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***A Bilingual Exit: Introducing and
Evaluating Partial English
Medium of Instruction in a Hong Kong
Secondary School***

By

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Supervisor: Professor Michael Byram

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A thesis submitted for the degree of

Doctor of Education



School of Education

University of Durham

2005

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Abstract of Research

This action research stems from a project called 'Partial English Medium of Instruction' in a local secondary school in Hong Kong. In 1998, mother tongue education was forced to be in place in the majority secondary schools. The aim of this is said to be promoting students' bi-literacy (Chinese and English) and tri-lingualism (Chinese, English and Putonghua). While such aim is congruent to the needs of the students and the society at large, its practice is felt to be contradictory. Adverse effect on students' second language (English) is feared and is indeed felt to be present in the school where the writer works. To alleviate the negative impact on English, certain parts of the selected subjects in the junior forms are taught in 'partial English medium', where English is used at the print level and the assessments, while Cantonese (students' mother tongue) is used at the oral level.

The idea of partial English medium of instruction is partly inspired by the 'bilingual exit', coined by So (1987). Subsequently, much overseas and local pertinent literature in bilingualism has been consulted before the project's implementation in 2002 and while it continues. In addition, this small-scale research benefits much from the discussion of the research methodology and evaluation of not only action research, but also qualitative and quantitative research, some elements of which are felt to be equally relevant and are taken on board.

The results of the study support that students generally are able to maintain their progress in the project according to the standard set by local schools, and students are positive in the project's effectiveness of second language vocabulary enhancement. Continuous improvement of the project is also shown to be evident with the adoption of action research.

Acknowledgements

Professor Michael Byram's subtle but powerful guidance is indispensable to the completion of my thesis. An academic from US once told me I was lucky to have Mike to be my supervisor. It is true.

I would also like to express my gratitude to those who have been involved in the Project 'Partial English Medium of Instruction' at T.W.G.Hs S.C.Gaw Memorial College. It is tough work from whatever point of view. However, I have seen teachers sincerely devote extra effort in teaching; many students remain enthusiastic amid the linguistic difficulty; and Principal Mr. Tam Fook-kei give the necessary support for the implementation and continuation of the Project. They have all made the seemingly impossible possible.

Thanks are also due to Professor Peter Tymms, who sharpened my research questions and Mr. Ng Yui-kin, who pointed out the fallacy of some statistical methods I had considered using for evaluating the project before. Mr. Jason Cheung had been a reliable partner with me in the statistical analysis regarding student test scores and student questionnaire.

Brenda, my wife, is an enthusiast in educational matters and never fails to listen to and discuss with me on MOI issues and other educational issues of general interest. Having a life-long companion like this is my luck.

Preface

My interest on the subject Medium of Instruction (MOI) stems from my professional career as an English Teacher in a secondary school in Hong Kong, where English had been officially the medium of instruction in most Hong Kong secondary schools until 1998. That year marked the significant change in the local MOI history where Cantonese, supposedly the 'first language' of the Hong Kong students, took over from English the second language and was made the official medium of instruction in most Hong Kong secondary schools.

A major argument for the introduction of the 'mother tongue education' is that it facilitates the development of the child's educational achievement, especially in the primary school. It can also be argued, although this is not much voiced in Hong Kong, that learning through Chinese will help develop a sense of national/Chinese identity.

On the other hand, Hong Kong gains much as an international city from the viable presence of English not only in the societal level, but also the educational level. Naturally, there is a need for Hong Kong people to maintain and develop their command of English. Research points out that using a L2 as the medium of instruction is beneficial in the development of the L2 (e.g. Cummins and Swain, 1985), and the adverse effect on L2 achievement when an L2 as the MOI is replaced by the L1 (e.g. Branegan, J. 1991; Baker 1995). Given the importance of English language to Hong Kong, responsible school administrators and teachers cannot wait until the adverse effects on English achievement become apparent among secondary school graduates.

This thesis outlines a project attempting to find a 'bilingual exit' for the students who are educated in the Chinese MOI, where remedial curricular actions are initiated to strike a balance between the two languages based on students' needs and capacities. The project will take an action research approach in the hope to reap 'continuous improvement'.

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1. Introduction

1.1 Scope of this Study

One of the interesting things about Hong Kong, having been the crossroad between East and West since the 20th century, is the language used. English and Chinese are the official languages in Hong Kong. Chinese gains its official status because Hong Kong is predominantly inhabited by a Chinese population; English gains its official status because Hong Kong was a British colony from 1842 to 1997. Despite the fact that it is only the second language, the learning and use of English for academic and economic purpose has never stopped in Hong Kong thanks to its prestigious socio-economic status around the world.

There is, however, something uniquely different between Chinese and English as a language linguistically. In Hong Kong, English is considered to have just one variety, taken from the Standard English in Britain. Unlike English, Chinese is only the umbrella term for hundreds of different dialects spoken in China. The dialect spoken in Hong Kong is called ‘Cantonese’, which exists mainly in oral form only. It is almost mutually unintelligible to the other prominent dialect, Putonghua, which is the official language of Mainland China. Despite the difference at oral level, there is commonality at the written level between the two –Modern Standard Chinese (MSC). The written form of Putonghua, MSC, has been largely adopted as the written form of all other Chinese dialects, including Cantonese.

Putonghua has become increasingly popular since 1997, not only because of the more frequent interchange at political level between Hong Kong and China after the handover, but also because of the influx of hundreds of legal mainland immigrants every day. Putonghua has also become much stronger economically nowadays.

Tourists coming from the Mainland's more affluent cities such as Guangzhou and Shanghai by the scheme of 'Individual Travel' since the summer of 2003 have effectively helped revive the local blooming economy. The fact that many different languages are being used here – Cantonese, Putonghua, English, and Modern Standard Chinese - makes studying the use of languages in Hong Kong an interesting pursuit.

The starting point of the present study is the introduction of the 'mother tongue' education policy in the majority of local secondary schools since September 1998. This policy, which is unprecedented and felt to be too heavy handed by some (e.g. Poon, 2000), is still a case of heated debate at the time this thesis is written. This is so because arguments for and against can be (and indeed have been) made not only on educational and linguistic grounds, but also on economic, political and social grounds (see a further discussion of these in Section 1.3). A policy which bears consequences in such a number of areas is naturally bound to create controversy.

This study is divided into three parts, 'Description', 'Prescription' and 'Evaluation'. For description, chapter 1 'Introduction' describes the background and the content of the controversial mother-tongue education policy. It also describes the problems encountered since its introduction in 1998.

Chapters 2, 3 and 4 aim to review pertinent literature on the 'Methodology of Medium of Instruction', 'Research Methodology' and 'Evaluation' respectively. They all cater for the notion of prescription. Chapter 2 presents some possible options of bilingual education and medium of instruction based on literature review, through which problems highlighted in Chapter 1 can be understood more clearly. Chapter 3,

‘Research Methodology’, discusses different research methodologies available to use in measuring the effectiveness of the actions to be undertaken more accurately. Chapter 4, ‘Evaluation’, details the range of measurement tools applicable for the evaluation design selected. Major points made in Chapters 2 to 4 will be integrated into Chapter 5 ‘Developing a Research Design and Methods’. A small scale project will have been suggested by then aiming at finding a ‘bilingual exit’ out of the awkward situation resulting from the policy.

