

DIGITAL DIVIDE IN EDUCATION: THE MALAYSIAN EXPERIENCE

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Abstract

Information Technology (IT) adds choices as to how, when and where students access learning opportunities. The availability of technologies plus the traditional learning methods create a new environment to enhanced students learning ability. Along with these exciting, interesting and sometimes difficult changes come several challenges. The most prominent is the “digital divide” issue [1]. Statistics show that IT is not being realized equally in the society, with the poor, rural and minority groups falling behind. This paper presents the findings of a study done on students from fourteen schools in Malaysia. The study investigates the economical, academic and social issues that influence the ability of students in utilizing IT to enhance learning.

Keywords: family income, rural areas school, urban area schools, computer awareness.

1.0 Introduction

In moving towards an industrial country by the year 2020 and inline with the objective of being one of the world leader in information technology and communication, Malaysia has set a project called Multimedia Super Corridor with large amount of money invested for ICT facilities and infrastructure. A council, known as the National Information Technology Council of Malaysia (NITC Malaysia) functions as the primary advisor and consultant to the Government on matters pertaining to IT in Malaysia's national development. Among the objectives of NITC is to ensure the smooth integration of new technologies into social and economic development[2].

Not forgetting the need to literate the people in the country with computer technology, the Malaysian government is also looking at the education system as one of their main agenda. As such, the school curriculum in Malaysia has been revised to include a subject called Information Technology as one of the subjects offered in the public examination which is conducted at the end of form five school term.

Malaysian education system begins with pre-schools at the age of 6 years old, primary school year1- year 6 at the age of 7 – 12 years old, secondary school (form1 to form5) at the age of 13 –15 years old. There are three public examination : the UPSR (Primary School Assessment) for primary6, the PMR (Lower Secondary Assessment) for form3 and the SPM (Malaysian Certificate of Education) for form5 students[3].

Information Technology (IT) was first introduced and taught in four selected Malaysian secondary schools in 1986 as the Introduction to Computers subject. In 1989 the IT subject called Basic Information Processing was offered as one of the subjects for the Public Examination in the techniques and vocational schools. In 1992, the Malaysian Ministry of Education introduced the Computer in Education program. This is an integrated program to incorporate computer usage in teaching and learning and school management. The main activity implemented in this program is Computer Literacy and Teaching-and-Learning aided by computers. The computer literacy was firstly introduce to 90 schools of form1 students. In 1998 the subject Information Technology was taught in selected 26 schools for Form4 to Form5 students and became one of the elective subjects for the Public Examination (SPM).

2.0 Methodology

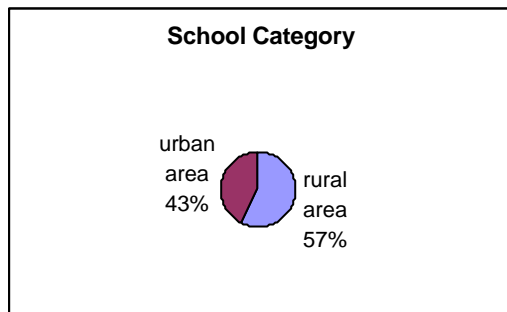
A survey consisting of a set of questionnaire of 25 questions pertaining to school, family and economic factors were distributed to selected schools in Malaysia. The objective of the survey is to look at the students' computer literacy and awareness with relations to the social, economy and surrounding.

The survey was conducted in 14 schools all over Malaysia comprising of 550 form5 five students of age 17 years old. Among the 14 schools, eight of these schools are located in the rural area consisting of 239 respondents whereas six other schools are in the urban area with 311 respondents. In addition, 11 out of the 14 schools have computer clubs whereas 3 others schools have not established any computer club, though computer subjects are being taught in the schools.

3.0. Output of the Survey

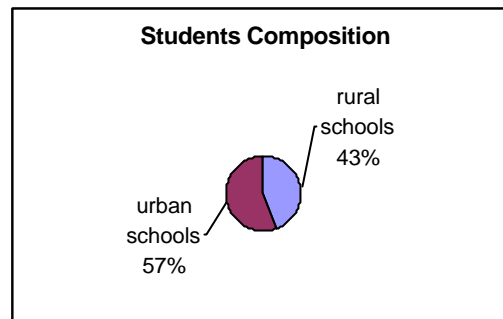
The followings are output of the survey done:

a) School category



The survey was done on eight rural schools (43%) and six urban schools (57%). A total of 14 schools were involved in the survey.

