td>Construction Industry Training Centre</td>
<td>4,300,000</td>
<td>Economic Development Board (Manpower Division)</td>
<td>17,700,000</td>
</tr>
<tr>
<td>Polytechnic</td>
<td>120,000,000</td>
<td>Polytechnic and Ngee Ann Technical College</td>
<td>46,300,000</td>
</tr>
<tr>
<td>Total</td>
<td>156,600,000</td>
<td></td>
<td>124,300,000</td>
</tr>
</tbody>
</table>
Views on money expended on technical education

In Chapter 1 (pages 8 to 18) we traced Hong Kong's rapid growth and development, since World War Two, from a relative "backwater" in 1947, to an important city-state in 1982, and from a per capita GDP of about $1,450 in the early 1950s, to $26,654 in 1981.¹ What is not always appreciated, however, is that Hong Kong's technical education system has followed a similar pattern of growth.

The late S.J.G. Burt was Principal of the Technical College and adviser to the Director of Education on technical education, from 1951 to 1963, when he joined the World Bank. He was a strict, determined and tireless worker and drove his small staff (about 20 full-time teachers in 1954/55) equally hard; many past teachers of the College consider that (in those pioneering days) he was the "grandfather" of, and set the pattern for, technical education in Hong Kong today.² He "ran a tight ship", and a great deal was achieved on a limited budget: although not always popular, he got a great deal out of his staff. It was Burt who was the driving force behind the development of the new Technical College campus at Hung Hom, and it was he who "cadged" most of the donations (see pages 323 to 325).³

As Hong Kong grew and became more affluent, in the 1960s, so did the Technical College, although financial constraints continued to exist and most expenditure, apart from day to day expenses, had to be justified to the Education Department Headquarters and the Finance Branch.⁴ Indeed this pattern was carried over to the technical institutes, up to 1982, when they came under the aegis of the VTC (see Chapter 8).

The whole pattern of the Polytechnic, however, has been quite different, and, provided a case could be made which was supported by the Polytechnic Council and the

². R. Bray, discussion with author, op.cit.
⁴. (62)ED(TE)112/1/2 (7 May 1980).
UPGC, the chances of getting funds, as requested in the triennial estimates, was much better than for a Government run educational institution. Indeed Legg said:

If the Polytechnic has privileges of heavy funding and all the resources it needs it also has duties that go with these which clearly limit its autonomy. It is there to satisfy industry and is given no chance to forget this.¹

The fact that the Polytechnic has considerably more money to spend per student than the technical institutes, albeit for higher level work (although there is an overlap), is clearly shown in the previous examples in this chapter. Indeed it has been said by some technical institute staff that the Polytechnic has had an excessive slice of the fiscal cake, and that its facilities are too lavish and are more suited to an advanced industrialised country.² That could of course be so, although Hong Kong may well reach such a stage of development within the next decade. A great deal of credit must go to Legg for the development of the Polytechnic and for obtaining funds, and perhaps even more so to Sir S.Y. Chung, the Chairman of the Council, who has always been extremely influential in articulating Polytechnic policy. However, the Government seems to be committed to spending large sums on both the polytechnics. It is, of course, necessary that Hong Kong should invest in vocational education, as it is through industry that Hong Kong has made its wealth, and, in turn, industry depends, to a large extent, on technical education.

By contrast, as we have seen, the technical institutes have not been "cushioned" by such financial affluence, and conditions, compared to the polytechnics, have often been quite spartan.³ In other words, the

¹. The Polytechnic: in business to serve the needs of business, Times Higher Education Supplement (England, 8 September 1978), p.IV.
². Bray, discussion with author, op.cit.
³. Devereux, discussion with author, op.cit.
institutes have provided education "without the frills", but, nevertheless, standards and cost effectiveness would appear to have been acceptable.¹ Helmore, for example, the British consultant who was invited to Hong Kong, in 1983, to advise on conditions in technical institutes said:

Employers I have met speak well of the product of the TIs and the strong demand for their courses indicates that they are held in high regard by students and parents.²

Indeed the technical institutes have been considered as a typical Hong Kong, hard-headed, business like approach, where a "product" of reasonable standard is fashioned on a restricted budget, and both the Technical College and the institutes made a vital contribution to past economic development.³

Thus, while the Government generally supported technical institute proposals for expansion in the number of student places, provided there was a proven need backed up by the Training Council or some other relevant body, it was generally less forthcoming in providing funds to improve the quality of education.⁴ The Government is, understandably, always afraid of setting a precedent and of doing something which will affect, what in Government circles is called, "relativity".⁵ As an example: in 1968 it was agreed the Principal's office at the Morrison Hill Institute should have an air-conditioner.⁶ This did not mean, in itself, the outlay of a large sum. However, it was not long before

¹. Waters, The Technical Institutes in Hong Kong... op.cit., Chapter 6.
². Helmore, op.cit., p.5, para.3.2.
⁴. Y.M. Mo, Senior Education Officer, Department of Technical Education and Industrial Training, discussion with author (5 June 1984); and Tsang, discussion with author, op.cit.
⁵. Halima Guterres, A high-flying bureaucrat with an enquiring mind, South China Morning Post (24 September 1983).
a number of principals of colleges and schools, running courses at similar levels as Morrison Hill, were also requesting air-conditioners. In other words, it is not difficult to make a decision which may, at the time, look small, but which can lead to the subsequent outlay of a large sum.

Certainly, as we saw in Chapter 5, standards in the Technical College and the technical institutes did improve, slowly, over the years. If, however, a considerably larger sum had been spent on the institutes it is doubtful whether standards would have risen by an equitable amount.\(^1\) This is because classes have, to a large extent, been run in typical Hong Kong style, on highly structured timetables, with a limited amount of private study, as you cannot change the teaching/learning style of a community overnight.\(^2\) However, more money could have been spent on teacher training (see pages 286 to 293). Again, in a small place like Hong Kong, if higher salaries had been paid to staff, it is still likely that we should have finished up with a similar body of teachers (where much of the instruction is in Cantonese) to what we have today, as the pool in which we can recruit is limited in size.

Attempts were made, by the Education Department, to introduce improved methods of teaching and better facilities, and indeed such developments occurred, slowly. Now that the technical institutes have been taken over by the VTC; there are plans to do much more, and, quite rightly, larger sums are being spent, and what were considered luxuries in the past are now deemed by many teachers to be necessities.\(^3\) Thus there is now a need for better libraries, more support staff, better equipment and computer services, and improved student and staff amenities (see Chapter 5).

---

1. Tsang and Mo, discussions with author, op.cit.
2. Devereux, discussion with author, op.cit.
3. Devereux, *Future Role of the Technical Institutes*, op.cit., pp.1, 9 and 10; and Cameron, discussion with author, op.cit.
However, while the heart of the dedicated teacher will be gladened by such developments, it is necessary to strike a careful balance if cost-effectiveness is to remain at an acceptable level, as a considerably heavier outlay of funds can mean diminishing returns. For example elegant seminar rooms, spacious libraries, "aseptic" laboratories and workshops are fine. Education in air-conditioned comfort can be enjoyable. However there is the danger that, when it is all over, the graduates do not want to be involved in the "seamy" side of production, which is where Hong Kong makes its money, in conditions less comfortable than in the polytechnics.¹

It is interesting to see that while more money is spent per student-place in the Polytechnic than in the technical institutes, and the former has higher status, nevertheless in 1976, the average monthly starting salary of a Polytechnic Diploma graduate was $948, compared to $986 for a student who had followed a similar course in a technical institute.² However in 1980, the respective figures had increased to $1,869 and $1,585. Thus, while it appears technical institute leavers are prepared to accept lower salaries, figures are not too dissimilar.

Financial provision

Obviously the key to rapid expansion is money (see pages 307 to 310), and it has been said that provided this is available then "no growth rate is impossible ...".³ While this is probably an exaggeration, there is some truth in the statement. During the period from the end of World War Two up to 1982, with three exceptions, the annual Government general revenue account has shown a surplus. The exceptions were 1959-60, when a deficit of $45 million was recorded, 1965-66 when a deficit of $137 million occurred,

1. Devereux, discussion with author, op.cit.
and 1974-75, when there was a deficit of $380 million.\(^1\) In 1981-82, there was a surplus of $7,092 million, and it has been said that Hong Kong's extensive growth is probably the fastest that has ever been achieved in the world without external aid.\(^2\) Indeed Hong Kong has always been afraid of "living beyond its means", and capital projects have generally been paid for out of a strong growth in revenue.

There is no doubt that, in a country, the spending of money on education is of vital importance. To quote an example: education in the Soviet Union has always been given top priority, and it has been said that,

... no matter how small is the amount of finance available in a country, first priority should go to education; there is no other field of investment which will give such a return as that from education.\(^3\)

That is why Legg has said (see page 139) that as much education should be provided as a country can afford. For instance, with greater affluence, education tends to generate more education, with better living and health standards, more leisure, and more education for leisure. It is not unreasonable to conclude that there must be a limit to the amount of money spent, however, and this, it has been suggested, is about 7 to 8 per cent of GNP (see Table 28).\(^4\)

With those sentiments in mind it is possible that, while great strides have been made in education in Hong Kong, more money could have been spent. Indeed the Financial Secretary said, in 1980;

It (the economy) will need to be stimulated by an even greater stress on technical education, an area

---

1. Hong Kong 1983, op.cit., pp.41 and 42; and The Hong Kong Education System, op.cit., p.73.
in which I hope to see a greater involvement in public funds.\(^1\)

This is borne out by the "Topley Report" which states that while $247 million was required for annual recurrent expenditure for non-degree (including technician) and craft courses in 1980/81, in the Polytechnic, the Baptist College and the technical institutes, $461 million will be required (at 1981 prices) by 1989/90 if all the recommendations in the report are to be implemented.\(^2\) It has to be borne in mind, however, that technical education is only one link in the chain of educational provision.\(^3\)

In this regard, the OECD Education Commission was of the opinion that, while it did not underestimate the magnificent rate of increase in public expenditure on education over the past 20 years, "the base was very low".\(^4\) It also said, Hong Kong's "aggregate of resources" going into education, on a per capita basis, is still unimpressive; this is so in terms of criteria such as financial outlay per student, capacity-to-pay of the economy, and sectoral emphasis.\(^5\)

This statement is probably correct, but, in 1982/83 Hong Kong had a deficit of $3,500 million, and in 1983/84 a deficit of $3,205 million.\(^6\) Thus, one wonders whether the views of the Education Commission would have been the same if they had visited Hong Kong three years later? However having said that, as we shall see in Chapter 8, and quite rightly, it does appear that with the establishment of the City Polytechnic and the VTC, that more money will be spent (in real terms) on technical education in the future.

---

4. A Perspective on Education in Hong Kong, op.cit., p.113.
5. Ibid.
6. Hong Kong 1984, op.cit., p.54.
Rate-of-return analysis

While on the subject of finance, whether it be from the point of view of the individual or the state, the rate of return on money invested is obviously important. The average student and his parents in Hong Kong usually have a good idea how subsequent earnings and status are linked to levels and types of education. For instance the median monthly income of the working population, who have had university education, amounted to $3,905.50, as at 1981, compared to $2,717.0 for a post-secondary qualification, and $1,736.40 for a senior-secondary, and $1,476.50 for a junior secondary school leaver.

In a similar way, in the 1960s and early 1970s, many students knew that by leaving school after form-five, and by obtaining a Higher Diploma and endorsements at the Technical College, they could often start earning and pass British professional institution examinations one or two years earlier (thus reducing the amount of salary foregone) than if they studied in a university. In spite of this however, most students would, if they could secure a place and could afford it, prefer the university route because of the status a degree holds. In a similar way, Hong Kong students have sometimes reduced "earnings foregone" by obtaining three Advanced level subjects in a technical college in England, in one year, rather than by studying for two years in form-six in a school.