‘Evaluations’ are detailed in Chapter 6, which is entitled ‘Analysis of Data: Effects & Effectiveness of the Project’. It presents the findings and implications of the project raised in Chapter 5. This thesis ends at Chapter 7 ‘Conclusions and Recommendations’. Here I will turn to Section 1.2 ‘Background of the Mother-tongue Education Policy in Hong Kong’.

1.2 Background of the Mother-tongue Education Policy in Hong Kong

The present mother-tongue education policy in Hong Kong is a highly controversial matter. The most significant event which led to the controversy is the ‘Firm Guidance’ published by the then Education Department in 1997. Its proposal which was fully adopted in 1998 is as follows:

1. Chinese will be the basic Medium of Instruction (MOI) in public sector schools.
2. Only schools with evidence of suitable student ability and teacher capability may apply for approval to use English as the MOI¹.
3. All public sector schools should, starting with their secondary one intake for the 1998/99 school year, progressively adopt Chinese as the MOI except

¹ About a quarter of Hong Kong secondary schools belonging to this category as in the year 2004.

English and other approved commercial and technical subjects.

The proposal gave rise to two distinct streams of schools, namely Chinese Medium Schools and English Medium Schools. To ensure strict compliance, the Firm Guidance document states that failure in observing the measure would result in government's termination of financial support and appointment of a new school management board.

To help with the implementation of the policy especially in the Chinese medium schools, further resources were to be provided:

1. four additional English language teachers for each school are provided, of whom a maximum of two may be native-speaking English teachers (NET)²;
2. additional recurrent grants for English language teaching materials and library books are given;
3. priority to Chinese medium schools in the provision of multi-media learning centres is given.

(1997 Policy Address of the Chief Executive)

There are two major aims of the guidance mentioned in its consultation document. First, it allows students to learn more effectively through their 'mother tongue', being roughly referred to as 'Chinese'. While it may take many more years to reach a conclusion as to the effectiveness of the present mother tongue policy, a study conducted at its initial stage did show some value (Lao & Krashen, 1999).

Another aim of the guidance is to eradicate mixed-code teaching and learning. Local

² Since the 1997 Policy Address, there has been no further announcement as to when this initiative could be realized possibly because of the recent downturn of economy. At present, there is only one additional native English teacher provided to all CMI as well as EMI schools.

teachers, some of whom may well be fluent in English, may still have to resort to using Cantonese for explaining subject content written in English. This is because with the introduction of the nine-year compulsory education, a greater number of students have entered secondary school with minimal competence of English (Post, 1994). The result is said to be the presence of 'mixed code teaching and learning', which has been heavily criticized in a number of formal documents like Education Commission Report 4 (See Section 2.2.1 'Medium of Instruction at Oral Level' for details). This is one of the reasons why a strong purist approach, the Firm Guidance, is adopted by the government (See Section 2.2.1.1 for a further discussion of the Purist Approach).

An additional aim of the Firm Guidance reflected in the 1998 Policy Address, reminiscent of the worldwide development of policy for human-capital investment through education as reported by Brown et al. (1996), is that the competitiveness of Hong Kong could be better maintained through Chinese medium of instruction (CMI):

84. Confidence and competence in the use of Chinese and English are essential if we are to maintain our competitive edge in the world. The Education Commission Report No.6 has already laid down a framework to achieve our goal for secondary school graduates to be proficient in writing English and Chinese and able to communicate confidently in Cantonese and Putonghua. Putonghua will become part of the curriculum in the next school year starting from Primary 1, Secondary 1 and Secondary 4, and a subject in the Hong Kong Certificate of Education Examinations by the year 2000.

85. Greater use of mother tongue teaching will help raise the standard of teaching in non-language subjects. It also allows more time to be given to specialised teaching of English and Chinese so that all language standards may be raised.

The emphasis of Chinese, English and Putonghua has given rise to the official

language policy of Bi-literacy and Tri-lingualism in Hong Kong, which is the ability to write in Modern Standard Chinese (MSC) and English, and speak in Cantonese, English and Putonghua.

1.3 The Fantasy of the Mother-tongue Education Policy

Why is the Firm Guidance causing a great deal of controversy in Hong Kong? Before attempting to answer this question, let us review the official aims of the Firm Guidance so far:

1. letting students learn more effectively through their ‘mother tongue’ in non-language subjects,
2. eradicating mixed-code teaching and learning,
3. allowing more time to be given to specialized teaching of English and Chinese so that all language standards may be raised, and
4. promoting bi-literacy and tri-lingualism among students as a result of all this effort

Let us examine whether the firm guidance can truly achieve its aims.

1.3.1 The Fantasy of More Effective Learning and Eradication of Code-mixing

Proponents of the Firm Guidance mainly argue for the policy from the point of view of education effectiveness, that mother tongue education has been demonstrated empirically to be the most effective way to learning³. Plausible at the first sight, it is perhaps too rushed to take the proponents’ claims for granted. That “Chinese”, never precisely defined in its consultation document, was taken as the “mother tongue” of

³ Curiously enough, there is no reference at all given in the Firm Guidance Document in support of the effectiveness of Mother Tongue education. It just casually said ‘Educational research worldwide has shown that students learn better through their mother tongue.’

the students in Hong Kong is certainly problematic. The problem comes in two ways. First, although Cantonese is widely spoken by the majority of people in Hong Kong, it is not the first language of many Hong Kong people. Immigrants coming from China to Hong Kong, which accounts for almost 40% of the total population, are often people whose mother tongues are unintelligible to people speaking Cantonese, such as Chiuchow and Hokkien (Luke and Richards, 1982). Secondly, Cantonese only exists in oral form. It differs radically from the Modern Standard Chinese (MSC), which is the standard language to be used in formal academic reading and writing at school. Given this, there are doubts regarding the authenticity of the so-called 'mother-tongue' education in Hong Kong.

Another doubt lies in the claim that once 'Chinese' takes over to become the medium of instruction in Hong Kong secondary schools, it is possible to eradicate code-mixing, the concurrent use of Cantonese and English at intra-sentential level⁴. An understanding of the background of education the majority teachers in Hong Kong received is needed to see the weakness of the assumption.

Teaching is supposed to be easier when Chinese is used instead of English, for the mother tongue of the majority local teachers is Chinese. This is, however, rejected by Johnson (1983), who discovered English would be more readily used by the local teachers when the content of communication is information-oriented, as is the case of academic teaching. Similar findings are also gathered by Tung (1990), who showed local teachers expressed difficulty in using Chinese in written communication such as writing on the board and correcting assignments.

⁴ Further discussion of codemixing and codeswitching will be made in Chapter 2.

Why do the local teachers find it difficult to communicate in their first language in the classroom? Tung (1990) explains local teachers find using English easier for academic purposes because most of them received their education in English rather than Chinese. That does not, however, mean Cantonese is not used in teaching at all. According to Johnson (1983), Cantonese is frequently used when teachers and students are talking to each other casually. In other words, Cantonese is mainly used for oral communication with the purpose of solidarity in the Hong Kong classroom.

