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Author(s): Chua Tee Tee
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Tertiary education for disabled persons, with emphasis on visually-handicapped and hearing-impaired individuals

Chua Tee Tee

TERTIARY EDUCATION FOR DISABLED PERSONS, WITH EMPHASIS ON VISUALLY-HANDICAPPED AND HEARING-IMPAIRED INDIVIDUALS

by

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Introduction

The nature and extent of tertiary education facilities for disabled people, with emphasis on visually-handicapped (VH) and hearing-impaired (HI) persons in two ASEAN countries- Singapore and Malaysia- will be discussed in this paper. The importance of higher education for 'handicapped' individuals is based on the premise, firstly, that every disabled person like his non-disabled counterpart has the inherent right to education and hence to develop to his/her full potential and, secondly, post secondary education enhances social mobility.

Methodology of the Study

Data for this paper was obtained through library research, interviews with selected staff and students and mailed questionnaires. Please see copies of letters at Appendices A, B and C. Letters were despatched to the following tertiary institutions in Singapore:-

(1) Institute of Education
(2) La Salle College of Arts
(3) Nanyang Academy of Fine Arts
(4) Nanyang Technological Institute
(5) National University of Singapore
(6) Ngee Ann Polytechnic
(7) Singapore Polytechnic

There was 100 per cent response from the above-mentioned Singapore higher educational institutions.

The following corresponding Malaysian tertiary institutions were contacted through official correspondence:-

(1) International Islamic University, Petaling Jaya.
(2) MARA Institute of Technology, Shah Alam.
(3) Universiti Kebangsaan Malaysia (Malaysian National University), Bangi.
(4) Universiti Malaya (University of Malaya), Kuala Lumpur.
(5) Universiti Pertanian (Agriculture University), Serdang.
Six out of the eight Malaysian tertiary institutions responded to the questionnaire, giving a 75 per cent response rate. Only the MARA Institute of Technology and Universiti Sains Malaysia did not respond.

Face-to-face interviews or telephone conversations were conducted with the following persons on the topic of this paper:-

(1) Mr Daniel Gwee, Executive Director, Singapore Association for the Deaf (SAD).
(2) Miss Cheah Sou Mooi, Principal, SAD.
(3) Miss Florence Seah, Social Worker, SAD.
(4) Mr Sim Kah Yong (Visually Handicapped), Social Worker, Singapore Association of the Visually Handicapped.
(5) Mrs Gloria Chan, Chief Assistant Registrar, Academic Administrative Unit, University of Malaya.
(6) Mr Ahmad Kamal Ariffin (Visually Handicapped), M.A. student, 2nd year, University of Malaya.
Review of Related Literature

A computer search of ERIC materials by Ong (1990), 'Tertiary education for the blind and the deaf' for the period 1983 through December 1989 reveals 40 related publications. None of these deal with higher education of disabled populations in Singapore or Malaysia. They include a coverage of 36 (90%) sources from the U.S.A., 3 (7.5%) from Canada and 1 (2.5%) from U.K.

Locally published materials on the topic are virtually non-existent. Fraser's (1989) 'Some aspects of Special Education in Singapore' makes no mention of tertiary level disabled students in Singapore. An M.Ed level thesis by Wong (1979) dealt with the academic achievement and hearing-impaired students only at the secondary school level in Singapore. However, Gwee (1988) cited six HI Singapore students studying in the local Polytechnics and one having graduated from the Singapore Ngee Ann Polytechnic.

Regarding higher education for VH and HI students in Malaysia, Chua (1976) documented the first and other VH Malaysian students to be admitted into a local university- the University of Malaya in 1970. In April 1983, Chua presented a paper on special education at the secondary and tertiary levels in Malaysia at the 7th Asia & Pacific Conference of Rehabilitation International. Ismail (1983) highlighted the plight of Malaysian VH persons, including those with local degrees to obtain jobs commensurate with their qualifications. Towards the end of the same year, Chua
(1983) presented a paper 'The Promotion of Equalization of Opportunities by Consumer and/or Self-Help Organizations of Visually Handicapped People' at an Asian Conference in Singapore, in which he noted that only 1.7% of Malaysian VH students were in post-secondary education, compared to 4.0% for the sighted population. Concerned with employment opportunities for Malaysian blind graduates, Wong (1984, 1985) documented some recommendations to overcome this problem.