However rate of return analysis for a student, which means the amount invested (fees etc.) and salary


4. Discussions with Father Martin, past Principal of Tang Kong-po School.
foregone compared to the benefits reaped later, also applies to the state, and, likewise, an educational institution is accountable for ensuring an adequate return on the resources invested in it. In fact, it has on occasions been said that there is no economic justification for allocating additional resources to education unless this results in greater measurable economic benefit per unit of cost. In this context, it can be argued that education is a form of investment in human beings, which yields economic benefits and contributes to a country's wealth by increasing the productive capacity of its people (see also page 44).

It is however quite clear that, with the insatiable demand for higher education, without undertaking a certain amount of restructuring of costs and benefits, Hong Kong could be in for a bout of costly educational inflation. For instance, with the substantial differentials in the pay and status between a craftsman and a degree holder, many students will go to great lengths to obtain senior secondary education rather than to take up a craft place in a technical institute. Although wage differentials have been reduced and the status of technical education is being enhanced with time, even more needs to be done, partly by "education", to speed up this process. In this regard however status, to some degree, follows wages.

In a similar way, from the point of view of the state, it is important many would argue that, other non-economic factors being equal, projects showing a greater rate of return should be preferred to those showing a lower

---


3. P.R.C. Williams, Cover Note to Papers on Manpower Planning and Rate of Return Analysis (16 March 1978), p.1.

rate of return. Indeed that is no doubt one of the main reasons why, during a period of "belt tightening", the second polytechnic has been established.

Taking another example, it can be argued, in theory, that now with more students completing 11 years of general education, where they receive a good foundation in mathematics, science and languages, that they will thus be able to complete a craft course in a shorter period of time than if they only received nine years of general education. It must also be borne in mind that, as technical education is more expensive than general education (see Table 39), it may be more economical to increase the duration of the latter at the expense of the former (see page 194), although, in practice, higher standards are being achieved over the years, thus demanding a better general education as a base for technical education. However with a credit-unit system, for passes obtained at senior-secondary level, for example in mathematics, science and technical subjects, recognition can be given, later, for these in a technical institution. It must not be forgotten, however, that education can yield important benefits other than economic, including moral consciousness, social cohesion, and national unity, although if in the wrong hands, as we witnessed in the case of Nazi Germany, it can have the reverse effect.

It was estimated that, in the mid 1970s, the annual cost of providing a student-place at the then privately funded Baptist post-secondary College (see pages 25 and 26) was $2,800 a year, compared to $21,770 (see Table 39) at the Hong Kong University.

It thus has to be decided whether, a cost-benefit wise, it is better to have an "open university", more

1. P.R.C. Williams, Application of Rate of Return Analysis to Educational Planning in Hong Kong, Paper II (13 March 1978), p.1.
3. Williams, Application of Rate of Return Analysis to Educational Planning in Hong Kong, Paper II, op.cit., p.6.
technical institutes, or, say, another polytechnic. (The total capital expenditure for the City Polytechnic is estimated to be $823 million, at 1983 prices, of which $562 million will be required for Phase 1 (see page 208)).

In this way costs can be kept to an economic minimum, consistent with carefully chosen objectives. It may, however, be desirable to reduce the rate of expansion of higher education, in spite of the strong "lobby" in favour of more lower-level technical education with possibly more productive employment opportunities. It is also probably a sound investment to subvent the Baptist College and, at the same time, to raise standards, and for it to turn out graduates at less cost to the taxpayer than a university. In this way, such educational forces as exist can be used in the public interest without suffering the worst excesses (such as low standards) of private education.

The fact that during 1981/82 there were 183 private secondary and matriculation schools (see page 21) running, at no cost to the taxpayer, out of a total of 402, shows that such forces were used by the Government, although standards in such schools are sometimes low. In this context, other countries including Brazil, Singapore and the Republic of Korea, also allow for private initiative in education to intervene so as to offset the lack of state involvement. However, it has been said that such private institutions (see pages 25 to 28), which have to respond to market pressures, and cannot afford to maintain half-empty classroom or inefficient staff, which operate at a profit on a much lower unit cost than Government or Government subvented institutions, must be among the most efficient in

3. Williams, Cover Note to Papers on Manpower Planning and Rate of Return Analysis, op.cit., p.2.
From the foregoing, it can be seen then that rate-of-return analysis should be viewed as a useful tool in directing attention towards possible policies in the areas of financing, costs and the rewards of education. For instance, if the fruits of education can be more evenly distributed among the population (although it can be argued that when everyone is "somebody", then non-one is "anybody"), and it can be made more attractive for students to attend lower cost (say craft) courses, the economy would stand to gain. Indeed market forces appear to be working in this direction, and a great deal has been achieved by the Government already. Because of this, a detailed (possibly costly) academic rate-of-return analysis study is probably not necessary as, to a large degree, the evidence that such research would reveal would merely confirm what is already known and is already taking place.

Some work has, in fact, recently been done in this field by K.F. Leung, Senior Education Officer of the Government Department of Technical Education and Industrial Training, in 1984. This study revealed that the private rate of return of tertiary education in Hong Kong is greater than "in other countries, except possibly Singapore" (which was however surveyed in 1966). The comparison included Taiwan, South Korea, Britain and the United States.

The Hong Kong study confirmed that investment in technical education, including both the private and social rates of return, is high, especially the part-time technician route. Leung's paper recommends that students' fees should

2. Williams, Application of Rate of Return Analysis to Educational Planning in Hong Kong, Paper II, op.cit., p.10.
3. Ibid.
4. Leung Kam-fong, 'An Empirical Study on Rates of Return to Investment in Education in Hong Kong (12 July 1984), passim.
5. George Psacharopoulos, Return to Education: An Updated International Comparison 1981.
be increased (see page 338) for heavily subsidised university education, and that more loans should be given instead of grants. It also recommends that more technical education places should be provided, including a larger proportion of part-time places. In a materialistic society like Hong Kong, such suggestions seem eminently sensible. After all university education, subsequently, is an extremely worthwhile investment, and it seems fair that the recipient should pay more for it. It also appears sound that technical education, which provides a good return both privately and socially, should be expanded. This study, it appears, really confirms what, in fact, was already known.

Are detailed costing exercises worthwhile?

It is obvious that for any organisation, including a technical education institution, properly audited accounts must be kept. This applies even more so to a Government or a Government subvented institution where accountability to the public is important. However, this leads to the question whether costing exercises, such as those detailed in this chapter, which should be conducted by accountants and educationalists jointly, are worth the time and expense, bearing in mind that education is a nebulous subject to evaluate? The answer to such a question would appear to be "yes", although it is probable that if they are done, say, once every five years, on a regular basis, that would, in most cases, be sufficient. It would also appear that a detailed costing, course by course, as was done at the Technical College in 1967/68 (see Table 30), is not necessary or worth the extra expense (except in special circumstances), although it is desirable to cost each academic department separately. It is, however, desirable to keep the costs of students, by different modes of study, separate.

Another important consideration is, what does one do with the information obtained from such a costing exercise? Obviously there should be follow-up action. There is no doubt that the low utilisation of accommodation, as revealed in the 1967/68 Technical College exercise, had an effect on the planning of the technical institutes, and more dual and multi-purpose rooms were provided. Probably there could have been more follow-up: for instance, more
revenue could have been obtained by greater renting of rooms and more summer courses could have been run. Probably also, with the benefit of hindsight, a few items of equipment were not wise purchases and money could have been used more profitably.

Conclusions

The cost of providing education in Hong Kong, with its semi-advanced economy, has increased considerably over the period under review, although ratios of costs for different sub-heads, modes of study and disciplines have not changed to any extent, and through-put rates and student wastage rates do not appear to have varied significantly over the years for Government institutions. However, in the case of buildings, costs have also depended upon the booms and depressions of the construction industry and not solely on inflation. Regarding the actual cost of a student-place (of which students' fees provide only a comparatively small part), this varies considerably depending upon the discipline and the level of education being considered, with craft courses, for example, costing less to run than technician programmes. Part-time courses are also more economical to mount than full-time courses, although the latter have advantages such as more hours to devote to study. In order to keep the cost per student place as low as practicable, it is obviously necessary to maintain a high utilisation factor for educational accommodation.

With teachers' salaries and on-costs constituting a high percentage of the expense of education, technical institutes were probably correct, in Hong Kong's peculiar circumstances, in forming large classes. However, in the future, consideration should be given (like the Polytechnic) to greater flexibility in the sizes of student groups, coupled with greater use of educational technology and teacher training, which not only enhance the quality of education but can also improve cost-benefit.

Fairly restricted budgets were provided for the Technical College and the technical institutes during the period under review, and the cost of a technician student-place in an institute was considerably less than that of a similar place at the Polytechnic. However, the starting
salaries that the two types of graduates can command, from industry, are not too dissimilar. While if more money had been spent on the technical institutes the standard of the students would have been still better, nevertheless, it is suggested that this would have been, to a degree, marginal. This was because expansion of technical education was rapid, and the staff, who teach mainly in the vernacular, would have been similar even if they had been paid higher salaries.

However, while yesterday's luxuries become tomorrow's necessities, it will be necessary to remember that while more money needs to be spent on technical institutes, and that finance and the quality of education are inextricably linked, a point of diminishing returns is rapidly reached, and resources and effectiveness will need to be kept at a level that the community can afford. It is, after all, a fair question to ask whether the returns which society gets from technical education (which is more expensive per place than general education) are high enough to justify levels of expenditure.

It is interesting to see that Hong Kong's expenditure on education, for its rapidly expanding population, compared favourably with other countries, although capital expenditure has been boosted by donations, largely from industry. The views of the 1981/82 OECD Education Commission, that Hong Kong should have spent more on education, are probably correct. However, it has to be remembered that the Territory's rapid development was financed without external aid, and there were many claims for funds competing against requests for money for education.

In Hong Kong's case "rate-of-return analysis" is important, and care needs to be taken to invest the money available where it will show the greatest benefit, whether this be, say, a second polytechnic, more technical institutes, or by aiding the Baptist College. At the same time, when considering the allocation of funds, it has to be remembered that there are few fields that will give such good long-term returns to a state as education, although there is more to consider than just meeting economic targets. Social and cultural benefits are also of immense importance.
CHAPTER 7

CONCLUSIONS

So far this thesis has examined the planning of craft and technician education in Hong Kong, from 1957 to 1982, and conclusions are included at the end of each chapter. Attempts are now made to draw on the lessons which have emerged and to compile the main conclusions which can be highlighted from the study overall.

There is little doubt that Hong Kong is unique in that it is a thriving and successful metropolis bridging different cultures. It is also a cross-roads of East and West, at the centre of world trade routes, where the average daily wage index (in real terms, including fringe benefits) rose from 96 in 1974, to 134 in 1980,1 in spite of the worldwide recession. While becoming increasingly westernised through trade, technology and the mass media, Hong Kong has, nevertheless, been (and still is) largely shaped by traditional Chinese values. As a means of livelihood, manufacturing and commerce predominate (although service industries are growing apace), and, as one would expect, Hong Kong faces problems similar to any other large and rapidly developing city, such as over-crowding and limited recreational facilities. However, the life style and personal freedom which Hong Kong has to offer have attracted unprecedented influxes of immigrants since the end of the 1940s. Indeed the principal asset of the Territory can be said to be its people, who are generally of high intellectual calibre, and who possess the capacity for hard work. Hong

Kong's industrialists are also capable of adapting to, and taking advantage of, rapidly evolving circumstances, such as industrial progress and technological developments.

Concomitant with the rapid growth that has taken place in the economy, together with striking social change, are the developments that have been made in technical education, especially during the 1970s. Comparison between Hong Kong in general and technical education in particular can be extended still further. Both have had to develop within a confined space, and both have had to contend with the problem of too many people. Nevertheless, after the uncertainties, disruptions and hesitations of the 1950s and 1960s, Hong Kong was able to pay more attention during the 1970s to the development of technical education both in quantitative and qualitative terms.