The irony of the Firm Guidance is that, when teachers educated in English medium are forced to use Cantonese for teaching, they find greater difficulty in teaching and might have to resort to using even more mixed-code for teaching.

1.3.2 The Fantasy of More Time for Language Training and Promotion of Bi-literacy and Tri-lingualism

Time is often a problem for schools in Hong Kong. The tight schedules coupled with English medium instruction make classroom teaching like a race, especially for classrooms of less proficient students. The original intention of the Firm Guidance may be that more time could be saved for teaching non-language subjects with the switch to CMI; the time saved could also be used for more ‘specialized teaching’ of English and Chinese.

However, speaking from my experience as a teacher in a CMI school, I could hardly see any change of the syllabi or the way any subjects, be it non-language or language, are taught at my school as the result of the Firm Guidance. The only change I could see so far is that one extra lesson per cycle is allocated, which becomes an oral class

taught by the native English-speaking teacher⁵. Attractive as it looks on the surface, the claim that mother-tongue education will give more time for specialized teaching so that all language standards may be raised appears like a myth⁶.

The promotion of bi-literacy and tri-lingualism among students is even more puzzling. Except for a few private international schools which are unaffected, the Firm Guidance gave rise to two distinct groups within Hong Kong public secondary school sector - the CMI schools, accounting for roughly 75% of all secondary schools in Hong Kong, and the EMI schools, accounting for the rest 25%. As mentioned before, 'Chinese' is used exclusively in CMI schools (except English lessons) and English for EMI schools (except Chinese and Chinese History lessons). It is generally the case that exposure to a language is often an important indicator in predicting a person's competence in that language, as testified by the summary of Baker (1995) (See a more detailed discussion of which in Section 1.4). The likely consequence of such arbitrary distinction may be that, CMI students will be competent in Chinese (i.e. MSC + Cantonese) and much weaker in English, and EMI students, vice versa. And because at present Putonghua takes only 1 lesson per cycle⁷, the general situation of Hong Kong education is likely to be that, a small group of students are proficient in English only (See Lai & Byram 2003 for a more detailed discussion), a large group of students are proficient in written Chinese and Cantonese only, and neither of them are

⁵ This arrangement was abolished in the year of 2002-03 at my school. Seeing the students only once per cycle (7 school days equivalent) simply couldn't let the NET teacher control the discipline of the students, let alone teach them. The oral lesson was then absorbed by the regular English teachers, and the NET would promote the use of English after school every day, only to see few students volunteering to come.

⁶ In the Hong Kong Certificate Examination 2003, only 40% of our Form 5 graduates, the first batch of graduates educated in Chinese Medium, managed to pass English Language. A drastic fall from 63% and 70% in the year 2002 and 2001 respectively.

⁷ The situation has slightly improved since the year of 2002-03, where a double lesson per cycle in Putonghua was allocated. But a casual talk to a Putonghua teacher reveals that the lesson is nothing more than choral repetition of a reading passage. The teacher even confided herself that 'the teaching of Putonghua is much easier than that of English, which involves teaching of so many different skills and marking of numerous papers.'

proficient in Putonghua. Instead of bi-literacy and tri-lingualism, it is likely to be *diglossia without bilingualism*, a situation in which individual linguistic repertoires are mainly restricted to one of the languages in the society (Fishman 1972).

To acquire bi-literacy and tri-lingualism, the existing language policy, though with sincere intention, requires much re-formulation. A possible re-formulation will be presented. But before that, a few wider considerations are needed for their importance. They are economic, political and social dimensions.

1.4 The Economic, Political and Social Dimensions of the Medium of Instruction in Hong Kong schools

A sound language education policy, in addition to following the basic educational principles, is a policy which maximizes the economic, social and political interests of the individuals and the society. Because of this, a discussion of the implications of these interests towards the MOI in Hong Kong is made as follows.

1.4.1 Economic and Political Dimensions

Governments have become concerned increasingly with economic development, especially after the oil crisis of the 1970s. It is a common view that social issues will be automatically taken care of if the economic concern is being handled properly. It is therefore little wonder that education policies around the world have become more and more connected with economic policies (for example, see Halsey, et al. 1996).

To determine which language to use as the MOI economically, one of the most important tasks is to understand what language(s) and language skills are needed in the local economy and thus the labor market, which our students will eventually join.

Hong Kong, which has become an affluent society since 1970s', has been constantly matched with a prospering service industry:

'... the Hong Kong Special Administrative Region (HKSAR) has been serving as a global centre for trade, finance, business and communications. Hong Kong is now ranked the 10th largest trading entity in the world. It operates the busiest container port in the world in terms of throughput, as well as one of the busiest airports in terms of number of passengers and volume of international cargo handled. In addition, it is the world's 12th largest banking centre in terms of external banking transactions, and the seventh largest foreign exchange market in terms of turnover. Its stock market is Asia's third largest in terms of market capitalization.'

(Chapter 3, Hong Kong Year Book 2002)

The importance of the service industry is also reflected in its contribution to the local GDP and employment of local workers too. Here is a quotation from Chapter 3, Hong Kong Year Book 2002 again:

Reflecting this, the share of the tertiary services sector (comprising the wholesale, retail and import/export trades, restaurants and hotels; transport, storage and communications; financing, insurance, real estate and business services; community, social and personal services; and ownership of premises) in GDP leaped, from 67 per cent in 1981 to 77 per cent in 1991 and further to 87 per cent in 2001....

The profound change in the economic structure was also borne out by a broadly similar shift in the sectoral composition of employment. Over the past two decades, the share of the services sector in total employment followed a continuous uptrend, rising distinctly from 51 per cent in 1982 to 69 per cent in 1992 and further to 84 per cent in the first three quarters of 2002.

While it is true that the success of this "global service economy" owes much to many factors, such as the sound economic policy of non-interventionism and Hong Kong's proximity to the 'open-door' China, an equally important factor not to be disregarded is the viability of English in Hong Kong. Different types of service industry, such as

trading, hotels and financing, require professionals fluent in English, the international language for communication.

There has been an argument that as Hong Kong's economic well being is becoming increasingly dependent on China, the importance of English would eventually be replaced by Putonghua and Modern Standard Chinese. Thus, it is to the economic advantage of Hong Kong and Hong Kong students that Putonghua and Modern Standard Chinese instead of English shall be promoted at school.

To this end, a speech made by the Financial Secretary, Mr Henry Tang, will be useful in reminding us again what Hong Kong may do economically:

Our motherland is currently the fastest-growing major economy in the world...her GDP is expected to reach US\$4,000 billion by 2020. Hong Kong can complement the strong economic growth of our motherland, and in the process contribute to the further opening-up and reform of our nation.

We must, however, always bear it in mind that Hong Kong is a cosmopolitan international city. We have an abundant pool of talent, enterprise, experience and facilities that connect us to the rest of the world. We should be alive to opportunities on the Mainland, but at the same time, we should not lose sight of what the world at large has to offer. Only with such breadth of mind and vision can we maintain our position as the best business platform for China and the rest of the world.