Findings of the Study in Singapore

The number of disabled students studying in seven higher education institutions in Singapore is very small. With reference to Table 1, the total number of disabled students, comprising the

<table>
<thead>
<tr>
<th>Sub-Total</th>
<th>Total Enrollment</th>
<th>% Disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>VH HI PH</td>
<td>1331</td>
<td>0.08</td>
</tr>
<tr>
<td>1 Institute of Education (IE)</td>
<td>0 1 0 1</td>
<td>1331</td>
</tr>
<tr>
<td>2 La Salle- A College of the Arts</td>
<td>0 5 0 5</td>
<td>450</td>
</tr>
<tr>
<td>3 Nanyang Academy of Fine Arts</td>
<td>0 0 0 0</td>
<td>1916</td>
</tr>
<tr>
<td>4 Nanyang Technological Institute (NTI)</td>
<td>0 0 1 1</td>
<td>5475</td>
</tr>
<tr>
<td>5 National University of Singapore (NUS)</td>
<td>5 5 10 20</td>
<td>14645</td>
</tr>
<tr>
<td>6 Ngee Ann Polytechnic (NAP)</td>
<td>2 3 1 6</td>
<td>11341</td>
</tr>
<tr>
<td>7 Singapore Polytechnic</td>
<td>0 0 0 0</td>
<td>14913</td>
</tr>
<tr>
<td>Total :</td>
<td>7 14 12 33</td>
<td>50071</td>
</tr>
</tbody>
</table>

N.B. VH = Visually Handicapped
HI = Hearing Impaired
PH = Physically Handicapped
visually-handicapped (VH), the hearing-impaired (VI) and the physically handicapped (PH) in Singapore, for the academic session 1989/90 is 33, representing only 0.07 of the higher education student population. The HI students comprise the biggest disabled group (42.4%), followed by the PH (36.4%) and finally, the VH (21.2%). Based on estimated prevalence rates of these three disability groups, the PH should have the highest proportion of disabled students enrolled (Chua, 1976).

Profiles of Enrolled Tertiary Level VH Students in Singapore

Based on responses from six VH students from NUS, the students were aged 17-23 years on admission with the median age at 20.3 years. Three of them used braille while the remaining three used large print material. One student came from a large family of 7 brothers and 4 sisters and another with 5 siblings, with 4.6 siblings as the average. None of them had another sibling who was blind. The fathers' occupations of four of them included an administrative officer, a farmer, an assistant to a food hawker and a shop owner, while one guardian was an engineer. The partially-sighted student was mainstreamed at both the primary and secondary school levels, while the three 'blind' students studied at the residential Singapore School for the Blind, followed by a resource-room-cum-integrated programme at Ahmad Ibrahim Secondary School.

VH students currently studying at NUS do not include only the technically blind (i.e., total loss of vision, partial sight up to
6/60 in the better eye, and/or tunnel vision) but also one case of optic atrophy in only one eye, another with amblyopia in one eye, and one with astigmatism-cum-squint.

The fields of study currently pursued by VH students in Singapore tertiary institutions are mainly the humanities, with four students (25%) opting for Sociology, two each for English Language and Political Science, two students for Accountancy, one in Business Studies, one in International Marketing, one in electrical engineering and one in the B.Sc. programme.

Profiles of Enrolled Tertiary Level HI students in Singapore

Based on responses from 15 HI students, the age of admission into tertiary institutions ranged from 18 to 24 years, with 20.9 years as the median, marginally older than that of the six VH students but expectedly older than non-disabled students who normally enter the university or college at 18 years of age. The two or more additional years of schooling are necessary for VH and VI students to catch up with their non-handicapped peers.