This included the use of manpower forecasting which, in a dynamic and rapidly changing city-state, is an instrument which it is not easy to use effectively. For that reason although views vary, often considerably, it is suggested it is desirable to combine various methods, such as employers' opinions, the trend method, and international comparisons (and if necessary others), in order to forecast future manpower requirements. In Hong Kong, not only are surveys used, but also figures showing the distribution and build-up of manpower from the Government Departments of Labour and Census and Statistics. However, it is not wise to rely on such methods alone, and, in addition, job vacancies should be compared to technical education graduate input into industry, which should be followed up by longitudinal tracer studies. The demand for student places on the different technical education courses should also be analysed.

1. Sir Philip Haddon-Cave, Poly's Development is Like HKs Growth, South China Morning Post (30 May 1978).
2. John Dockerill, Associate Director (Resources), City Polytechnic, discussion with author (6 July 1984).
While each of the above methods will usually (but not always (see Tables 11 and 12)) point in the right direction, the risk of a wide margin of error can be considerably reduced by combining a number of different systems, including both economic and social considerations. However, it is not possible to say how much weight should be given to the sometimes conflicting (social) demand for student places, as against satisfying (economic) demands for manpower. Indeed the ratio will vary with circumstances. Nevertheless Hong Kong was correct, in the late 1960 and the first half of the 1970s, to base its planning mainly on economic requirements, although the Territory's planners did not at the time fully appreciate the extent to which manpower demands can fluctuate over time, and too much trust was placed in manpower forecasting.

However, a provision of student places based purely on the demand by applicants would be as misguided as an obsession with manpower surveys, although students taken collectively are quite capable of making valid judgements regarding their future prospects in different industries. For example since the early 1970s, a limited number of good students has been interested in enrolling on textile courses because the industry is shrinking.

While there is still a strong attachment, within some circles of the Government, to try to ascertain manpower requirements almost entirely by surveys and by so called "technical" planning, there has, fortunately, been a move away to less mechanistic methods. As a result, a broader "second generation" manpower planning approach began to emerge in the late 1970s. This attempted to map out broad directions, rather than to try to define narrow accurate paths, where the "terrain" never remains constant. This should lead to the "third-generation" approach, using a wide range of different manpower forecasting techniques, based on information collected on a regular basis, covering both

---

2. H. Cameron, Principal, Lee Wai Lee Technical Institute, discussion with author, op.cit.
industrial and social needs, as has been outlined above. Such data are then used for testing options and for implementing action against increasingly explicit sets of values.

Nevertheless, despite the careful analysis of both industrial and social needs, there will still be inbalances between the demand for, and the supply of, manpower, especially in a dynamic place like Hong Kong. For this reason, it is necessary to complement the manpower forecasting methods outlined above with the development of a flexible education and training system, which includes provision for periods of retraining in adult life. This makes it easier to prepare a better and more adaptable labour force for the changing world that lies ahead. This will facilitate the future movement of manpower between occupations.

After manpower needs have been decided, there remains the controversial question of translating them into the desired educational output. With only one major technical college up to 1969, Hong Kong had a good opportunity, with a comparatively clean slate, to plan the developments that have taken place since then, thus avoiding small scale planning and piecemeal adjustments. However, while 15 or so years is not long in educational planning terms (with today's technician often receiving a total of 13 or more years of full-time education), Hong Kong has not remained stationary, and indeed some sectors of both society and the economy have altered drastically. Also these changes have often been accompanied by a heightened public awareness which has demanded compensating alterations in the educational system.

With the Chinese penchant for formal academic education, and the vociferousness of a few pressure groups, one school of thought, since the mid 1970s, has advocated 11 years of full-time general education for all, and this

has received a great deal of support from the general public. However, it has been strongly opposed by some industrialists who say that nine years of general education is sufficient for the less gifted, and that "over-educated" young people will not want to work in industry. Nevertheless no government, in the long term, is going to be successful, it would seem, in stemming the people's desire for more and better education, and rigorous academic training, including science, mathematics, communications and social skills, provides a first-class foundation for a subsequent technical programme. A longer general education can thus be a worthwhile investment, especially as it can sometimes shorten the period required for learning a technical subject.

However, while more form-four and form-five places should be provided, senior secondary education should not be made compulsory, and those that want to leave school at the age of 15, to take up employment or to follow a technical course, should be allowed to do so. For such persons an alternative route, consisting of a full-time course in a technical institute combining technical and academic education and industrial training, run in the first instance as a pilot scheme, merits consideration. Such courses could help to overcome the criticism that many of our young people do not find the technical institute options attractive because they are too biased towards craft training. In a similar way the safety net, such as "bridging courses" and the "second chance" as offered by continuing education, should be extended. Indeed such opportunities can do a great deal to prepare people for employment and can help to provide a better understanding between the generations.

1. Ibid., pp.15 and 30.
It is worth mentioning too that, as has been found in the western world, the current Hong Kong apprenticeship system, which now has to cope with more mature and better educated students, needs to change with the times. With more craft students having completed senior secondary education, shorter and broader periods of initial training should be considered, which synchronise the joint efforts of the technical institutes and the off-the-job training centres (see pages 155 and 156) which are being established in increasing numbers.

There is no doubt that with two polytechnics, Hong Kong is well placed to turn out young people at the important higher technician level. However, such developments have not been supported by enough technical institutes, as although technical education is gaining favour, with people clamouring for academic and higher education for their children, institutes do not always receive the full backing they deserve. Nevertheless, from the point of manpower alone, there is considerable room for further expansion of technical institutes which should be one of our top priorities. Indeed since the first one was established, in 1969, they have had to turn away far too many qualified applicants, to the detriment of the economy.

As we have seen in Chapter 6, it makes financial sense for a student to attend a technician course in a technical institute and for him to proceed to a polytechnic for his higher technician education, and indeed such "stepping-stones" were introduced when the first technical institute came into being in 1969. However, as some institute Certificate and Diploma holder applicants are not admitted to polytechnic Higher Certificate programmes, such facilities need to be extended.

2. A Perspective on Education in Hong Kong, op.cit., pp.63 and 106.
Hong Kong's utilisation of buildings for technical education has been reasonably economical, with many in use from early in the morning until late at night. However, they have remained comparatively idle at weekends and during holidays although, quite rightly, the technical institutes and the polytechnics have now expanded their summer holiday short-course programmes.

More thought also now needs to be given to the design of such buildings, so that they can be modified more easily to accommodate change, and the three new institutes which are due to be completed in 1986 and 1987, are being so planned. There is also a need to plan so that the utilisation and efficiency factors of educational buildings are improved (see pages 234 to 236). The City Polytechnic, however, has already moved in this direction; for example, its future laboratory facilities will be centralised in order to reduce construction and running costs and to avoid duplication, and no teaching departments will "own" laboratories. In a similar way, this concept of centralisation is being carried a stage further in that the library, the computer centre, the educational-technology unit, and the student-affairs unit will all be housed in one co-ordinated centre (a central learning resource), and computer based study programmes will be available.

Turning to courses and curricula, the main aim of the technical institutes has always been to provide manpower for the development of the economy, and with an overall shortage of places this was probably the correct policy rather than trying to satisfy students' aspirations. However when more institutes are established, they would probably gain in status and popularity with some sectors of the community, if foundation and linked courses for secondary school pupils and some non-vocational type

1. John Dockerill, discussion with author, op.cit.
programmes are mounted. In other words, the vocational emphasis which has been the policy in the past should not prevent some non-vocational courses being run in institutes if that is the most suitable place for them. However, if there is a shortage of resources, then it is suggested vocational courses should be given priority.

At the same time, further thought should be given to broadening the base of basic vocational courses so that they include also instruction on "preparation for life", rather than being just narrow "job training". In fact, courses have already started to move in this direction. In addition learning resources, including library and educational technology facilities, although they have improved in the technical institutes in recent years, are still inadequate.1 Attention is, however, being paid to these areas in the City Polytechnic, and such aids as computer-assisted instruction is being introduced, and offices are being automated in order to reduce the number of supporting staff.2

In addition, in the future, because of financial limitations, new and more economical teaching methods will need to be introduced. These may include unit/module type courses, some of which will probably be taught on the distance (self) learning principle, using learning packages and kits supported by educational technology (see pages 199 to 202).

Although it must be borne in mind that the background and learning ability of the craft students in the technical institutes are different to those of the students in the polytechnics, thought should be given to improving teaching methodology, with flexibly-sized student groups, and more student-centred learning. In this context however, with nine years of full-time general education now available for all, together with more tertiary education places, the overall ability and degree of motivation of the average student is said to have dropped.3 However, they may still be regarded as diligent by western standards.

1. Helmore, op.cit., p.27.
2. Dockerill, discussion with author, op.cit.
3. A Perspective on Education in Hong Kong, op.cit., pp.51 and 52.
Aligned closely with the above is the important issue of the education and development of teachers including their industrial attachment. While a great deal has been achieved in the past, and Hong Kong staff normally respond well to new developments and are generally well motivated and competent, still more needs to be done. In fact, with the coming rapid expansion of technical education and the recruitment of many new teachers, standards will probably fall, in the first instance. However, it is important that all forms of staff training, including a blend of pre-service and in-service courses, are further developed as the introduction of new methods and practices depends, to a large extent, on teacher development which should be seen as a continuous process.

While it is appreciated that teaching styles depend, to some degree, upon cultural considerations, it is important that staff are exposed to the latest instructional techniques and behavioural aspects of teaching, understanding and values. It is also important to update their knowledge of subject matter. However, the rationale for a teacher to improve himself should be looked upon less to repair an inadequacy than to seek greater professional competence. The greater participation of staff in the decision-making process, in connection with, for example, planning, is also worthy of further consideration.

This leads us to one of the most important conclusions to come out of this study, namely the need to plan for flexibility and adaptability so that provision can be made for rapid and sensitive response to change and the introduction of new ideas. It has been pointed out repeatedly, in this thesis, that the role of the educational institution is not a static one, and that it is necessary to innovate to keep abreast of our changing world, and often to move to an expanded educational role. Again, while

1. Helmore, op.cit., p.5.
2. A Perspective on Education in Hong Kong, op.cit., p.94.
the technical education institutions in Hong Kong have responded quite well to rapid growth and vigorous change, still more, as we have seen, could have been (and needs to be) done.

Turning to the subject of finance, we should not underestimate the considerable increase in public expenditure on education, in Hong Kong, during the period under review, although the base line, in 1957, was low. While there were many other competing claims for funds, from other sectors of the economy and the social services, more should have been spent, for example at the Technical College in the 1960s, and on the technical institutes in the 1970s. In fact, Hong Kong has been described as a "Johnny-come-lately" on the educational scene, and while many states were expanding their tertiary sectors, often rapidly, we stood on the side-lines and did not compare well with other countries. On the other hand, our late start makes it possible to learn from others' mistakes. Hong Kong is also now the envy of many states (for example Britain) in that, while they are cutting back, we are still expanding.

In retrospect, in spite of such factors as a rapidly expanding population, Hong Kong has much to be thankful for, and, at the present time, its "order books" are quite full. It has also managed to avoid the scourge of so many countries, namely unemployment. Probably Hong Kong's policy of basing its technical education system more on economic needs can take some of the credit for this, because, as Blaug says, there is a danger that, ... the (too rapid) expansion of post-compulsory education is simply passed down the line and ends up in a chronic core of unemployed school leavers ... 

2. A Perspective on Education in Hong Kong, op. cit., p.113.
4. H.R. Knight, discussion with author, op.cit.; and Leung Kam-fong, discussion with author, op.cit.
However there are, of course, other factors which have contributed to Hong Kong's success, such as a hard-working and flexible labour force.

Nevertheless, it also has to be appreciated that no state has a bottomless purse, and that is why Hong Kong had to select its priorities carefully. John Adams (1735-1826), second President of the United States, is purported to have said:

I must study politics and war that my sons may have liberty to study mathematics and philosophy, navigation, commerce and agriculture in order to give their children a right to study painting, poetry, music, architecture, statuary, tapestry and porcelain.¹

In a similar way, especially in the earlier post-war days, Hong Kong tended to look upon its education system very much as an economic instrument which bore the dollar sign. For example it has been said that Hong Kong's, higher education system is uniquely geared to the needs of industry, commerce and government - and thrives on the relationship.²

In fact, Chinese students too tend to see education mainly as utilitarian and as a route to qualifications and better opportunities, although there is nothing intrinsically wrong in this.