(Budget Speech by the Financial Secretary, Mr Henry Tang on 10 March 2004)

It may be correct to say with the economic opportunities in China, the relative importance of Putonghua and Modern Standard Chinese has been raised against English. While these two languages need to be strengthened at school, English is still irreplaceable if we want to maintain our position as 'the best business platform for China and the rest of the world'. Any language policy in Hong Kong which implies devaluation of one of these languages in favour of the other(s) is destined to be

unwise economically.

What about political concerns? Hong Kong is the link between the East and the West commercially and culturally, and Hong Kong has a well recognized political mission as a window of the East and West, assisting China to further progress and integrate to the modern world. Essential to Hong Kong's carrying out this task is, undoubtedly, a sound trilingual policy. This is especially true with the resumption of sovereignty by China, where the use of Chinese has become much more viable at all levels of the government and politics in Hong Kong. There is a good political reason for embracing the two written languages (i.e. MSC and English) and the three spoken languages (i.e. Cantonese, Putonghua and English) as the MOI in our education.

However, there is a familiar counter-argument made on the political grounds. Some ardent nationalists believe colonialism would be prolonged by the use of English. English used as the official language in the government and MOI at schools would allow 'colonial master' to weaken the thought of, and tighten control over, the 'colonial subjects' being ruled (No, 1996). The return of sovereignty of Hong Kong to China rationalizes the uprooting of English after 1997 according to the nationalists.

While such proposition may have some supporters with nationalistic minds, there is a big question mark hanging over whether uprooting of English is actually executable. To this, Macau's experience may shed some light. Like Hong Kong, the predominately Chinese speaking Macau was ceded to a European country, Portugal, by China more than a hundred years ago. The status of this East-west interflow is arranged largely the same way as Hong Kong's towards the end of the last century. She is Hong Kong's sister city which shares the same social and political concerns.

Teong (1993) talks about the use of the colonial language in Macau in the past and predicts its use after the handover in 1999. The prediction is still felt to be true at the time this thesis is written. As a colony of Portugal before 1999, Macau's official languages had been Portuguese as well as Chinese despite its overwhelming Chinese population who has only little command of the colonial language. There is a report produced by a Portuguese academic (Rosa, 1989) which argues favourably to the larger provision of Portuguese language courses for adults and school children. This somehow represents the colonial government's intention to do something to ensure their ties in South-east Asia after the handover.

This intention is destined to fail according to Teong (1993). She supports her view with the 'language realities' in Macau. Most of the private primary and secondary schools, the mainstream schools in Macau, aim at developing students' functionality in English instead of Portuguese in their foreign language learning despite the lack of government support. The study conducted by Ferreira (1992) also revealed the lack of interest of studying Portuguese at school, and that the school children have almost a united view about the importance of English and the lack of importance of Portuguese. Streetwise businessmen are reported by Teong (1993) to have been picking up English and Putonghua by themselves in an astonishing rate, too.

The very presence of the mother tongue policy shows that the colonial British Government is much less instrumental in preserving their heritage language to Hong Kong's majority after the handover. Interestingly enough, the cry for maintaining the English medium of instruction by the society at large is felt to be even stronger than the demand for adopting Chinese medium of instruction at school. Given the same

social and political concerns, what makes the language reality so different between the two sister cities? Obviously, it is the different socio-economic statuses between the two languages, English and Portuguese. This example shows that concerns of a language policy (and probably other policies too) are multi-dimensional. Effective execution of a policy is usually made with respect to more than one dimension. Ineffective execution of a policy is usually the opposite.

1.4.2 Social Dimensions

While economic and political dimensions may be the two top concerns of many, social concerns, typically striving for equality and fairness, are in fact as important in education. Because of its socio-economic status, English is closely associated with social mobility around the world. As an international hub of logistics and finance for decades, such phenomenon has been particularly obvious in Hong Kong. In order that social mobility is readily available, access to proper environment cultivating English competence should be present to each and every Hong Kong student.

It would be interesting to see how the rich and the poor cope with the switching to the Chinese MOI in the majority local secondary schools. For the more affluent children, they would probably be able to maintain access to English education. Just in case when they are denied access to the EMI schools, their parents could still ensure proper access to English education by means of hiring private English tutors, reserving places in prestigious but expensive international schools, and/or sending their children overseas where English is widely spoken. Children coming from the less affluent families, however, would not be as fortunate. Their access to English outside school is already limited. Failing to enter the EMI schools means being denied a proper environment for learning English, the language for social mobility. Not being

competent in English results in lack of social mobility, and lack of social mobility would keep those less affluent stay put. A vicious cycle may well be developed this way.

Another rising social concern is the immigrant children from China. At present, Hong Kong is receiving 150 immigrants from mainland China every day. Most of them are wives and children belonging to husbands who are Hong Kong residents. It is estimated that some additional five hundred thousand wives and children would be entitled to come to Hong Kong, if recognition is given to the status of these wives who are married by following traditional customs rather than official legal procedures in China. A large number of immigrant wives and children is no longer expected to come all at once as a result of a heavy handed interpretation of the right of abode made by the Standing Committee of the National People's Congress in 1999⁸. Nonetheless, the quota of 150 immigrants remains effective. The immigrant children, who may well outnumber children born and raised locally in the future, are an important consideration in the formulation of language policy in Hong Kong.

Culturally and linguistically speaking, these immigrant children are of no significant difference with their local counterparts. Nearly all of them come from the southern part of China, where Hong Kong also belongs, and speak Cantonese as their first language, though with a different accent in some cases. They even stand the advantage of having a better command in Putonghua. Socio-economically speaking, however, they tend to be at a disadvantage. The fact that most of these children belong to a lower class family is not difficult to understand considering that those who went

⁸ See the following link from the Hong Kong Government website for the background of the incident: <http://www.info.gov.hk/gia/general/199906/26/npc-e.htm>

back to China for marriage are typically the ones who are aged and/or with financial hardship. Lacking cultural and social capital, these children start at a disadvantaged position in social ladder advancement.

Obviously, helping them to assimilate into the mainstream of education and subsequently society serves them best for social advancement. This is especially the case when their generally low standard of English is considered. By giving these children a chance to learn English with their local counterparts, they could become equally competitive. Their participation in and contribution to the society would be greater. It is true that additional English language programmes were given since the 1997 Policy Address by the Chief Executive for meeting the initial difficulties of the immigrant children. But would it not be more effective if immigrant children, most of whom may not be able to enter EMI schools because of their generally lower level of English, are allowed greater exposure of English at school during the day?

Linguistic segregation exacerbates social inequality. From the sociological point of view, then, an MOI policy which embraces the valuable languages of social mobility such as English and Putonghua for all is more appropriate. From this, I will turn to the next section which aims to search for some possible models of medium of instruction for Hong Kong secondary schools.