The number of siblings range from 1 to 5 with a median of 3.1, with four families who have one additional deaf sibling each, which may suggest hereditary deafness as a possible result of marriage between close relatives. The fathers of seven of the HI students (46.7%) may be said to be in the mid or upper SES class (one is an accountant, four are business executives/businessmen and two are shop owners). One father is deceased with three retirees.
Four of the 15 HI students (26.7%) went through mainstreaming at both primary and secondary levels, with two of them using oral-aural system of communication and two Total Communication (T.C.). Of the remaining 11 students, 10 (91.0%) attended the Singapore School for the Deaf and one student was from the Canossian School for the Hearing Impaired for their primary education, followed by mainstreaming at the secondary level. All 11 students professed to use T.C. or Sign Language as the mode of communication, in addition to written language.

The range of subjects taken by tertiary level HI students varied, with a focus on electrical engineering (7 students or 50%). Two (14.3%) opted for graphics and one each in Computer Science, Physics, Building Services Engineering, and a professional Certificate in Special Education.

**Special Admission Criteria and Facilities for Disabled Students in Singapore Tertiary Institutions**

Information on this has been collated both from responses from the Registrar’s Office and from students themselves. No institution has any restrictive admission criteria for disabled applicants. The only condition is that they must meet the same academic criteria as non-disabled applicants. NUS particularly has some special facilities for VH students, such as extra lighting, enlarged print and brailling of examination papers, and extra time for examinations. NAP also provides enlarged print and additional time for its VH students. There are no special provisions for HI students except that they are encouraged to sit in the front row.
of lecture rooms to optimize lip reading/speech reading. Wheelchair students in NUS, NTI and NAP have full accessibility to their libraries and canteens/cafeteria (SCSS, n.d.) In addition, classrooms/lecture rooms and sports facilities are accessible to wheel-chair users at NAP, while only the classrooms/lecture halls and canteen/cafeteria at the Singapore Polytechnic are accessible.

**Findings of the Study in Malaysia**

Disabled tertiary students in Malaysia are confined almost entirely in one institution, i.e., the University of Malaya, with the VH (20 out of 38 or 51.4%) forming the largest single disabled group, followed closely by the PH (43.2%). However, the total number of VH, HI of PH tertiary level students is still extremely small - only 37

**Table 2**

<table>
<thead>
<tr>
<th>Subtotal</th>
<th>VH</th>
<th>HI</th>
<th>PH</th>
<th>Total</th>
<th>% Disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>International Islamic University</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Universiti Kebangsaan Malaysia (National University of Malaysia)</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Universiti Malaya (Univ. of Malaya)</td>
<td>20</td>
<td>2</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>4</td>
<td>Universiti Pertanian Malaysia (University of Agriculture, Malaysia)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Universiti Sains Malaysia (University of Science, Malaysia)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>Universiti Teknologi Malaysia (University of Technology, Malaysia)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>Universiti Utara Malaysia (Northern University, Malaysia)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

---

Total : 20 2 16 38 52077 0.07

N.B. VH = Visually Handicapped
HI = Hearing Impaired
PH = Physically Handicapped

representing 0.07% of the total higher education student population.

Based on the computer printout of VI students in the 1989/90 session and interviews at the University of Malaya, the vast majority - 16 out of 20 students (80.0%) are in the Faculty of Arts and Social Science, followed by three students (15%) in the Faculty of Economics and Administration and one partially-sighted student in the Faculty of Science. Five of these VH students are pursuing post-graduate degrees, four at the M.A. level and one at the Ph.D. Level, having obtained their first degrees at the same university.