In the 1950s Hong Kong had a limited budget, and it wanted to increase its number of skilled people but, at the same time, it needed to reduce the cost of producing them. This meant a great deal of learning on-the-job, especially at craft level, and leaving some courses (commerce for example) to the private education sector.

Today, the technical institutes are still handicapped by deficiencies in such areas as equipment,

¹. Original source unknown.
libraries, and educational technology, brought about by (sometimes excessive) Government cost cutting in the past. In spite of the shortcomings of the institutes, however, they still have, 

... an impressive record of achievement and high standards. \(^2\)

It would thus appear that with limited financial resources, especially in the early post-war years, and not wanting to borrow and live on credit, Hong Kong's policy of concentrating on vocational courses, which lead directly to economic development, was correct.

Nevertheless, no one can be happy about education which is motivated by consumer needs alone and, as the Territory became more affluent, it has tended to take a more liberal view, as is normal. It has also spent more of its GNP on education, starting in the early 1970s. After all, Hong Kong's domestic wealth can now be compared with one of the less rich countries of Western Europe, and her financial situation is such that the criteria need not now be (and should not be) exclusively economic. \(^3\)

Having said that however, one must also realise that Hong Kong is in need of a well educated and trained labour force to fuel the economy and to sustain further development. With these objectives in mind we can, perhaps, learn from other countries which have implemented policies which have not always produced significant tangible returns. With Hong Kong's attitude towards the funding of education becoming more liberal (in not thinking purely of the economy), as well as more generous, this brings us to the question, "where is the money to come from?"

A shortage of funds is still one of Hong Kong's biggest problems. It was estimated, in 1983, that to implement all the proposals

---

2. Ibid., p.37.
3. A Perspective on Education in Hong Kong, op.cit., pp.10 and 106.
in the Llewellyn Report\(^1\) would cost in the region of $20 billion, or an increase of about 30 per cent over what was being spent in 1983.\(^2\) It would thus appear that not all recommendations can be implemented. Fortunately Hong Kong's GDP is still increasing quite rapidly, she possesses hard-currency reserves, no net debts, considerable capital inflow, relatively low unemployment, and a healthy economy.\(^3\) In spite of these facts, however, all requests for funds will obviously have to be justified, as there will be many competing claims, and all will need to prove that they are worthwhile investments. This means that the distribution of funds can best be effected, to some degree, by normative models, with claims supported by economic forecasts, and socio-economic cost-benefit analyses.\(^4\) In other words, claims which will produce the greatest benefits should get the highest priority.

While the planning of education, especially within the Government, has been very much a team effort involving countless people, nevertheless, as we have seen, some persons have played central and leading roles and have been repeatedly mentioned in this study. There is no doubt that these special few have contributed a great deal to the development of technical education in Hong Kong.

**The future**

It has been said that the Territory cannot forecast future developments with any degree of accuracy beyond a period of about five or six years, because of the rapid rate of change, whereas the lead-time for major capital development requires it to look considerably further ahead.\(^5\)

---

1. A Perspective on Education in Hong Kong, op.cit., passim.
2. Desmond Lee, seminar on education, Hong Kong University, 14 May 1983, South China Morning Post (15 May 1983).
3. Sir John Bremridge, Financial Secretary, speech to Court of Directors Cable and Wireless, South China Morning Post (30 May 1984).
5. The Honourable Justice T.L. Yang, A Personal Perspective of the UPGC, Hong Kong Polytechnic Tenth Anniversary Public Lectures 72/82 (19 July 1982), pp.61 to 66 (p.64).
Moreover, according to the Joint Declaration between the United Kingdom and China, with effect from 1 July 1997, the People's Republic of China will resume the exercise of sovereignty over Hong Kong, which will enjoy a high degree of autonomy for 50 years after 1997, except in foreign and defence affairs. The Hong Kong Special Administrative Region (SAR) will be vested with executive, legislative and independent judicial power, and the laws in force in Hong Kong will remain basically unchanged, as will the current social and economic system and the life style. The Territory will remain a free port, a separate customs area, and an international financial centre with independent financial provision. Also, the Government of Hong Kong will be composed of local inhabitants, although the chief executive will be appointed by the People's Republic of China on the basis of the results of elections or consultations held in Hong Kong. However, in spite of what has been said about the Territory remaining the same, one can expect that through this "marriage" the life styles of China and Hong Kong will gradually be brought closer together. Nevertheless, both before and after the Territory becomes an autonomous region of China, one can expect that Hong Kong's trade will continue to flourish. Such progress will be helped by expanding Hong Kong/China trade and joint ventures, and the latter's modernisation programme.

There is little doubt that the contribution made in Hong Kong by simple production processes and low-cost labour will further decrease, and that such tasks will be taken over by less developed economies. However, while development in Hong Kong will probably continue to be relatively fast, one cannot expect a major and rapid expansion of high technology and, at the same time, growth in the service industries at the same levels as has been witnessed in the past. In turn, as the Territory becomes more experienced, it is likely


that its consultancy role in Asia will increase.¹ As the Territory has always tended to be a "follower" rather than a "leader", at this time, one of our greatest needs is the development and nurturing of creativity and the introduction of more research and development, and designing of our own products.

All this will mean that, in the longer term, a number of jobs will virtually disappear (for example some printing trades with the introduction of modern machinery), and new technologies will have to be taught.² In turn, as our industry becomes more sophisticated, the present manpower "pyramid" will gradually tend to move towards an "ellipse", with more people filling technician level roles (see pages 5 to 7). This will require more higher level general education and more technician courses. Conversely, the need for unskilled and semi-skilled workers will decrease, and the better educated younger generation will be less willing to take up mundane jobs and the associated working conditions that went with them which were accepted by their fathers and grandfathers.

With the rapid changes that have occurred in Hong Kong since World War Two probably continuing, it would appear that a rigid approach to manpower planning will not be the answer in the future. Instead the provision of a good general education, on which is superimposed a broad technical education, will be called for. The fact that more skills training will, in the future, be undertaken, including that being provided in the two rapidly developing VTC industrial training complexes at Kowloon Bay and Kwai Chung, will also alter the role of the technical education institutions in that they will be able to concentrate solely on education rather than also undertaking some training.

With all the changes that have been outlined above, which we can expect to take place in the period up

1. Hong Kong as a Consultant, editorial, South China Morning Post (7 December 1983).
2. Helmore, op.cit., p.26; and Hong Kong Polytechnic Triennial Academic Plan 1981-84, op.cit., pp.1 to 3 and 133.
to 1997 and beyond, in addition to maintaining a buoyant economy to support our, hopefully, continuing rapidly rising standard of living, vocational education must be one of the keynotes to the future. When planning in an atmosphere of unknowns and uncertainties, the humanities and social sciences must not be neglected. The aims of different sectors of education are inextricably intertwined, involving complex issues such as the mixture of Chinese and Western cultures, changing life styles, and more demanding student aspirations. Under such circumstances, general education too, obviously, has to be one of the bulwarks of the future.

**Future research**

From the examples given below, it can be seen that a limited amount of research and case-study work, in the field of technical education, has been carried out, and, bearing in mind that Hong Kong has many unsolved problems, there is a need to conduct studies on the vital issues with which we are confronted.\(^1\) In this way, a corpus of knowledge can be built up which would assist policy makers to analyse, select opinions, formulate policy and plan developments.

Typical areas in which research needs to be carried out include manpower planning - for example more longitudinal tracer studies of past graduates, and international manpower comparisons - and studies of indicators of efficiency in the use of education institution resources.\(^2\) Other areas include curriculum development, teaching methodology, the use of distance-learning, and the evaluation of student achievement, all in the Hong Kong context.\(^3\) Also, while a great deal of money is being spent on education, limited work has been done on cost-benefit analyses.

---

1. *A Perspective on Education in Hong Kong*, op.cit., pp.24, 113 and 114.
CHAPTER 8

POSTSCRIPT

This study is, strictly, only concerned with the period from 1957 to 1982. However after that date, up to late 1984 when this thesis was edited, "another great leap forward" in technical education, in Hong Kong, was underway. While to cover 1983 to 1985 in detail would require another thesis, the position may be summarised as follows. The City Polytechnic (see page 30) opened with 480 full-time and 680 part-time students (total 1,160) on roll at the start of the 1984/85 academic year.\(^1\) At the same time, the Hong Kong Polytechnic had increased its student capacity to 7,259 and 16,828 (total 24,087) respectively,\(^2\) and the enrolments for the five technical institutes were 5,986 and 35,700 (total 41,686).\(^3\) (See Table 43 which also gives numbers of academic staff).

Regarding the student output of the polytechnics and the technical institutes: as at 1984, it was estimated that between 3,350 and 3,850 additional technicians will be required annually, whereas the output from 1984 to 1987, by all modes of study, will be about 3,400, allowing for those diploma and certificate holders who will continue their studies at a higher level.\(^4\) In turn, the aggregated annual demand for additional craftsmen is in the range of 7,700 to 9,000, whereas the annual outturn from institutions, by all

---

1. City Polytechnic enrolment records.
2. Hong Kong Polytechnic enrolment records.
3. Technical institute enrolment records.
Table 43: Numbers of Students and Academic Staff in the Polytechnics and the Technical Institutes in 1984/85

<table>
<thead>
<tr>
<th></th>
<th>Hong Kong * Polytechnic</th>
<th>City Polytechnic</th>
<th>The five technical institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student numbers:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>7,259</td>
<td>480</td>
<td>5,986</td>
</tr>
<tr>
<td>Part-time</td>
<td>16,828</td>
<td>680</td>
<td>35,700</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>24,087</td>
<td>1,160</td>
<td>41,686</td>
</tr>
<tr>
<td><strong>Full-time academic staff, including principals and vice-principals, and directors and deputy directors</strong></td>
<td>929</td>
<td>95</td>
<td>506</td>
</tr>
</tbody>
</table>

Note: See also Tables 18 and 25

* Student-capacity figures for 1984/85

modes of study, is 2,650. (This figure will increase to about 4,450 by 1987.) Thus, whereas the supply of technicians approximately balances demand, there is likely to be a decided shortfall of craftsmen. However, it has to be remembered that many are still trained entirely on-the-job (see also Table 16). Also, the Education Commission (see page 213) (report not "released" until January 9, 1985) has recommended a substantial increase in the number of craft places.¹ This includes a total annual provision of 7,600 one-year, full-time, basic craft places from about 1989/90 onwards.

There is no doubt that the setting up of the statutory VTC and its executive arm the Government Department of Technical Education and Industrial Training, in 1982, was worthwhile. The VTC (see page 32) now manages the technical institutes, the industrial training centres, and supervises apprenticeships and industrial training. Since the VTC took

over the management of the institutes (see pages 21 and 23), their staffs, other than those in post at the time of the change, in 1982, are not Government servants but are employed by the VTC. As a result, this has speeded up such processes as teacher recruitment (see pages 284 and 285). More money is also now available for the running of the technical institutes (see pages 347 to 353) (the VTC received a total subvention from the Government of $133,951,000 in 1982/83) and facilities have generally improved. For instance, there is now a central learning-resources centre situated at the Lee Wai Lee Technical Institute in Kowloon (see Figure 4). However, while the institutes have been improved and certain functions have been streamlined, there is a danger that the VTC will, like most large organisations, develop its own form of bureaucracy (see pages 83 to 85).

With both technical education and industrial training now coming under the auspices of the VTC, this gives Hong Kong an opportunity to develop a strong, unified system, as opposed to many countries where some degree of dichotomy exists.