1.5 Some possible models of MOI for HK secondary schools

The first most comprehensive report on the Hong Kong education system was written by Llewellyn et al. in 1982. It concerned with all major aspects such as the nine-year compulsory education, the quality of teachers and the role of examination. But what actually made this report the landmark one was its evaluation on the medium of

instruction in Hong Kong. During the time when Chinese (i.e. Cantonese) being used as the official medium of instruction at school was rare, they boldly said:

We accept as a fact that the mother tongue is, all other things being equal, the best medium of teaching and learning (p.21)

The report also gave considerations to the economic factors:

Hong Kong cannot afford to reduce the emphasis of English in its schools, especially since its neighbour China, has afforded the teaching of English a high education priority. This is especially the case as Hong Kong's future is clearly linked with China's. (p. 28)

It also advocated the introduction of Putonghua as an option, a politically sensitive but yet legitimate issue to consider.

In short, it was an ambitious proposal in language education prompting the need to emphasize two or even three languages in the curriculum, heading to a direction of biliteracy/trilingualism. The fact that such proposal has been commonly referred to and highly regarded by academics in the field after its publication 20 years ago⁹ shows the direction cast is of true weight.

The decision of how these few languages could be incorporated in the curriculum is, however, no easy task. When to introduce which language as the medium of instruction, and/or option; what criteria are being used there; how could the relatively 'laissez-faire' language policy existing in different schools come to be in line with the common direction consensus on which might not be achieved even given a few more

⁹ For example, see Lord (1987); Evans, Jones, Rusmin & Chueng (1998); Poon (2000)

decades. But if well-conceived decisions are to be made, one should study the options available first. Kwo (1987) gives seven possible models of medium of instruction for Hong Kong, some of which are suggested by herself and some others are quoted from others. They are briefly summarized below:

Summary of the possible models of MOI in Hong Kong

<i>Model</i>	<i>Description</i>	<i>Advantages</i>	<i>Disadvantages</i>
1. The current system (as in 1987)	Presence of both Chinese Medium and English Medium schools. The latter would continue to entail English, Cantonese and Mixed Codes for teachers' instructions.	A pragmatic compromise between parental demand and effective communication	Students may attain threshold level in English slowly if English is interspersed with Cantonese.
2. A bilingual-text approach	Textbooks are written in Chinese with English supplements on main points.	Students should be able to understand the text in English more easily with Chinese background.	The bilingual textbooks are neither the expertise of the publishers nor enough by themselves in promoting bilingualism.
3. A nine-year compulsory education in mother-tongue	All subjects shall be taught in Chinese/Cantonese from Form 1-3, and English from Form 4 onwards.	Students' intellectual development and verbal communication is likely to develop faster, enabling faster progress learning in L2 later. (See Siu, et al. ,1979 & Cummins, 1980)	The effect of loss of exposure to English can be detrimental. The elite schools of which the medium of instruction is English would also reject.
4. Revitalisation of Chinese and English-medium education	Strengthening Model 1 by incorporating English Proficiency Tests and bridging programmes at Form 1 for English Medium Schools. Model 2 would be adopted for Chinese Medium ones	Educational efficiency is maintained because only the fittest are taught in English.	Chinese Medium schools are likely to be downgraded.

5. Grouping by levels	More and more subjects are to be taught in English from Form 2 onwards. Recommended by Education Department in 1986	Genuine English medium-education and flexibility are present.	Principals might have to make decisions which they might lack the skills/information to do.
6. Grouping by subjects	Principals will decide which subjects to be taught in English throughout the curriculum. Also recommended by Education Department in 1986	A few subjects is easier to cope with for students.	Same as above. Also, a few subjects might not encourage effective learning of the language.
7. A Tripartite System	It embraces the existing Chinese-medium and English-medium. Teachers at Chinese Medium schools shall be trained to use the separation approach to bilingual teaching so as to offer students routes to change to English medium in Form 4. The proficiency tests, bridging programmes and bilingual texts aforementioned would be employed where appropriate	The usual practice of schools is positively modified and the separation approach ¹⁰ is proven to be effective (see Legaretta, 1979; Swain, 1986)	Doubts are still present for the reputation of Chinese-medium schools and the effectiveness of bridging courses. Training to be provided to teachers can also be costly

The Firm Guidance and Mother Tongue Education largely resemble Model 4, Revitalization of Chinese and English-medium education. Whether the educational efficiency is maintained because of the adoption of this model is not clear at the time this thesis is written. What is clear, however, is the presence of many disadvantages of such Model as the downgrading of the CMI schools and the degenerating standard of

¹⁰ Separation Approach usually works on the basis of 4 criteria: Topic, Person, Time and Place (Jacobson, 1990). Separation approach that is proved effective by Legaretta (1979) is separation by time, where L1 (Spanish) is used as the MOI in the morning and L2 (English) in the afternoon.

English there since the adoption in 1998¹¹.

While Kwo stressed that each possible model outlined will unavoidably have their own strengths and shortcomings, her preference towards models presented later (i.e. Models 5, 6 & 7) has already been implicitly stated in her article. It is therefore fair to say Kwo is a proponent of bilingual teaching, seeing that the models she prefers are all representatives of bilingual teaching. The differences among those models are just the matter of degree only.

Some educationalists seem to be even more stern believers than the Hong Kong government in mother tongue education. While their beliefs are mostly heard over the news report on TV or seminars organized by government or teachers' unions, an article representative of this stream of thought is found in a semi-academic book called '姨媽姑爹論盡教改', which can be translated as 'Aunties and Uncles Speaking on Educational Reform'. In the article '怎樣學好兩文三語 - 母語、廣用語文和語文教育' (translated as 'How to learn the two languages and three dialects well – Mother tongue, Widely Used Languages and Language Education'), Luk (2002) maintains that using a second or third language as the MOI at secondary level will hit hard on teenagers' mental development which has been built with mother tongue. Even those who manage to get on with a curriculum conducted in a L2 still lose the benefit of developing themselves fullest using their mother tongue. The best solution, as Luk claims, would be to keep the mother tongue education for all students throughout secondary education and raise the number of L2 (English) as well L3 (Putonghua)

¹¹ As mentioned in footnote 6, the first CMI cohort broke the record low of 40% passing rate compared to the usual 60 something percent. This forces the management to advise the bottom 25% of the second CMI cohort (1999-2004) to take Syllabus A examination in English language in 2004, which is considerably easier than the ordinary Syllabus B examination, in bid of saving the overall passing rate of English.

lessons in the curriculum. This rhetoric is reminiscent of what was imposed by the government in the Firm Guidance in 1998 and the viewpoints made by some educationalists over and over again in local news media.

While it is logically possible that non-mother tongue education can adversely affect youngsters' mental development, the claim is lacking support empirically. Examples include studies by Goncz and Kodzopeljic (1991) (See Section 2.1.2) in Europe and Cummins and Swain (1985) in North America.