The nine University of Malaya PH undergraduates also focus their studies in the Arts and Social Sciences (77.8%) with 22.2% in the pure sciences. Incidentally, the two PH Science students are handicapped in the lower limbs, while the remaining seven Arts students are all disabled in the upper limbs, as categorized by the university administration. Regarding the two HI students, one is studying in the Science Faculty and the other in the Faculty of Arts and Social Sciences.

Profiles of Enrolled Tertiary-Level VH Students in Malaysia

All the four male students out of the five VH higher degree students at the University of Malaya responded to the questionnaire (Appendix C). The Ph.D. candidate is a male aged 23 years, with total loss of sight, doing Malay Literature through a research
dissertation without any course work, patterned after the U.K. educational system. Like many other VH students in Malaysia, he studied at a residential special school for the blind at the primary level - St. Nicholas in Penang - before being mainstreamed at the secondary level - High School, Setapak, Kuala Lumpur. Subsequently he completed his B.A. Honours and M.A. at the University of Malaya. He comes from a large family of four brothers and four sisters, being number two among the siblings and the only one who is blind. His father has retired from active work and his mother is a home-maker. He is provided with a private karel in the University Main Library, where he keeps his brailler, typewriter, cassette tape recorder and braille materials.

The other three VH higher degree candidates pursuing their M.A. degrees also come from large families, with 4, 6, and 7 siblings. In one of these families, there are three siblings who are blind out of a total of six and in another, two out of seven are VH! Two are reading History and one in Sociology, all having graduated with B.A. Honours degrees from the same university - University of Malaya. The MA programme is also research based through dissertation (without any course requirements). The ages of these three higher degree candidates range from 25 to 29 years.

Responses from the nine VH undergraduates reveal the following information:-

(1) All are male students.
(2) Their ages range from 21 to 31 years, with a mean of 24.7 years.

(3) Four have total loss of sight, two with light perception, another two with partial sight up to 3/60 and one has tunnel/pin-point vision.

(4) All are pursuing social science-based subjects, i.e., Malay Studies (3 students), History (3 students), Economics (2 students) and Islamic Studies (1 student).

(5) The number of siblings range from 0-11, with a mean of 6.3.

(6) There appears to be some evidence of genetically-based visual impairment. Four out of these nine families have at least another sibling who is VH. In one family of nine siblings, these have limited sight to warrant being classed as technically blind (up to 6/60 vision).

(7) The occupations of the students' fathers vary. There are four farmers, one drug rehabilitation officer, one police officer, one salesman, one retired farmer, with one deceased.

There is only one reported case of a HI undergraduate at the University of Malaya. He is a third year Chinese Studies student, aged 25 years, in the Faculty of Arts and Social Science. He describes himself as moderately hearing impaired and wears an electronic hearing aid. He has gone through regular schooling at the Catholic Primary and Secondary Schools in Malacca. He has another brother who is hearing impaired and three hearing sisters, he being the youngest in the family. His father has retired and his mother is a home-maker.
Special Admission Criteria and Facilities for Disabled Students in Malaysian Tertiary Institutions.

All responding higher education institutions report that there are no special admission criteria for disabled students. They only need to have the same academic qualifications as the non-disabled for admission.

Regarding special facilities for disabled students, especially the VH, the University of Malaya appears to be the only tertiary institution that has special facilities for the VH, including the following:-

(1) Special individual karels in the Main Library, where VH students can keep their bulky braille notes, braillers, cassette tape-recorders and cassette tapes.

(2) Every year, the VH students are encouraged to meet to elect a student co-ordinator whose main duty is to solicit sighted volunteers from within and outside the university to read to VH students who may tape-record the reading or transcribe it directly into braille with their own braillers or those on loan from the University. The reading is done with much privacy in the karels, allocated to the VH.

(3) Some braille books on education law, economics and certain basic texts are available for use by VH students.

(4) A CCTV has been installed in one of the karels for use by partially-sighted students.
(5) A talking typewriter, a donation from the Kuala Lumpur Rotary Club, is at the disposal of students.