It can thus be seen from this thesis overall, that Hong Kong, after a brief lull at the start of the 1980s, is now well prepared, with a solid foundation, for the further expansion of craft and technician education. This development of the polytechnics and the technical institutes will, as has been explained, increase in momentum as we move into the second half of the 1980s and the 1990s. However, the period from now until 1997 (when China takes over the Territory) and beyond will be both an uncertain and an exciting time, which is viewed by many with trepidation. And what the long-term future holds in this important epoch in Hong Kong's history, in spite of all the promises made by China, only time will tell.

1. H. Cameron, interview with author, op.cit.
3. Helmore, op.cit., pp. 14, 18, 33 and 34.
BIBLIOGRAPHY

Unless stated otherwise, the following correspondence, papers, reports, articles and other literature were published or drafted in Hong Kong. A number of references used in this thesis were obtained from Government files and their use is restricted.

Primary Sources

Aberdeen Technical School 1935-1965, 30th Anniversary Souvenir Number
Annual Report 1973/74 Hong Kong Polytechnic
Baptist College Academic Community Hall Souvenir Brochure 1978
Bleasdale C.H., Libraries and Resources Centre in the Technical Teachers College and Technical Institutes in Hong Kong, CFTC (March 1977), (29)ED(TE)121/1
Bray, R.
Comments on Some Aspects of the White Paper, "The Development of Senior Secondary and Tertiary Education" (24 October 1978)
(11)HW/20/3/1 II (17 September 1979)
The Development of Senior Secondary and Tertiary Education October 1978 (3 November 1978), p.2, HW/25/1
A Brief Account of Technical Institute Planning (1)ED(TE) 18/6723/78 (circa 1979)
Brief Details of Technical Institutes as at 27 August 1980, ED(TE)125/1
Calendar 1980-1982 Shue Yan College

Cameron, H., The Out-Turn of Students from the Technical Institutes, the Polytechnic and the HK University, draft (October 1976)

Capacity and Build-up of Technical Institutes (21 October 1976), (3)ED(TE)2/6704/(67)

Capacity and Build-up of Technical Institutes, Technical Education Branch Administrative Circular: TI/77 (18 January 1977), ED(TE)2/6704/67

Categorisation of Courses in Tertiary Technical Education Institutions in Hong Kong (May 1980), ED(TE)110/1

Chan, F.K., Capacity and Build-up of Technical Institutes (21 October 1976), 2/6704/67

Chartered Bank records


Civil Service List Hong Kong 1957, Forty-Seventh Issue

Clark, J.R., Report on the Organisation of the Education Department and Procedural Considerations (28 October 1969), GR79/7974/69

Committee on Higher Education Report of the Committee Appointed by the Prime Minister Under the Chairmanship of Lord Robbins 1961-63 (England, October 1963)

Committee on Technical Institutes, ITAC, 6th Meeting (5 August 1969), agenda item 3

Committee on Technical Institutes, ITAC Paper No.2/69, 195/69 (15)1 ED(TE)18/3149/69

Committee on Technical Institutes, ITAC Paper No.2/69 (4)ED(TE)18/3149/69, and Minutes of Third Meeting (16 July 1969)

Communications and General Studies (C. and GS.) Summary of Comments by Principals (June 1980) (TE)110/5

Comparison of Job Prospects of Students (17 March 1970), (1)TI/174/1

A Consolidated Report on the Planning of Initial Courses Offered by the Hong Kong Polytechnic to the Sub-Committee on Scope of Initial Courses of the Polytechnic Planning Committee April 1970, Final Report of the Polytechnic Planning Committee (July 1971), Appendix E, Annex 4

Costing for TI Courses (9 March 1982), (63)ED(TE)110/21

Craft Apprenticeships for Hong Kong, table prepared by ITAC Committee on Technical Institutes (March 1969)


The Development of Senior Secondary and Tertiary Education (October 1978)
Devereux, J.R.

Comments on Proposed Courses for Lee Wai Lee Technical Institute (9 May 1977)

Future Role of the Technical Institutes (20 October 1976), (5)KT/132/13

Some Thoughts on the Future of Craft Courses (5 January 1977)

The Quality of Technical Institute Education (24 August 1978)

Director of Education 1975-76 Annual Summary

Director of Education 1977-78 Annual Summary


Education Commission Report No.1 (October 1984)

Education Department and Polytechnic 30th Liaison Committee Meeting (29 May 1979)

Education Department and Polytechnic Liaison Complex, Composition and Terms of Reference of Committees and Sub-Committees (April 1978), AS735/578

Education Department Annual Summary 1980-81

Education Department Annual Summary 1981-82

Education Department Annual Summary 1982-83

Education Department records and figures

Education Department, Technical Education Committee (1 November 1977), (3)ED(TE)10/2426/77

Education Policy (April 1965)


Enrolment Report for the Technical Institutes 1979/80

Enrolment Report for the Technical Institutes 1981/82 (March 1982), ED(TE)114/1

The Expansion and Development of the Department of Technical Teacher and Workshop Instructor Training at the Morrison Hill Technical Institute (30 January 1973)

An Explanatory Note on Terminology Used in Industrial Training and on the Various Levels of Training, Industrial Training Advisory Committee, Paper No.5/66 (1966)
Extract from His Excellency the Governor's Speech at the Legislative Council on 18th October 1972, pp.1 and 2

The Far East Flying and Technical School Ltd, prospectus (undated)

Fifth Report of the Hong Kong Training Council April 1978-March 1979

The Final Report of the Industrial Training Advisory Committee (March 1971)

Final Report of the Polytechnic Planning Committee (July 1971)

The First Report of the Planning Committee for the Second Polytechnic (30 November 1982)

The Future Role of the Technical Institutes, letter from the Federation of Hong Kong Industries (24 December 1976), ED(TE)21/6704/76

Gailer, J.W.

The Development of Technical Education and Training in Hong Kong 1967, Ministry of Overseas Development (March 1967)

Visit to Hong Kong 13 to 16 June 1971 (16 August 1971)

General/Liberal Studies and Extra-Curricular Activities in Technical Institutes (21 December 1976), ED(TE)2/6704/6711

General Observations on PTIs Returns on the Projected Utilisation of Teaching Accommodation (June 1979)

Gladwell, D.C., A Hotel, Catering and Tourism Department, TETOC (May 1974), (35)ED(TE)1/18/6712/72

Government Census and Statistics Department, various statistics

Grant, Ian, Morrison Hill Technical Institute (17 July 1968)

Haddon-Cave, C.P., 1980/81 budget speech, Legislative Council (27 February 1980)


Hang Seng School of Commerce Official Opening by His Excellency the Governor Sir Murray MacLehose, GBE, KCMG, KCVO (12 February 1981)

Helmore, R.L.

Letter to Chairman, Committee on Technical Education, Vocational Training Council (14 November 1983)


Hong Kong 1964

Hong Kong 1969

Hong Kong 1971
Hong Kong Annual Report 1956
Hong Kong Annual Report 1957
Hong Kong 1981, A Review of 1980
Hong Kong 1983, A Review of 1982
Hong Kong 1984, A Review of 1983
Hong Kong Baptist College Annual Report 1982-1983
Hong Kong Baptist College 1980-82 Catalogue
Hong Kong Baptist College The President's Report 1981-1982
The Hong Kong Education System (June 1981)
Hong Kong Examinations Authority figures.
Hong Kong Government Development Plan 1979-80 to 1983-84
Hong Kong Government Year Books, various
Hong Kong Polytechnic Academic Development Proposals for the Triennium 1985-88 (November 1983)
Hong Kong Polytechnic Annual Report 1972/73
Hong Kong Polytechnic Annual Report 1981/82
Hong Kong Polytechnic Prospectus 1976/77
Hong Kong Polytechnic Prospectus 1983/84
Hong Kong Polytechnic Supplementary Report to the Triennial Estimates 1981/82 to 1983/84
Hong Kong Polytechnic/Technical Institutes, Education Department, Hong Kong Government Joint Guidelines on a Credit-Unitary System for Technician Study Programmes at the Polytechnic and the Technical Institutes (April 1977)
Hong Kong Polytechnic Triennial Academic Plan 1981-84 (1 December 1979)
Hong Kong Report of Education Commission 1963
Hong Kong Social and Economic Trends 1968-1972, Census and Statistics Department, Hong Kong
Hong Kong Social and Economic Trends 1970-1980, Census and Statistics Department, Hong Kong
Hong Kong Technical College, Department of Electrical Engineering, Curriculum and Syllabus, Full-Time Preapprenticeship Course (September 1967)
Hong Kong Technical College Prospectus 1967-68
Hong Kong Technical College Prospectus 1970-1971
The Hong Kong Technical Teachers College Prospectus 1983-1984
The Hong Kong Technical Teachers College Responsibilities and Objectives (September 1976), ED(TE)1/126/74II
Hong Kong Training Council, letter to Secretary for Social Services (28 February 1978), (12)HKTC/COUN/MTG (9)
Hong Kong Training Council manpower surveys, various
Hong Kong Training Council records and figures, various

Industrial Investment Hong Kong 1977 ..., Hong Kong Government

Industrial Training Advisory Committee, interim report (circa 1966)

Industrial Training Advisory Committee paper no.2B/66 (1966)

Interim Report No.1 Appendix A, Committee on Technical Institutes (period: 1st January 1969 - 22nd July 1969)
The Industrial Training Advisory Committee

Knight, H.R., Comments on the Paper by Mr P.R.C. Williams on "Manpower Forecasting as a Basis for Education Planning in Hong Kong" (30 September 1978)


Kwan, M., Class Sizes in Polytechnic (10 August 1978)

Kwun Tong Vocational Training Centre Prospectus 1982-83

Labour Department literature and records of the Hong Kong Government, various

Lavender, K.G., Report on Visit to Hong Kong (February 16 to March 10, 1973), ED(TE)5 4468/73

Laws of Hong Kong, Education Ordinance, revised edition 1971

Lee, Allen, Technical Education, Legislative Council (27 March 1980)

Legg, Keith,


Notes Reflecting the Personal Views of Dr. Keith Legg in Relation to the Considerations of the Committee to Review Post-Secondary and Technical Education (1981)


Lingnan College Hong Kong Prospectus 1977-1979

Link Between Out-turn of Students from Prevocational and Secondary Modern Schools and Intake of Day Students in Technical Institutes (10 February 1973), (6)(TE)2/6704/6711

MacLehose, Sir Murray,

Farewell speech, Legislative Council (28 April 1982)

Speech at 20th Anniversary Dinner, Hong Kong Management Association (20 November 1980), The Hong Kong Manager, vol.17, no.1, January 1981 issue

Manpower Planning, Hong Kong Training Council (27 August 1976), (C)HKTC/MAN/PLN
Map of Hong Kong and Kowloon showing numbers of persons employed, factories, and resident populations by regions ITAC (1968)

Marden Foundation Caritas Prevocational Schools Caritas Social Centres (December 1982)

Minimum Job Standards and Specifications for the Principal Jobs in the Building and Civil Engineering Industry, Building Trades Industrial Committee, Industrial Training Advisory Committee (November 1971)

Minutes 20th Heads of Department's Meeting, Technical College (21 March 1968)

Morgan, M.C., The Development of Technical Institutes, Address, Personnel Management Club, Hong Kong Management Association (9 September 1982)

Morrison Hill Technical Institute, Department of Mechanical Engineering, Engineering Craft (Apprenticeship) Course, syllabus (May 1971)

Morrison Hill Technical Institute, Department of Technical Teacher and Workshop Instructor Training, Departmental Proposals for Further Developments, An Interim Report (June 1972)

Morrison Hill Technical Institute Diplomas and Certificates Recognised by British Professional Institutions Press Release 159/75 (4 September 1975), 9/4/3393/71


Morrison Hill Technical Institute, prospectus (second edition) (circa 1972)


The Morrison Hill Technical Institute, Specimen Syllabus "Industrial Knowledge" (24 November 1969), TI/III/1

Mo, Y.M., Capital Expenditure for a Full-time Equivalent Student Place per Year in a Technical Institute, Education Department (1980)

Notes of a Special Meeting to Consider Rationalisation of Courses in Technical Institutes (23 May 1977)