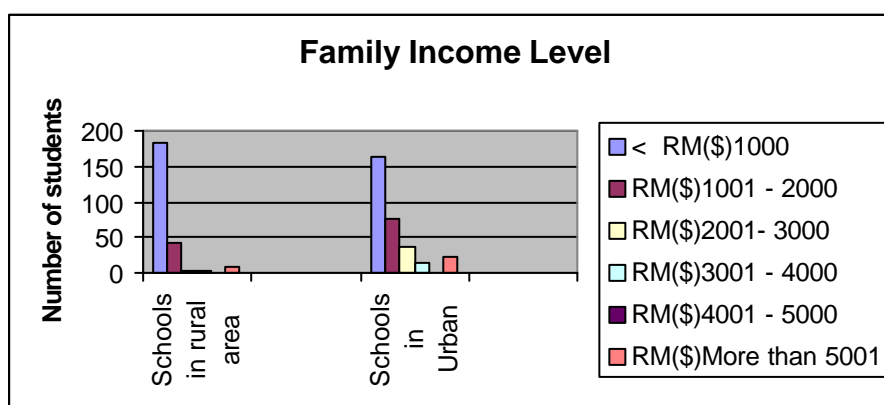
b) Students Composition



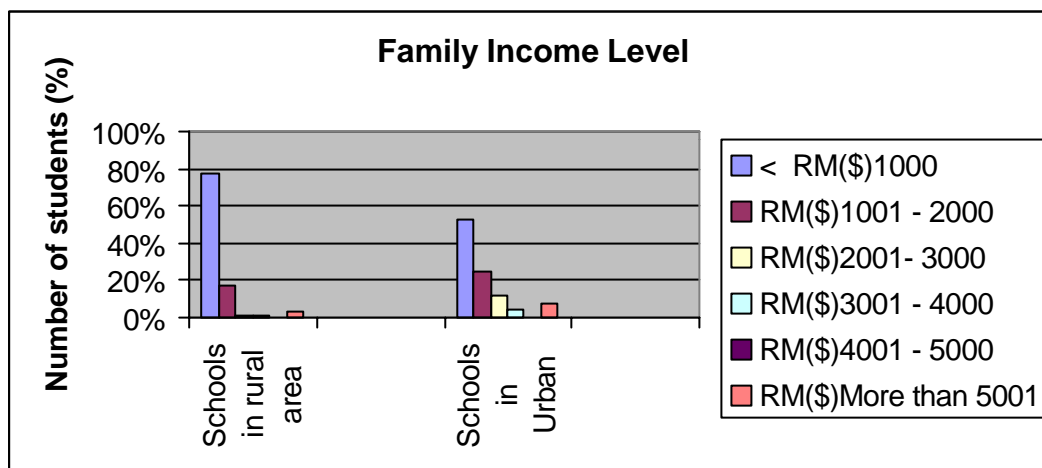
The chart shows that the survey involves 239 students from eight rural schools and 311 students from six urban schools. A total of 550 students were involved in the survey.

c) Family Income :

Family Income level (Ringgit Malaysia RM\$)	Schools in rural area		Schools in Urban area	
	Frequency	Percentage	Frequency	Percentage
< 1000	184	77%	163	52.4%
1001 - 2000	41	17.2%	76	24.4%
2001- 3000	3	1.3%	36	11.6%
3001 - 4000	2	0.8%	14	4.5%
4001 - 5000	1	0.4%	0	0
More than 5001	8	3.3%	22	7.1%
Total	239	100%	311	100%



It was found that more than 50% of the student came from the rural area with family income less than RM1000 (77%). In the urban area the percentage of student's family income RM1000 and below is 52.4%. The percentage of families in the rural area for income range between RM1001- 2000 is 24.4% whereas the rural area is 17.2%. For income between RM 2001 and RM3000, there is a difference of 3.7% with the families in the urban school scoring 4.5% while the percentage of families in the rural area earning income in the same range is only 0.8%. In the income range of RM4001 – 5000, the percentage is 0.4% in the rural area and 0% for the urban area. In the income range of above RM5001.00 the percentage of rural area is 3.3% and the urban area is 7.1%.



d) Computer Club

	Schools in rural area	Schools in urban area
Computer club number	5	6
Students	199	239
Club members	41	86
Percentage	45%	45%

The table above highlights the number of schools having computer clubs and the number of students being member of the club. Out of the 14 schools being surveyed, there are only five schools having computer club in the rural area and six schools in the urban area. Out of 199 form 5 students in the rural area, only 20.6% comprising of 41 students actually enrolled themselves as a computer club member whereas in the urban area only 36.0% students comprising of 86 students out of a total of 239 students.

e) Own Personal Computer

	Schools in rural area	Schools in urban area
Total students surveyed	239	311
Students having PC	72	140
Percentage	30.1%	45%

The number of students having a personal computer is low for both categories of schools. Nevertheless, the percentage of students having a personal computer in the urban area is higher as compared to the percentage in the rural area. The statistics shows that 45% of total students surveyed in the urban area have their own PC as compared to 30.1% of total students surveyed in the rural area.

f) Attend Computer Course or Exhibition

	Schools in rural area	Schools in urban area
Total number of students	239	311
Number of students ever attend a computer course or computer exhibition	83	120
Percentage	34.7%	38.6%

The table above identifies that only 34.7 % or 83 students out of the 239 students in the rural area and 38.6% or 120 students out of 311 students in the urban area has ever attended a computer club or computer exhibition.

g) Internet Knowledge

	Schools in rural area		Schools in urban area	
	Frequency	Percentage	Frequency	Percentage
Internet Know and use	80	33.5%	77	24.8%
Curious and have tried using internet	81	33.9%	155	49.8%
Heard of internet	70	29.3%	76	24.4%
Never heard of internet or no response	8	3.3%	3	1.0%
Total	239	100%	311	100%