(6) The Registrar's Office works with the Malaysian Association for the Blind to braille examination papers and to transcribe students' brailed answers into print for marking by the course lecturers.

(7) VH students can audio tape lectures after they have obtained permission from the course lectures. At first there was reluctance from some lecturers to give such approval but subsequently they agreed to meet the special needs of the students.

(8) The University administration also provides free audio-cassette tapes and some braille paper to the VH students.

(9) The main library has a special audio-cassette recorder that can speed up the duplication of recorded material.

(10) It has also a speech compressor to speed up a recording without having to suffer changes in pitch or a Donald Duck's voice effect.

(11) Special consideration is given to disabled students applying for student loans to pay for tuition, board and lodging and other fees.

(12) The Main Library and some canteens have been made accessible for wheelchair users. A couple of years ago, a special expensive self-operated lift was installed beside a flight of stairs to connect two adjoining floors in the Main Library for the specific use of wheelchair-bound students and one PH librarian.
Recommendations

Although there are some facilities and services for disabled students in tertiary institutions in both Singapore and Malaysia, more could be done. Among the steps that could be taken to improve existing facilities and services include the following:-

(1) A disabled student services unit should be set up in the Registrar’s Office to respond to the special needs of disabled students. It should be headed or assisted by someone who has had some professional qualifications or experience in dealing with disabled students. The functions of this unit should include the following:

(a) to suggest more appropriate criteria for identification of disabled students,
(b) to provide special help during registration and orientation of new disabled students,
(c) to provide special counselling and career guidance,
(d) to make specific recommendations to the relevant authorities to provide greater accessibility to classrooms and other buildings in the campus, student and staff lodging, to transport, to social recreational and cultural activities,
(e) to ensure and co-ordinate the recruitment of sighted readers for the VH, language interpreters for the HI and the purchase and maintenance of special equipment and apparatus, including a loop system for sound amplification.
More sophisticated hardware should be made available for use by disabled students. For the VH, the following pieces of equipment should be acquired:

(a) The Kurzweil Reading Machine, which uses a computer to convert print directly into synthetic speech.

(b) The Optacon which enables a blind student to read print by simultaneously converting a print image to a vibrating tactile image which can be felt with the index finger.

(c) The VersaBraille, a self-contained braille and audio information system. (Chua, 1986).

Sign interpreters for HI students who request for them to conduct simultaneous signing of lectures and tutorials.

All buildings within the university/college campus should be made accessible to wheelchair users.

Loans should be made available to disabled students who need to buy special equipment (which is not required by non-disabled students,) e.g. braillers and braille paper audiotape recorders, audio tapes and typewriters for the VH, wheelchairs and specially modified motorised vehicles for the PH.

Tertiary-level courses taken by disabled students should reflect realistic job opportunities and trends.

**Conclusion**

Both the government and the private sectors should play a greater role in opening the door of higher education to disabled students who qualify academically or vocationally to be admitted into tertiary institutions. One should not just pay lip-service
to the fact that disabled students should have equal access to higher education as non-disabled students. However, the equality of educational opportunity must not be interpreted as equal treatment or the same educational facilities but must be interpreted as an equal chance to develop their full potential. One has to be reminded that 'There is nothing so unequal as the equal treatment of unequals,' (NEA, 1960).

The writer wishes to acknowledge his thanks to all who have contributed in one way or another to the writing of this paper, especially to:

(a) the typing staff of the School of Development Studies, Institute of Education, Singapore,

(b) the registrars or their representatives of all the tertiary institutions in Singapore and Malaysia, who have responded to the writer's request for information,

(c) the Social workers at the Singapore School for the Deaf and at the Singapore School for the Visually Handicapped,

(d) the VH & HI higher education students who have responded to the questionnaires,

(e) the Institute of Education and Lee Foundation, Singapore for their sponsorship for my participation at this Conference.
Bibliography


(2) Chua Tee Tee (1976). (b) Tertiary Education for the Blind in Malaysia, Hubungan Baru (The New Contact), Malaysia Guild of Educators of the Blind, 17.