Notes on Meeting of the Working Party on Schedule of Courses for Kowloon Tong Technical Institute (8 September 1976)

Notes Reflecting the Personal Views of Dr. Keith Legg in Relation to the Considerations of the Committee to Review Post-Secondary and Technical Education (1981)

Number of Employed Persons by Occupation by Industry, Labour Force Survey (September 1980)

Official Opening Ceremony of Clothing Industry Training Centre (October 19, 1977)

Opening Ceremony of the Construction Industry Training Centre (17 August 1977)

Opening Ceremony of the New Technical College by His Excellency the Governor, Sir Alexandar Grantham, GCMG (2 December 1957)
Opening Ceremony of the Polytechnic's First New Building (26 October 1976)


A Perspective on Education in Hong Kong, Report by a Visiting Panel (November 1982)

A Plan for Prevocational and Vocational Education, Possible Routes for Primary School Leavers to Semi-Skilled and Skilled Occupations (7 November 1969)


Planned Development of Technical Institutes 1978-1983 (June 1978)

The Polytechnic Development Plan (11 February 1976), ED(TE)133/73

Program Structure for Diploma in Mechanical Engineering, technical institutes (4 February 1980)

A Projection on Student Capacity in Technical Institutes and Forecasted Manpower Demands (July 1977), TE20/6704/76

Proposal of a Technical Institute, revised (March 1964)


Pryer, G., Head, Export Services, Engineering Industry Training Board, letter to D.D. Waters (England, 31 October 1983)


Report by the Building and Civil Engineering Industry Training Board on the Second Manpower Survey of the Building and Civil Engineering Industry Conducted in April 1973, ITAC (November 1974)

Report by the Building Trades Industrial Committee on the Manpower Survey of the Building and Civil Engineering Industry, Conducted 12-14 August 1968, ITAC (September 1969)


Report by the Machine Shop and Metal Working Industrial Committee on the Manpower Survey of the Machine Shop and Metal Working Trades (2 April to 11 April 1968), The Industrial Training Advisory Committee (October 1968)

Report by the Plastics Industrial Committee on the Manpower Survey of the Plastics Industry (18 August-2 September 1967) (June 1968)

Report of the Advisory Committee on Diversification 1979 (30 November 1979)

Report of the Board of Education on the Proposed Expansion of Secondary School Education in Hong Kong Over the Next Decade (August 1973)


Report of the Third Survey of Part-time Day Release Courses by the Committee on Technical Training in Institutions of The Hong Kong Training Council (August to September 1980)


A Report on an Enquiry into Apprenticeship and Other Similar Forms of Training in Hong Kong, 1962, by an Ad Hoc Sub-Committee of the Standing Committee on Technical Education and Vocational Training


Report on Demand for and Supply of Technical Manpower in the Major Industries, VTC (1984), draft

Report on Disabled Students Applying for Technical Institute Courses 1979/80 Session (undated)

A Report on Technical Education and Vocational Training in Hong Kong, Technical Education Investigating Committee (30 October 1953)

Report on Technical Manpower Demand and Supply 1977-82, Hong Kong Training Council (August 1977)

Report on the Cost Study of the Hong Kong Technical College, Cost Investigation Unit Section, Finance Branch, Colonial Secretariat (December, 1968)

The Resettlement of Small-Scale Industries in Hong Kong, Resettlement Department, Hong Kong (February 1965)


Secondary Education in Hong Kong Over the Next Decade (16 October 1974)

Seminar on Curriculum Development Prevocational Schools (Forms I to III) (26 July 1979)

Senior Secondary and Tertiary Education A Development Programme for Hong Kong Over the Next Decade (November 1977)

Smith, P. and G.H. Powell, Report on a Visit to the Department of Technical Teacher and Workshop Instructor Training at the Morrison Hill Technical Institute, Hong Kong, August 1972

Special Committee on Higher Education Interim Report 1966 (October 1966)

Special Committee on Higher Education Second Interim Report 1968 (June 1968)

Staff Biographies Hong Kong Government, various

Staff List Hong Kong Government 1982, Seventieth Issue

Straw, S. and R.G. Barber, ED(TE)21/3149/72

Sub-Committee on Course Structure (Technical), Interim Report (19 May 1978)

Summary of Expenditure, Estimates for FY80, Singapore Government (Singapore 1979)

Summary of Findings of a Survey on Employers' Views on Technical Institute Courses, Committee on Training in Technical Institutions, Hong Kong Training Council (13 November 1978)

Summary of Suggested Improvements for Future Technical Institutes, Education Department (27 May 1980), ED(TE)112/2/2

Survey on Career Development of 1975 Polytechnic Graduates from Full-time Courses, Student Affairs Unit Hong Kong Polytechnic (1981)

Table 1 Other Charges - Sub-head 008 (1980)

Tang King Po School Speech Day and Prize Giving (19 November 1976)

Technical Education in Hong Kong, Education Department (October 1976)


Technical Education Investigating Committee, Report on Technical Education and Vocational Training in Hong Kong (30 October 1953)

Technical Education Programme Plan (Revised Draft : Stage VI) (July 1976)

Technical Education Summary of Broad Objectives 1970-1980, Education Department (1972)

Technical Institutes Comparison Study for the Academic Year 1977/78, Technical Education Division, Education Department (April 1979)

Technical Institutes Comparison Study for the Academic Year 1978/79, Technical Education Division, Education Department (April 1980)

Technical Institutes, Policy for the Introduction of Technician Programmes of Study and a Credit-Unitary System (July 1976)

Technical Institutes Prospectus 1979-80

Technical Institutes Prospectus 1981-83

Technical Institutes Prospectus 83-85

Technical Institute Student Capacity Matched to Manpower Demands (26 November 1976)

Technical Institute/Technical Teachers College, 42nd Policy Committee Meeting (3 March 1980), minute 1109


Tien, Francis (speech read by Alex Wu), Debate on Green Paper on Senior Secondary and Tertiary Education, Legislative Council (6 July 1978)

TI/TTC Policy Committee, Minutes of 45th Meeting (4 July 1980), (TE)108/2/III


Tracer Study of Morrison Hill Technical Institute Full-time Graduates (1973) (August 1979)

Tracer Study of Technical Institute Graduates who Completed Full-time Courses in July 1976, Education Department (September 1981), ED(TE)114/6II

Tracer Study of Technical Institute Graduates who Completed Full-time Courses in July 1977, Education Department (September 1981), ED(TE)114/6II

University of Hong Kong Prospectuses, various

University and Polytechnic Grants Committee of Hong Kong, Special Report October 1965 to June 1976 (December 1976)

Utilisation of Accommodation in Technical Institutes (March 1982), ED(TE)101/6

The Vocational Training Council and Its Role (1983)

Vocational Training Council Annual Report 1982/83

Vocational Training Council records and figures

Waters, D.D.

A Series of Papers on the Planning, Establishing and Running of Technical Institutes in Hong Kong:

Paper One - General (September 1972)

Paper Two - Equipment (October 1972)

Paper Three - Buildings (November 1972)

Paper Four - Staffing and Manpower Plan (January 1973)
Supplement to Paper Four - Staffing and Manpower Plan (January 1973)

Ratio of Students in Polytechnics to Students in Technical Institutes (20 February 1970), (8)TI/83/3II
School/Industry Links (10 November 1979)
Technical Education in Hong Kong (October 1976)
The Apprenticeship System in Hong Kong, letter to Committee on Apprenticeship, Industrial Training Advisory Committee (15 May 1969), TI/4/5
The Future Role of Technical Institutes (2 September 1976)

The Morrison Hill Technical Institute Technician Level Courses (23 June 1969)
The Morrison Hill Technical Institute, The Basic Pattern of Craft Courses (18 April 1969)
The Need for Technical Teacher and Workshop Instructor Training in Hong Kong (29 November 1969), TI/40/1

The Status of Craftsmen and the Popularity of Craft Courses in Technical Institutes (December 1977), ED(TE)8/18/6704/77
The Teaching of English in Technical Institutes (30 January 1980), ED(TE)12/6704/73II

Waterworks Regulations (1977)

Watt Hoi-kee, memorandum to Director of Education, Proposed Technical Institute in Hong Kong (15 May 1964), TC/10059(11)
Williams, P.R.C.

Application of Rate of Return Analysis to Educational Planning in Hong Kong, Paper II (13 March 1978)
Cover Note to Papers on Manpower Planning and Rate of Return Analysis (16 March 1978)
Economic Bases for Educational Planning in Hong Kong: Some Reflections, Paper III (13 March 1978)
International Comparisons Approach to Manpower Forecasting, Appendix to Note on Manpower Forecasting (11 March 1978)
Manpower Forecasting As a Basis for Educational Planning in Hong Kong, Paper I (11 March 1978)

Winfield, J., Morrison Hill Technical Institute - The Teaching of English (7 November 1972)

Working Party on Technical Teachers College Report (April 1978)

Working Party on White Paper, Minutes of Second Meeting (7 March 1978), (16)ED(RB)202/75

Written Comments on Green Paper, "Senior Secondary and Tertiary Education, A Development Programme for Hong Kong Over the Next Decade (November 1977)
Secondary Sources


Adaptable Furniture and Services for Education and Science, Paper No.6, Department of Education and Science (England, August 1972)

Allaburton, Bob, Planning for Introduction of Change, Colombo Plan Staff College (Singapore, April 1980)

Aminul Huq, Manpower Planning and Technician Education, Colombo Plan Staff College for Technician Education (Singapore, 2 November 1976)


An Approach to Laboratory Building, Paper No.1, Department of Education and Science (England, August 1969)

The Architects' Journal Information Library, AJ SfB (97), Building Study UDC 727.4 (London, 7 December 1966); and UDC 727.4 (London, 8 September 1965); and CI/SfB 722 (London, 2 August 1972)


Asia 1984 Year Book, Far Eastern Economic Review

Bari, M.A., Technician Institution - An Organisational System, Colombo Plan Staff College (Singapore, July 1980)


Barnett, William A., Management in Technician Education, Colombo Plan Staff College (Singapore, 6 November 1976)

Barquin, Ramon C., Why Organisations are Important, Leadership and Change Part II, Standard (8 April 1983)


Big leap forward for vocational training, Standard editorial (29 July 1984), p.6


Blaug, Mark,

An Introduction to the Economics of Education (England, 1970)

Where Are We Now in the Economics of Education? University of London Institute of Education (England, 1983)

Bonavia, David, The Chinese (USA, 1980)


Boyer, John L., The Widening of Hong Kong's Economic Base, Diversification of Hong Kong's Industries, Management Association (circa 1978)

Bray, Robert and Leung Kam-fong, Report on a Study Tour to Singapore 25 May 1980 to 7 June 1980, Education Department


Bremridge, Sir John,

Direct Support to any Industry not the Job of Government, Business Standard (31 August 1983)

Speech to Court of Directors Cable and Wireless, South China Morning Post (30 May 1984)

Brosan, George,

A Polytechnic Philosophy, Patterns and Policies in Higher Education (England, 1971), pp.61 to 75

The Times (9 February 1972)


Bussey, John, HK's Labour Pains, Unions in Desperate Struggle to Stem Membership Slide, South China Morning Post (31 October 1982)

Cabot, J.L., Processes of Technician Education Planning, Colombo Plan Staff College (Singapore, June 1975)


Carter, Charles F., Higher Education in the 1970s, Coombe Lodge (England, 1 June 1975)


Casey Diamonds (undated) (a Hong Kong firm)


The 1971 Census A Graphic Guide, Census and Statistics Department

Chan, Cecil S.O.

- The Future of Electronics Industry in Hong Kong (25 November 1977)
- The Need for Technical Training for Industrial Diversification, Training - the Key to Economic Survival, Polytechnic seminar (4 May 1978)

Chandrakant, L.S.