The frequency table above highlights that 33.5% of the total 239 students in the rural areas schools and 24.8% of the total 311 students in the urban area schools know Internet and is using it. Also, 33.9% of the total 239 students in the rural areas schools and 49.8% of the total 311 students in the urban area schools have heard and have tried using Internet. Nevertheless, the percentage for students who have only heard of Internet in the rural areas school is 29.3% and for the urban areas school is 24.4%. The percentage for students who never heard of Internet or give a response to this survey question is 3.3% for the rural areas schools and 1.0% for the urban areas schools.

h) Age expose to computer

Age	Schools in rural area		Schools in urban area	
< 5	2	0.8%	11	3.5%
6-9	5	2.1%	38	12.2%
10-13	74	31.0%	68	21.9%
14-17	140	58.6%	184	59.2%
Never use	18	7.5%	10	3.2%
Total	239	100%	311	100%

The surveys shows that only 2 students out of a total of 239 students in the rural areas schools (0.8%) and 11 students out of 311 students in the urban areas schools (3.5%) was introduced to the computer at the age below five years old. For the age between six years to nine years old only 2.1% or 5 students out of 239 students in the rural areas schools and 12.2% or 38 students out of 311 students in the urban areas schools were introduced to computer. For the age of ten years old to thirteen years old, 74 students or 31.0% students out of 239 students in the rural areas schools and 68 or 21.9% students out of 311 students in the urban areas schools were introduced to computer. For the age between fourteen to seventeen, 140 students (58.6%) in the rural area schools and 184 students (29.2%) in the urban areas schools were introduced to computers. A number of 18 students (7.5%) in the rural area and 10 students (3.2%) in the urban areas schools were never introduced to computers at all.

4.0 Findings

The survey sampling population reveals that 239 respondents of the survey are from the form5 students in the rural area and 311 students from the urban area schools. The survey shows that 94.2% or 225 students' families in the rural area and 76.8% or 239 students' families in the urban area fall in the lower income bracket (lees than RM1000-00). In total , 63% or 347 of the students' family income bracket is RM1000-00 or below.

The family's economic situation is a contributing factor to the number of students having their own personal computer. The personal computer ownership has a direct relationship to the family income status. The surveys showed that less than 45% of the students own a PC.

The numbers of computer club members are low. It is discovered that only 5 schools in the rural areas and 6 schools in the urban area have computer clubs with a membership of 41 students or 20.6% and 86 students or 36.0% respectively.

The computer awareness among the schools surveyed are still low. Less than 34.7% students in the rural area and 38.6% in the urban area has ever attended a computer club or computer exhibition. This indicates that there is not much effort or interest to seek additional knowledge in computers besides the knowledge gained in the classroom. Furthermore, the computers were introduced late to the student. The statistics shown that about 60% of the students were introduced to computers at the age of 14 until 17 years old.

5.0 Conclusion

The questions on computer club, course / exhibition attended, school category are focus on social issues. The questions about owning personal computer, family income and exposure is focus on the economic issues. The questions about Internet is focus on academic and external factors.

The data has shown that there is no obvious evidence that digital divide in education seriously exists in Malaysia. Though 94% of the rural area family earns less than RM2000 as compared to 76% in the urban area, the percentage of students exposed to the computers by the age of 13 is comparatively the same, that is 33.9% for the rural schools and 37.6% for the urban schools). However, there is a difference of 15% in terms of owning a PC (30.1% for rural and 45% for urban). There is also a noticeable difference of 16% students being a club member (20.6% in the rural area and 36.0% as compared to the rural schools).

In terms of social awareness, the rate of awareness is fairly the same for both categories, 34.7% for the rural and 38.6% for the urban area. In exposing themselves to external IT sources, it was found that the percentage for the students to use Internet in the rural area is 64.7% as compared to 84.6% in the urban area. This could be due to students in the urban area have more cybercafe near the proximity where they live or they themselves has Internet- connection at home.

Discussion:

Early experience and exposure to the student has positive reaction towards their perspective to computer. The students tend to be more confident in using the computer and this helps to develop their mastery skill in using the computer. The students can incorporate the computer knowledge in preparing their class assignment and can improve their learning behavior by means of Internet. E-learning adds on further knowledge enhancement of subjects taught in the schools and the students is at an advantage of gaining extra information and enhancing their knowledge.

The following are some recommendation to improve the digital divide in Malaysia:

- a) incorporating IT in all the subjects taught in schools. This can make teaching and learning interesting and challenging.
- b) having sufficient good and qualified IT teachers in various subjects.
- c) encouraging student to have activate participation in the computer club. This can be achieved by introducing more attractive and exciting computer activities through the computer club.
- d) attending more and frequent computer exhibitions and seminars
- e) provide more quality reading materials pertaining to IT subjects.
- f) getting encouragement and moral support form parents and teachers.
- g) getting local businesses support to fulfill their of social obligation by of providing more computers and better infra-structure for the local schools.

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