Dear Sir,

TERTIARY EDUCATION FOR DISABLED/HANDICAPPED STUDENTS

Respectfully I wish to inform you that I will be presenting a paper, "Tertiary Education for Disabled Persons, with Emphasis on Visually-Handicapped & Hearing-Impaired Individuals" at the 9th Asian & Pacific Regional Conference of Rehabilitation International in Beijing in October 26-30, 1990. I wish to highlight some of the tertiary educational provisions for the disabled in Singapore and Malaysia.

I shall be very grateful if you could supply me the following information:

1. Any special criteria for admission of disabled students into your institution.

2. Special facilities and equipment available for such students, e.g. brailing services for assignments/examinations, sighted readers, braillers, Kurzweil Reading Machine, Personal Computers with voice output, sign language interpreters, accessibility to wheel-chair users, etc.

3. Enrollment figures of disabled students for the current session 1990/1991 and the last five years in terms of:
   (a) courses enrolled (arts, sciences, economics, etc.)
   (b) undergraduate/post-graduate
   (c) major disability of each student
   (d) sex

4. Number of disabled students (categories - e.g., blind, deaf, physically handicapped) who have graduated, year by year.

5. Type of disabled student first enrolled and in which year.

6. General student enrollment in 1990/91 and for the last five years.

I shall be very thankful if you distribute the enclosed one-page questionnaires to your blind and deaf students currently enrolled in your institution and return the completed forms to me by 1/9/90. Thank you very much.

Yours sincerely,
Deaf/Hearing-Impaired Persons from Tertiary Institutions

Full Name of student: ____________________________________________
Date of Birth: _________________________________________________
Sex: Male/Female
Degree of hearing loss: Mild/Moderate/Severe
Wearing a hearing aid: Yes/No
Name of Primary School Attended: _________________________________
Name of Secondary School Attended: ______________________________
Main medium of communication: Total Communication/Sign Language Only/Oral-Aural Only
Name of Tertiary Institution: ______________________________________
Year Admitted: _________________________________________________
Major subject/s taking/taken: _____________________________________
Year Graduated: ________________________________________________
Admitted at 'O' or 'A' level/s: _____________________________________
Resources/Facilities available to you as a deaf/hearing impaired person at the Institution: ____________________________________________
________________________________________________________________
________________________________________________________________
Name & Address of Employer (if applicable): _________________________
Name of post (if applicable): ______________________________________
Occupation of Father/Guardian: ____________________________________
Occupation of Mother: ____________________________________________
No. of brothers in the family: ________ No. deaf: ________
No. of sisters in the family: ________ No. deaf: ________
Your position among your brothers and sisters: No.1, 2, 3, 4, ______
__________________________________    __________________________
APPENDIX C

Blind/Visually-Handicapped Persons from Tertiary Institutions

Full Name of student: ____________________________________________

Date of Birth : _________________________________________________

Sex : Male/Female

Degree of visual loss: Total/Light Perception Only/Partial to 6/60

Uses braille : Yes/No

Name of Primary School Attended: ________________________________

Name of Secondary School Attended: ______________________________

Main medium of communication: Braille/Enlarged Print

Name of Institution : ____________________________________________

Year Admitted : _________________________________________________

Major subject/s taking/taken: ___________________________________

Year Graduated: _______________________________________________

Admitted at 'O' or 'A' level/s: ___________________________________

Special resources/facilities available to you as a blind/visually­

handicapped person at the Institution: ____________________________

Name & Address of Employer (if applicable): _______________________

Name of post (if applicable): ____________________________________

Occupation of Father/Guardian: _________________________________

Occupation of Mother: _________________________________________

No. of brothers in the family: ________ No. blind: ________

No. of sisters in the family : ________ No. blind: ________

Your position among your brothers and sisters: No.1, 2, 3, 4, ___

_________________________ ___________________________

Signature Date