- Apprenticeship, An Analytic Study of Contemporary Developments of Education in Industry (undated)
- Methodological Approaches to Planning and Designing Technician Education Systems, Colombo Plan Staff College (Singapore, undated)
- Staff Development in Technical Education, Colombo Plan Staff College (Singapore, 20 January 1976)
- Technician Education and Training Systems in the Colombo Plan Countries, A Comparative Study and Analysis of Current Issues, Colombo Plan Staff College (Singapore, 23 June 1976)


Chan, Julina, City Poly's Unique Loan Agreement, South China Morning Post (21 January 1984)

The Charles Darwin Building, Bristol Polytechnic, Department of Education and Science (England, circa 1977)

Chen, Agnes, Polytechnic Plans for a Revolution in Education, South China Morning Post (5 November 1983)

Chen, Edward K.Y.

- Hong Kong's Industry and Trade : Changing Patterns and Prospects, The Hong Kong Manager, vol.19, no.12 (December 1983)
- Hyper-Growth in Asian Economies (England, 1979)

Choosing Your Career, Youth Employment Advisory Service, Labour Department (1982)

Chung, Dr. the Hon. Sir S.Y., Hong Kong: a Springboard into Asia, The Hong Kong Manager, vol.19, no.12 (December 1983)

Chung, Dr. The Hon. Sir Sze-yuen, Productivity Dimensions and Directions for the 1980s in the Developing Economies of Asia, address to Asia Productivity Congress, 27 to 30 October 1980, The Hong Kong Manager, vol.17, no.4 (April 1981), pp.8-13

Chung, Sir Sze-yuen and K.L.C. Legg, The Hong Kong Polytechnic: Past, Present and Future, Hong Kong Polytechnic Tenth Anniversary Public Lectures 72-82 (31 March 1982), pp.1 to 26

Chung, S.Y., Hong Kong's Fight Against Adversity, Hong Kong Industrial News (12 January 1977), pp.1 and 4

Clarke, S.C.T. and Sandra Richel, The Effect of Class Size and Teacher Qualifications on Achievement, The Alberta Teachers' Association (Canada, 1963)

Class Size and Teacher Load, New England School Development Council (USA, 1975)

Class Size Research a Critique of Recent Meta-Analyses, Educational Research Service Inc. (USA, 1980)

College Administration, Coombe Lodge Report (England, 1979)

College Administration for Principals and Vice-Principals, Coombe Lodge Report, vol.5, no.7 (England, 1972)


Commonwealth Education Liaison Committee Newsletter, Commonwealth Secretariat (England, undated)

Communications and General Studies (C and GS) Summary of Comments by Principals (June 1980) (TE)110/5

Comparison of Job Prospects of Students (17 March 1970) (1)TI/174/1


Cookson, Clive, Choice of Class Size, The Times Educational Supplement (England, 8 September 1978)

Coopers Felt, The Croid-Cooper Method of Machinery Installation (England, undated)

Costing Educational Provision for the 16-19 Age Group, Department of Education and Science (England, 1981)

The Craftsman in Engineering and the Technician in Engineering, two career pamphlets published on behalf of the Engineering Employers' Federation, the Confederation of Shipbuilding and Engineering Unions and the Engineering Industry Training Board (England, circa 1978)


Curriculum Evaluation, Syndicate IV, Colombo Plan Staff College, Study Conference (Singapore, 8 to 24 November 1976)


Daniel, Francis, Singapore Looks to Growth Through English, Standard (8 April 1978)

Davey, W., Problems of Expansion or Growth 1960-67, Association of Technical Institutions (England, 14 to 16 June 1967)

David, Peter, No Voting, No Quoting, Just Noting as Convention is Observed, Higher Education and the Labour Market, Leverhulme Trust Seminar, Times Higher Education Supplement (England, 29 May 1981)


Devereux, J.R., Diversification and the Future of the Light Manufacturing Industry (18 August 1978)

Dikko, Alhaji M., Industrial Training Fund in Perspective (Nigeria, January 1978)


Directory of Technician Institutions in South East Asia, UNESCO (1980)


Diversification Vital for Hong Kong, South China Morning Post, Business News Editorial (20 August 1983)

Donnithorne, Audrey, Hong Kong as an Economic Model for the Great Cities of China, Centre of Asian Studies, University of Hong Kong (11 April 1983)

Driver, C.J., Putting a price tag on education, South China Morning Post (9 November 1981)

Dwyer, D.J., and Lai Chuen-yan, The Small Industrial Unit in Hong Kong: Patterns and Policies, University of Hull (England, 1967)


Educational Planning, A Reappraisal, OECD (Paris, 1983)


Educators’ Social Action Council (ESAC), various pamphlets


The Engineering Industry Training Board, Annual Report and Accounts 1981/82 (England)

English, Sir Cyril, James Rides Again, How the champagne went flat on teacher training, Times Higher Education Supplement (25 June 1976)

Establishments and employment in selected trades and services by size and location, Census and Statistics Department, various

Estimates of Gross Domestic Product 1966 to 1983, Census and Statistics Department, Hong Kong 1984

The Europa Year Book 1977, A World Survey, vols. I and II

European Apprenticeship, ILO, CIRF Monograph, vol.1, no.2 (Geneve, 1966)

Executive Committee, Hong Kong Technical College Teachers' Association, Advertisement, South China Morning Post (16 April 1971)


Forecasting and Planning Training Loads, Iron and Steel Industry Training Board (London 1971)

Forging Ahead in 80s, Hong Kong Standard, Nigeria National Day Supplement (1 October 1981)

Foster, Jack Stroud, The Production of Buildings, Structure and Fabric, Part I (undated)

Fourth-Year Decline in Union Membership, Standard (30 December 1982)

Fowler, Gerry, letter to The Times (England, 1 May 1976)

Freeman, Christopher, The Economic Implications of Micro-electronics, Agenda for Britain 1: Micro Policy Choices for the 80s, ed. C.D. Cohen (England, 1982), pp.53 to 88

Friedman, Milton and Rose Friedman, Free to Choose, A Personal Statement (England, 1980)
Further Education, Department of Education and Science, Library booklist 63 (England, October 1979)


Government Labour Department quarterly statistics on registered and recorded industrial undertakings for March each year


Guide to the Apprenticeship Ordinance 1976 and the Apprenticeship Regulations 1976, the Department of Labour

Guterres, Halima,

A high-flying bureaucrat with an enquiring mind, South China Morning Post (24 September 1983)

Late in the Rush to Build More Universities, South China Morning Post (1 August 1983), p.14

Haddon-Cave, C.P., Govt explains errors in GDP figures, South China Morning Post (circa 1976)

Haddon-Cave, Sir Philip,

Hong Kong's Future Hinges on Obeying Old Rules, Speech to Hong Kong University Economics Society (11 February 1984)

Poly's Development is like HK's Growth, South China Morning Post (30 May 1978)

Public Policy and Economic Success, annual banquet Overseas Bankers' Club (London, 1 February 1982)

The Changing Structure of the Hong Kong Economy, paper presented to XXII Association Cambiste Internationale Congress (Singapore, 6 June 1980)


Harbour Tunnel Review, South China Morning Post (October 1972)

Harper, Robert, Manpower Training in the Printing Industry, The Hong Kong Manager, vol.18, no.9 (September 1982), pp.12 to 16

Hicks, G.L. and S.G. Redding,
Industrial East Asia and the Post-Confucian Hypothesis: A Challenge to Economics (December 1982)
Uncovering the Sources of East Asian Economic Growth (1982)

Hicks, J., LEAs and the Planning of Further and Higher Education, The Vocational Aspect of Education, vol.XXVII, no.68 (Autumn 1975), pp.71 to 76


HK Has Developed into a Major Publishing Centre, South China Morning Post (5 April 1983)

Ho, Eric, Over 7M by 2001, but 'no need' for population policy, South China Morning Post (19 October 1982)

Hong Kong Album 1969-1970, South China Morning Post

Hong Kong as a Consultant, editorial, South China Morning Post (7 December 1983)

Hong Kong, A Special Report on the Territory's Tertiary Sector, The Times Higher Education Supplement (England, 8 September 1978)

Hong Kong Polytechnic 10th Anniversary Supplement, South China Morning Post (30 July 1982)
The Hong Kong Polytechnic Tenth Anniversary Public Lectures (1982)

Hong Kong Rekindles Challenge, Times Higher Education Supplement (England, 11 June 1976)

Hong Kong - 1990, The Bulletin, The Hong Kong Chamber of Commerce (September 1977)

Hong Kong Trade and Industrial Associations, a list compiled by the Industrial Support and Liaison Division of the Trade, Industry and Customs Department (October 1979)

Hough, L. Allan, Planning and Analysing Courses Using a Table of Specification and Behavioural Objectives, Colombo Plan Staff College, country course in Indonesia (September 1976)

Human Resources Development Manpower Forecasting in Educational Planning, Directorate for Scientific Affairs, OECD (Paris, December 1965)

Hung Fan-shing, Rates of Return to Males in Hong Kong, MA Thesis, Chinese University of Hong Kong (1982)

Induction Course for Newly Appointed Teachers in Prevocational Schools (August 30, 1979)

Industrialization with a difference: The Southeast Asian Model, The Times (England, 4 November 1980)

Industry Course Scores a First, South China Morning Post (11 December 1979)

Information on Caritas Continuing and Adult Education Service, Caritas Hong Kong (circa 1980)

An Information Paper on the Work of the Youth Employment Advisory Service (YEAS) of the Labour Department (April 1983)

An Interview with Jimmy McGregor, OBE, ISO, Executive Director, Hong Kong General Chamber of Commerce, Hong Kong Jaycees News (1983), pp.14 to 17

ITAC Committee on Technical Institutes, Paper No.2/69, 124/69, (15)ED(Te) 18/3149/69

It's a Tough Job Getting Assistance, South China Morning Post editorial (13 November 1982)

Jamison, Dean T., Steven J. Klees and Stuart J. Wells, The Costs of Educational Media Guidelines for Planning and Evaluation (England, 1978)

Jang, Bina, Industry trains for the future, Standard (29 July 1984)


Japan: The End of Lifetime Jobs, Business Week (USA, 17 July 1978)

Johnson, Alan, Commonwealth Secretariat, letter to D.D. Waters (England, 13 August 1982), ER101/116/3


Kannappan, Subbiah, Flexible Approaches to Manpower Planning, Institute of Applied Manpower Research (place and date of paper unknown)

Kenny, Grace,

Polytechnics: The Shared Use of Space and Facilities, Department of Education and Science (England, 1977)

The Use of Space and Facilities in Universities and Polytechnics in the United Kingdom, Department of Education and Science (England, 1977)
Kwok, Daniel, Appendix I to (29)CR/2041/76111 (3 March 1978)
Laboratories, Design for Change, Department of Education and Science (England, undated)

Labour Shortages and Manpower Policy, Manpower Studies No.19782, Manpower Services Commission (London, 1978)

Lai, T.C., Distance Learning and Media Education, Conference on Adult Education (30 November 1977)


Layard, Richard and Gareth Williams, A Comment on Manpower Forecasting, Patterns and Policies in Higher Education (England, 1971)


Lee, Desmond, seminar on education, Hong Kong University, 14 May 1983, South China Morning Post (15 May 1983)

Leeds, P.F., The Development of Public Transport in Hong Kong An Historical Review (November 1974)

Lee Jang-Bock, A Comparative Study on Technical Education in Korea and Singapore, Colombo Plan Staff College (Singapore, June 1981)

Legco Triumph for the Unofficials, Standard editorial (15 July 1983)

Legg, K., address, Hong Kong Polytechnic Students' Union seminar (4 March 1984)

Legg, Keith,


Education and the Development of Human Resources: The Role of Tertiary Institutions, Eighth Commonwealth Education Conference (Colombo, 5-13 August 1980)

Paper D, Programme Design (July 1977)


Some Initial Thoughts on Diversification (February 1978)

Legg, K.