When it comes to the possibility that the English standard can be retained in mother tongue education, I would quote the past experiences from a few Asian countries for illustration. Malaysia is the first. The degenerating standard of English resulted because of the shift of the MOI from English to Malay in early 1970s is the experience of Malaysia (See Appendix A). The need to upgrade the proficiency of English for national development has been felt increasingly apparent (Ozog, 1993). Faced with severe competition for business, the prime minister of Malaysia, Mahathir, finally started to lead a government-wide publicity effort to promote English despite his ardent nationalism since 1991 (Branegan, 1991). Equally worth recalling is the fact that Asian countries such as Taiwan and Japan whose MOI is not English generally has a lower standard in English than Hong Kong (Luke and Richards, 1982). The unsatisfactory results of the first batch of CMI graduates in my school, despite having received extra lessons taught by the NETs, shall not be forgotten too. Hong Kong simply does not have a god-given right to be the exception in the fall of her standard in L2 once mother-tongue education is adopted.

As the chapter is drawing to an end, I would like to make a short summary. In this

chapter, the background of the ‘mother tongue education’ is first presented followed by critiques made on linguistic, economic, political and social grounds. Some possible models of medium of instruction have been cited and discussed based on the needs of Hong Kong and Hong Kong students. On the other hand, it has been recognized that an effective MOI policy must go beyond a discussion of the model of bilingual education and may incorporate, among others, sound methodology of the medium of instruction. To this end, I will turn to Chapter Two ‘Review of Literature: Methodology of Medium of Instruction’.

2. Review of Literature: Methodology of Medium of Instruction

I find it convenient to divide the study of the medium of instruction into macro issues and micro issues, corresponding to the study of the subject at the policy level and pedagogical/classroom level respectively. Though innovations to be implemented and tested in this thesis will entirely concern the latter given my present capacity, both macro and micro issues of MOI are indeed interconnected. Mature discussion cannot afford neglecting either.

2.1 Macro Issues of the Medium of Instruction

Around the world different models of bilingual education are present. Through discussing the different options available and the evaluations of them, local policy makers may be able to formulate more knowledgeable plans in MOI matters.

2.1.1 Possible Models of Bilingual Education

The inadequacy of the Firm Guidance in meeting its proclaimed aims and the needs of the immigrant children as discussed requires a refined language policy in Hong Kong. Bi-literacy and tri-lingualism, despite its rigorous ambition especially in times of

degenerating standard in competence in language, is nevertheless a legitimate demand when the needs of both the individuals and the society of Hong Kong are considered. What is needed is a framework which outlines the possible options of bilingual education. The Typology of Bilingual Education written by Baker (2001) is relevant here. An extract is as follows:

Typology of Bilingual Education			
WEAK FORMS OF EDUCATION FOR BILINGUALISM			
Type of Program	Typical Type of Child	Language of the Classroom	Aim in Language Outcomes
1. SUBMERSION (Structured Immersion)	Language Minority	Majority Language	Monolingualism
2. SUBMERSION with Withdrawal Classes/Sheltered English	Language Minority	Majority Language with 'Pull-out' L2 Lessons	Monolingualism
3. SEGREGATIONIST	Language Minority	Minority Language (forced, no choice)	Monolingualism
4. TRANSITIONAL	Language Minority	Moves from Minority to Majority Language	Relative Monolingualism
5. MAINSTREAM with Foreign Language Teaching	Language Majority	Majority Language with L2/FL Lessons	Limited Bilingualism
6. SEPARATIST	Language Minority	Minority Language (out of choice)	Limited Bilingualism
STRONG FORMS OF EDUCATION FOR BILINGUALISM AND BILITERACY			
Type of Program	Typical Type of Child	Language of the Classroom	Aim in Language Outcomes
7. IMMERSION	Language Majority	Bilingual with Initial Emphasis on L2	Bilingualism and Biliteracy
8. MAINTENANCE/HERITAGE LANGUAGE	Language Minority	Bilingual with Initial Emphasis on L1	Bilingualism and Biliteracy
9. TWO-WAY/DUAL LANGUAGE	Mixed Language Minority & Majority	Minority and Majority	Bilingualism and Biliteracy
10. MAINSTREAM BILINGUAL	Language Majority	Two Majority	Bilingualism and

		Languages	Biliteracy
Notes: L2 = Second Language; L1 = First Language; FL = Foreign Language			

Baker (1995:153)

The labels of ‘weak forms of education’ and ‘strong forms of education’ for bilingualism perhaps needs further clarification. Whether a certain form of bilingual education is labeled ‘weak’ or ‘strong’ shall be decided by the extent to which bilingualism is promoted. This is also shown in the last column titled ‘Aim in Language Outcome’.

Baker admits that there are occasionally cases of bilingual education which do not fit easily in the categorization, and sub-varieties of each type of program defined are present. The story between the language minority/majority for the typical type of child in the second column and the minority/majority language in the third is also more complicated in Hong Kong. While children speaking Cantonese are considered ‘Language Majority’ at school, it may not be right to suggest Cantonese is the ‘Majority Language’. This is so because Cantonese does not have as much socio-economic status as English in Hong Kong, which Baker’s Typology has implicitly stated. All these, however, are only minor considerations when a general picture is being sought and a more careful reading done.

In the field of bilingualism, similar or different terms may be used by different academics to refer to essentially the same program. For example, Howard, Olague and Rogers (2003) use the term ‘dual language programs’ to refer to what are termed ‘strong forms of education for bilingualism and biliteracy’ by Baker. Here is a comparison between the two:

	‘Strong Forms of Education for Bilingualism and Biliteracy’ coined by Baker (1995)		‘Dual Language Programs’ coined by Howard, Olague and Rogers (2003)
1.	IMMERSION	=	Foreign/Second Language Immersion
2.	MAINTENANCE/HERITAGE LANGUAGE	=	Heritage Language Immersion
3.	TWO-WAY/DUAL LANGUAGE	=	Two-Way Immersion
4.	MAINSTREAM BILINGUAL	=	Developmental Bilingual

Nevertheless, for simplicity’s sake, the discussion of possible models of bilingual education in the following will stick to Baker’s typology.

From the typology, relevant to the general situation of bilingual education are Mainstream with Foreign Language Teaching (#5), Immersion (#7) as well as Submersion (#1). Let’s talk about Mainstream with Foreign Language Teaching first. Baker recounts that the problem of Mainstream with Foreign Language Teaching is its high failure rate. Five to twelve years’ second language learning on the basis of half an hour per day has consistently failed to produce functionally fluent L2 students in many countries such as US, Britain and Canada. A rare exception to this is the typically motivated Scandinavian students learning English as the trading language. Elsewhere, this weak form of bilingual education almost always results in limited fluency.

The concept of immersion bilingual education (#7) derives from the successful Canadian educational experiments since 1960s. The experiments will be discussed in more details later in this section. What shall be mentioned here, however, is that those successful experiments were mostly done at kindergarten or primary school level, which can be termed ‘early immersion’ and ‘delayed or middle immersion’

respectively according to Baker. As for the late immersion, where students receive immersion education at secondary level, the result is mixed. There are occasions where an immersion group's performance in Science and Mathematics was inferior to its counterparts in ordinary program if they received their L2 only one or two grades prior to entering the immersion program (Barik et al., 1976). But empirical support does exist that immersion group's performance was comparable to its ordinary counterparts if they received their L2 each year prior to entry of the immersion program (Barik et al., 1976; Genesee et al., 1977)

Speaking of Submersion Education (#1), Baker provides the analogy of a swimming pool packed with beginner students who either sink, struggle or swim. A classic example is the Spanish children (Language Minority) enrolled in US public schools where English (Majority Language) is the MOI. While some students will eventually make it, many are deemed to experience hardship and suffer emotionally (See McKay, 1988; Skutnabb-Kangas, 1981).

It is easy to see the connection between CMI schools and the Mainstream with Foreign Language Teaching program, where proficiency of the L2 is expected to be minimal. One would ponder if Hong Kong can be an exception to the majority failing cases like Scandinavia. While English the prestigious language is commonly taught, there, however, has long been a presence of quality English teaching in Scandinavian countries (Cabau-Lampa, 1999)¹². One would be doubtful if that is the case in Hong

¹² Some, however, have reservations over the quality of English teaching in one of the Scandinavian countries, Norway. The phenomenon of unqualified teachers teaching English is widespread. The overall better oral comprehension and reading among Norweign students also may cover up the fact that they are not as good in using English for academic purpose, and there is a significant spread of proficiency. For details, refer to the 'Language Education Policy Profile - Norway' and 'Country Report – Norway' on the Council of Europe website www.coe.int/lang.

Kong (see for example Chan, Hoare and Johnson 1997).

I see the EMI schools in Hong Kong belonging to the late immersion but arguably carrying some flavors of submersion. Let's talk about the flavors of submersion first. Recalling the characteristics of submersion education, it is the minority students entering into the mainstream education conducted in the majority language. True that most if not all of the Hong Kong students are sharing the same mother tongue i.e. Cantonese. And that English, the classroom language, is simply not the majority language in Hong Kong. But the very basic concept operating behind, that L2 must be used exclusively as the MOI in content subjects, otherwise punishment will be directed to students and/or teachers, is, as specified in the Firm Guidance, securely in place. This is the common point between submersion education and the language policy imposed on the EMI schools.

On the whole, however, it would still be more appropriate to call EMI schools running on a late immersion education. First, the official aim proclaimed is bilingualism instead of monolingualism; the undertaking is also about learning a prestigious language in a majority situation instead of spoon-feeding a majority language to a minority group.

Large scale research studies regarding late immersion are mostly foreign and not modern like Barik et al. and Genesee et al. as aforementioned. The precious one which is extensive, local and recent is Hau et al. (2000). While being able to gather support of EMI schools' greater conduciveness in L2 as well as L1 achievement over their CMI counterparts, Hau et al. find it does not go without cost. They find students educated in the late immersion model in Hong Kong, unlike those of Genesee et al. in

Canada, seriously deficient in content knowledge. This makes them ask if the whole undertaking is worthwhile after all. More discussions of Hau et al. will be made in Section 2.1.3 'Concerns at Curriculum Level', Section 4.2 'The Evaluation of Bilingual Program' and Chapter 6 'Analysis of Data'.

Under the arrangement of using a L2 as the MOI, loss of content knowledge is one matter. Some of the more promising ways of getting the content knowledge across to the students will be discussed in Section 2.2.2 'Medium of Instruction at Print Level' later. Another matter is the linguistic benefits gained at the societal level. Despite the apparent linguistic benefits gained by a quarter of local schools which are EMI, there is only limited bilingualism at best promoted in the society of Hong Kong as a whole.

Recalling the official aim of 'Bi-literacy and Tri-lingualism' of Hong Kong, obviously then, Chinese, English and Putonghua need to be mingled in the curriculum in a more elaborative and sophisticated way for all. While the subject of Putonghua will be left behind here given the scope of this thesis, review of the stronger forms of bilingual education where proficiency of Chinese and English could be more promisingly developed is helpful. Following the footsteps of Baker's typology, the Immersion program (#7) and Mainstream Bilingual Program (#10) will be immediately discussed. The Two-way/Dual Language program (#9) will be discussed too, but in section 2.2.1.2 'The New Concurrent Approach (NCA)' for its primary focus on MOI at oral level. The Maintenance/Heritage Language program (#8), whose aim is to preserve students' endangered L1, will not be discussed since it is not so relevant to the Hong Kong situation.

2.1.1.1 Immersion Program

Baker's (2001) description of an immersion program is largely based on two successful programs in two Anglophone countries which took place back in 1960s. The first one was initiated in Wales, U. K. This program, later known as the 'Schools Council Bilingual Education Project' in the mid 1970s, strived to promote bilingualism of Welsh the second language (L2) and English the first language (L1) among Anglophone students through the establishment of bilingual schools specifically for them. The curriculum of those schools required systematic use of Welsh the L2 as a 'part-time' MOI in infant and junior schools. The term 'part-time' meant that Welsh would be used during play activity and as the MOI for some non-language subjects which made up to half of the curriculum.

Academics are affirmative of the value of the project. Students' Welsh proficiency was observed to be significantly higher than their counterparts in conventional programs (Price, 1978; Dodson, 1985). Having gained a better proficiency, many graduates of the program subsequently entered into the Welsh medium secondary schools for formal education.

Canada is another Anglophone country which recorded an early success in bilingual immersion program. A longitudinal five-year study of the Early French Immersion program whose subjects were English-speaking children learning French the L2 was initiated in 1965. The program required using French exclusively as the MOI from kindergarten to first grade for those children. From grades two to four, the program continued to be conducted in French immersion fashion except for the two half-hour daily periods of English language arts. Towards the end the academic achievements of those children were compared to some others on the conventional programs.

The conclusions drawn by Lambert and Tucker (1972) were again encouraging. They concluded that those English-speaking children acquired competence in the four skills of French that students from conventional French as a L2 program for the same duration could not match. More importantly, the gain of L2 competence did not come with any negative educational outcomes which had been worried about by some skeptics.

The program, also known as St. Lambert model, inspired a number of similar research projects with variations in, for instance, students' grade level and socio-economic background in North America. Their results were similarly encouraging (Swain, 1981; Cummins and Swain, 1985).

To explain the phenomenon of immersion program, the theory proposed by Dodson (1967), which was also the guiding theory of the Schools Council Bilingual Education Project in Wales may shed some light. Dodson sees there are two different types of communication: medium-orientated communication and message-orientated communication. In the medium-orientated communication, learners of the target language would focus on the medium where communication is conducted, i.e. the target language itself. In message-orientated communication, learners' attention would focus more on communicating messages. This would allow the language being used to become a meaningful tool for communication. As a result, learning of the target language could be made more effective. Dodson's theory possibly inspired Krashen to develop his famous 'Five Hypotheses' regarding language learning, which is also supportive of the idea of content-based instruction for promoting L2 proficiency. Given this, Krashen's hypothesis and content-based instruction will be reiterated in greater depth in Section 2.2.2 and Section 2.1.3 respectively later.

Having discussed some illustrative examples of immersion program, it is time to consider another possibility – the mainstream bilingual program.

2.1.1.2 Mainstream Bilingual Program

Traditionally, the effectiveness of a bilingual program is measured by students' target language proficiency. This is, however, not necessarily the sole measure. The 'German Model' as an example of the Mainstream Bilingual program is the case. First evolved in 1960s in Germany, Masch (1992) has been actively involved in it from the 80s onwards. There were over 50 secondary schools where roughly a quarter of their classes running on the Model as in 1992. Here is its primary goal:

The type of bilingual education provided is aimed at inculcating the language of the immediate neighbour as a language of partner; as such this goes far beyond using language as a mere means of communication, or 'lingua franca'.