Non-degree Courses to Use Open University Techniques, talk to Rotary Club Hong Kong Island East (8 December 1982)

Speech to Lions Club of Kowloon Central (18 January 1979)

Less Work Less Pay for 300,000, Hong Kong Standard (26 October 1982)

Leung Kam-fong, An Empirical Study on Rates of Return to Investment in Education in Hong Kong (12 July 1984)

Leung, K.F., A Brief Comparison of the Communication and Liberal Studies Content in the Curricula of Technician and Craft Level Courses Offered in Vocational Institutions in Some Countries (24 April 1980)


Lodge, Bert, Advanced Diploma in Education, Issues in Education, two-year degrees more useful says former Vice-Chancellor, Times Educational Supplement (England, 30 November 1979)

Long, B.E.L., The Diploma in Industrial Education and Training The Underlying Values and Assumptions, Manchester University (England, 28 April 1971)

Lowe, C.J.G., Grey Areas of Education, Green Paper, letter to editor, South China Morning Post (circa 1977)

Machiavelli, Niccolo di Bernardo dei, Il Principe (Rome, 1532)

Mackey, Sean, 9th Meeting Working Committee in Productivity (22 April 1964), minutes

The MacLehose Years 1971–1982, South China Morning Post Supplement (April 1982)

MacLennan, A.

Educating and Training Technicians (England, 1975)

Staff Recruiting, Training and Development in Education, Colombo Plan Staff College (Singapore, January 1976)


Manpower Aspects of Educational Planning, UNESCO, International Institute for Educational Planning (Paris, 1968)


Modular Construction for Macau's Newest Luxury Hotel, Building Journal (April 1983)


Morrison Hill Technical Institute Diplomas and Certificates Recognised by British Professional Institutions, press release 159/75 (4 September 1975), 9/4/393/71


Newsletter Education Technology 1976-1979, Hong Kong Polytechnic


Ong Wee Hock, *Harmonization of Technical Education and Training with Actual Manpower Needs in Singapore* (Singapore, 8 November 1976)

Open College Offers Distance-Taught Degree Courses, University of East Asia, Macau, South China Morning Post (23 March 1984)

Opportunities for Form 3 School Leavers (1982)

Organisation for Economic Co-operation and Development, Manpower survey, Observer interim report (February 1964), pp.15 to 28

Organisations as Open Systems, typed notes, author and date unknown

Our Concern About the Brain Drain, South China Morning Post (3 August 1983)

Overhead Servicing System, Metriscope Educational and Science Furniture (England, 1976)

Page, J.K., University Buildings for Research and Teaching Viewed from a Cybernetic Viewpoint, University of Sheffield (England, 1963)


Parvez, Bashir A.

Equipping Technician Institutions, Colombo Plan Staff College (Singapore, 30 March 1976)

Institutional Evaluation, Colombo Plan Staff College (28 July 1976)

Planning, Designing, Equipping and Managing Technician Institutions including Staff Development, Colombo Plan Staff College (Singapore, 30 March 1976)

Space Norms and Standards in Technical Institutions, Colombo Plan Staff College (30 November 1976)

Staff Selection in Technician Institutions, Colombo Plan Staff College (Singapore, 20 October 1976)


Place to Get You the Right Career, South China Morning Post (9 April 1983)

Policies for Apprenticeship, OECD (Paris, 1979)

The Polytechnic: in business to serve the needs of business, Times Higher Education Supplement (England, 8 September 1978)

Polytechnics Planning for Change 1979, Design Note 20, Department of Education and Science (England, 1979)

Polytechnics: The Shared Use of Space and Facilities, Department of Education and Science (England, September 1977)

Pratt, John, Tony Travers and Tyrrell Burgess, Costs and Control in Further Education (England, 1978)

Prevocational Schools, Government Information Services pamphlet (circa 1982)


Production Units and Technical Teacher Education, UNESCO, Info TVE 10 (Paris, October 1978)

Prospectuses of USA colleges, various

Psacharopoulos, George and Bikas Sanyal, Student Expectations and Labour Market Performance: the Case of the Philippines (circa 1982)

Psacharopoulos, George, Returns to Education: An Updated International Comparison 1981

Punia, R.S.

Designing a Unit for TEC Programmes, Technical Teachers College, MA in Education, dissertation, University of Lancaster (England, June 1978)

Educational Technology in Theory and Practice, Hong Kong Technical Teachers College (circa 1975)


Rafique, A., Optimum Utilisation of Technical Institution Resources--Buildings, Colombo Plan Staff College (Singapore, September 1979)

A Recurring Dilemma, South China Morning Post editorial (11 July 1978)

Redding, S.G. and G.L. Hicks, Culture, Causation and Chinese Management (February 1983)

Redding, S.G., Cultural Clues to Success, South China Morning Post (13 May 1983)

Reece, Ian H., Optimum Use of Resources, Colombo Plan Staff College (Singapore, 25 April 1978)

A Regional Study on Education (27 September 1980)

Regulations for the Training of Technicians and Technician Engineers, Institute of Metallurgical Technicians (England, 1981)

Report on Seminar on 'Aims' of Prevocational Education (27 December 1974)


Reynolds, Don. Education by Numbers, South China Morning Post (11 November 1978)

Reynolds, W.A., Future Directions in Tertiary Education of Engineers, Hong Kong Engineer (June 1978)

Ridings, K.

A Detailed Investigation into the Utilisation of Accommodation at Stockport College of Technology During the Period December 1974 to January 1975, Coombe Lodge (England, July 1975)

Information and Control Systems at Stockport College of Technology, Coombe Lodge (England, May 1976)


Safety in Colleges the Legal Requirements, Coombe Lodge Report, vol.11, no. 8 (England, 1978)

Selected Statistical Indicators, No.1/80 Comparative Education Statistics, Education Department (1980)

Selected Statistical Indicators No.5/80, Education Department (July 1980)

Shak, Therese, Joseph Tsang and Leung Yiu Hoi, Mass Media Non-formal Education, Notes on Hong Kong Experience, SEMEO-CEPTA Seminar on Planning and Management of Mass Media for NFE Programmes Singapore November 27-December 5, 1978

Sharma, Suresh, Hong Kong Bank Headquarters, Vision (January 1983)

Shoemsmith, Thomas, Continuity and Change Must be Balanced, South China Morning Post (26 February 1979)


Simon Fraser University, leaflet (Canada, circa 1972)

Simpson, Ray,

Education is a Funny Business (The Green Paper in Perspective), Talk to Rotary Club (22 February 1978)

Making sure we get value for money, looking at the cost of learning, South China Morning Post (2 November 1981)

Simpson, R.F.

Perspectives in University Development, the Background to Educational Planning Series, Hong Kong Council for Educational Research (1966)

The Development of Education in Hong Kong, Problems and Priorities (Part II) (1967)

Sinclair, Kevin, Polytech's high-flier has designs on the future, South China Morning Post (30 September 1984), p.15

Singapore Facts and Pictures 1979, Information Division, Ministry of Culture, Singapore

Sin, Olivia, Director Calls for "Balanced Technical Training System", South China Morning Post (5 July 1982)

Sintacel Practical Furniture (England, undated)


SI Units, A Polytechnic Handbook (July 1977)

The Size of Classes, Observations by the Association of Teachers in Technical Institutions on the Report of the Committee on Technical College Resources (England, January 1967)

Skelton, R.C., British Council, TETOC Group, letter to D.D. Waters (England, 4 November 1983), T/GEN/1017/2


Smith, G.B., Case Study of Wallwood College with Particular Reference to Manpower Planning, Coombe Lodge 1243 (December 1977)

Smith, Mary Lee and Gene V. Glass, Relationship of Class-Size to Classroom Processes, Teacher Satisfaction and Pupil Affect: A Meta-Analysis, Far West Laboratory for Educational Research and Development (USA, 1979)
Smith, P.R.

Staff Development at the Hong Kong Technical Teachers College, Journal of Further and Higher Education (England, Autumn 1979)


South China Morning Post editorial (7 February 1980)

Space Utilization in Universities and Polytechnics, Design Note 12, Department of Education and Science (England, 1974)

Sparkes, J.J., Notes on Possibility of Using Open University Methods in Hong Kong (1978)

Staff, Coombe Lodge Report, vol.5, no.4 (England, 1972)

Statistics of Establishments and Employment, various

Stodd, Graham J., Consumer Oriented and Phased Higher Education (COPHE) : An Alternative to the Traditional, Where Do We Go From Here? Coombe Lodge, vol.13, no.2 (England, 1980), pp.73 to 78


The Story of Clasp (Consortium of Local Authorities Special Programme), Department of Education and Science (England, 1961)


Summary of Annual Report 1982/83, Engineering Industry Training Board

Summary of a Survey on Employers' Views on Technical Institute Courses, Committee on Technical Training in Institutions, Hong Kong Training Council, conducted August 1978

A Survey on Diversification of the Hong Kong Economy, Harbour Lights, Journal of Hong Kong Junior Chamber of Commerce (September 1983), pp.8 to 12

Swaengsakdi, Thanoo, Efficient Resource Utilisation in Technician Education, Colombo Plan Staff College (Singapore, 1976)

Tam Wai-chu, Edmond, Training Report for an Overseas Training Programme in the United Kingdom (15 August 1983)
Taxing, South China Morning Post (13 March 1984)


Technician Curriculum Evaluation and Teacher Development, Colombo Plan Staff College (Singapore, September 1971)

Thumbs Up for Vladivar, South China Morning Post Business News editorial (5 November 1983)


Tipton, Beryl E.A., Conflict and Change in a Technical College, Brunel Further Education Monograph 6 (London, 1973)


Topley, K.W.J., Rate of Change in Technology (7 October 1977), ref.9/4/3393/71, press release 1987/77


Training - The Key to Economic Survival, proceedings of a seminar held on 4 May 1978 at the Hong Kong Polytechnic

Trends in Europe and Elsewhere, author, publisher and date unknown

Tsang, I.T., A Study of the Supply and Demand of Manpower in Hong Kong in the 1980s (September 1979)


Turner, C.M., Course Information System for Success Rates and Wastage Rates, Coombe Lodge (England, July 1976)

Use of Resources in College Management, Coombe Lodge Report, vol.11, no.11 (England, 1978), Foreword


Vocational Training in Hong Kong, Hong Kong Council of Social Service (May 1969)

Vocational Training in Hong Kong, Hong Kong Council of Social Service (May 1970)


Warren, Hugh, Vocational and Technical Education, UNESCO (1967)

Warwick, David, Curriculum Structure and Design (England, 1975)

Waters, D.D.


Design of Courses of English for Specific Purposes for Teachers in Technical Institutes (11 June 1980)

Education for Industry (28 November 1970)

Induction Course for Newly Appointed Teachers in Prevocational Schools (30 August 1979)

Industry Five to Ten Years from Now (8 January 1977), ED(RB)202/75

Initial Thoughts on Diversification and the Upgrading of Industry in Hong Kong (23 August 1978), ED(TE)169/78

Paper presented at Induction Course for Newly Appointed Teachers in Prevocational Schools (30 August 1979)


Technical Education - a New Look (21 September 1976)

Technical Institutes in the 1980's (January 1980)

The Future of Hong Kong's Building Industry, The Hong Kong and Far East Builder, vol.19, no.4 (1964)

The Llewellyn Report and Craft and Technician Education (April 1984)


Watt Hoi-kee, Technical Education in Hong Kong Today, Appendix I (circa 1964)


Who's Who in Hong Kong, South China Morning Post (1979)

Wilby, Peter, The Diploma Disease, New Statesman (England, 17 June 1977)


Winfield, J., The Hong Kong Background, draft (circa 1981)

World Bank Comparative Education Indicators (1 April 1979)


Yang, The Honourable Justice T.L., A Personal Perspective of the UPGC, Hong Kong Polytechnic Tenth Anniversary Public Lectures 72/82 (19 July 1982), pp. 61 to 66

The Youth Training Scheme, Engineering Industry Training Board, information paper 1p/68/2.83 (England, 1983)

Yuen, Susan, Areas and Systems of Diversification for Hong Kong's Manufacturing Industries, Diversification of Hong Kong's Industries (circa 1978)

Zeng Zi, The Doctrine of the Mean, The Four Books (China, circa 500 BC)