This is also the spirit in which Europe should aim towards further integration...The schools involved see themselves as 'Schools for Europe' with a broader European philosophy.

(1992:156)

What matters in the German Model is the understanding of a foreign culture and language with an aim for European integration, instead of simply acquiring a second language for communication.

There are two types of the German Model, namely the 'Additive Type' and the 'Integrative Type', the latter considered to be more successful and desirable based on actual practice. This Integrative type of German Model involves a French speaking teacher teaching both French the target language and the bilingual social science

subjects like Geography and History. About one to two additional lessons per week are allocated either to French or the content subjects from Grades 5 to 7. From Grade 8 onwards the number of lessons in the German Model is largely the same as the ordinary German curriculum.

The choice of the subjects to be taught bilingually reflect the Model's unique goal:

- (1) If in bilingual education the second language is to be understood as the partner language, then these subjects have a particular significance, given their affinity with the partner culture. Natural science subjects have no significant relationship with the culture of the partner country.
- (2) Specialised social science language is covered to a far greater extent by general language than is the case with the natural sciences. (p. 162)

It is clear that its preference over social science subjects is truly reflective of its development of 'bicultural competence' among participating students.

In the same volume, Drexel-Andrieu (1992) sheds light as a front-line teacher on what pedagogical arrangements have been made to ensure successful delivery of the Geography lessons in the Model. Here is a brief summary:

- Gather as many and varied materials containing geographical information (e.g. a contemporary cartoon about the European Community) as the teaching materials for raising students' motivation
- Adapt written materials to suit students' level
- Put strong focus on the teaching and learning of the technical terms. This can be realized by giving bilingual vocabulary list after each lesson and

vocabulary games played occasionally.

- Design assignment and assessment accordingly. Sentence making exercises on vocabulary taught are done regularly, and marks shall be given on tests/ examinations once the vocabulary items in the target language are used correctly.
- Allow students to do written works and presentations in German the mother tongue. Only when the vocabulary items are called for that they would express them in the target language. The production tasks can be delayed until higher forms where students are more capable in the target language and geared for the national bilingual examination.

The German Model obviously places priority on the balance between acquisition of content knowledge and second language. Unlike Hong Kong, mixed code is present in the production tasks in German Model, which however is not viewed as a problem. This is perhaps rational considering its aim of achieving 'bi-cultural competence' instead of 'bilingual competence'. Both Drexel-Andrieu and Masch conclude the Model has been effective in achieving its goal based on students' achievement at school and on the public examinations.

Within the European communities the fast-growing interest and activities in multi-lingualism/multi-culturalism has generated a new approach called CLIL, namely Content and Language Integrated Learning. While the term is generally equivalent to bilingual and immersion education, CLIL, like its counterpart the German Model, has a broader aim than simply gaining proficiency of a second language – 'to provide learning outcomes in the L2 which exceed the standard curriculum' (Masih, 1999: 8). This can be realized by giving equal attention to, for

example, culture and learning dimensions. An organization called CLIL where its name reflects its aim was set up and supported by the European Commission since the mid 90s. It produces books of practice of CLIL by front-line practitioners, holds conferences on the subject and runs e-journals and bulletin boards so that timely sharing of CLIL experience is possible.

So far, a number of bilingual programs have been discussed, which are ‘Schools Council Bilingual Project’ in Wales, the ‘St Lambert Model’ in Canada, and the ‘German Model’ in Germany. What can be learnt from these three bilingual programs? Obviously, it is that a bilingual medium of instruction in Hong Kong schools is worthy of consideration. If a good command of both L1 and L2 is sought after, then L2 should start as early as possible, preferably from kindergarten as both the Welsh and Canadian experiences show. The Schools Council Bilingual Project in Wales suggests that success of bilingualism in Hong Kong is likely to come when English the target language and Chinese the first language each contributes half of the curriculum. The Welsh success was based on the fact that the L2 was used as the MOI for play activity and peripheral subjects, and L1 for the remaining subjects. Of course, there is room for adjustment and re-consideration whether such division of labour can be modified to suit Hong Kong’s situation better. This will be discussed in greater details in Section 2.1.3 ‘Concerns at Curriculum Level’.

There is also a practical point to be learnt from the German Model. Though designed for maximizing bi-cultural proficiency instead of bi-lingual proficiency, the German Model’s pedagogical arrangement and its assertion that productive skills need not be pushed until students’ linguistic capacity is more ready for doing so should be taken into consideration, too.

It should be noted that the success of the examples quoted, however, should not be accepted without caution - there are likely to be more factors at work than the bilingual medium of instruction itself. For example, to explain why the students have acquired better Welsh proficiency in the Schools Council Bilingual Project, So (1987) points out the amount of time the students spent on the second language tasks is much greater than their counterparts in the conventional programmes. He also points out many favorable conditions of teaching and learning a second language were present for the St. Lambert model. For instance, voluntary participation with parental support; well trained teachers and effective teaching guidelines present.

The German Model also shows a similar favorable tendency. Students enrolled in the bilingual sections have all been doing well academically before (Masch, 1993). From the pedagogical arrangement outlined by Drexel-Andrieu (1992), one can easily guess teachers involved in the Model tend to be more motivated and dedicated. As for CLIL, European interest in it can be explained not only by economic, but also political considerations – stability among European countries can be greatly enhanced with its success. Thence comes the great support of the European Commission.

One more caution deserving attention is the fact that all successful programs mentioned deal with languages of the same family and with the same writing system. This is different from the situation of Hong Kong, where English and Chinese are in fact linguistically remote to each other. It is true that there is some evidence that dual language programs dealing with languages of different linguistic families, for example Korean and English, can be as successful (Lindholm-Leary, 2004). But the evidence is relatively scarce in terms of scope; dual language programs, though a strong form of

bilingual program, are also different from immersion programs and mainstream bilingual programs in a number of ways. Hence, transfer of ideas as such shall take great care.

While favorable elements contributing to the success of the examples discussed may not be so easily replicated, those examples do show one common point. That is, bilingual proficiency can be cultivated through some forms of bilingual programs that concern not only the way bilingualism is promoted inside school, but also how the other related factors such as parents and politics can be made convivial with the bilingual objective being pursued. This, in a way, reconfirms my belief already presented in Chapter 1, that any sensible proposal for achieving bilingualism shall in fact concern more than just the MOI itself.

Bilingualism promotes linguistic achievement. Surprisingly, it also benefits cognitive development of children and even sustains cognitive control of elderly. This will be elaborated in the next section.

2.1.2 Cognitive Advantages of Bilingualism

In addition to better linguistic achievement, cognitive advantage has been shown associated with bilingual experience. This is especially true for the one gained in early age. Ricciradelli (1989) tries to ascertain the cognitive effects of bilingualism on developing children in Australia (n=57) and Rome, Italy (n=35). The bilingual children are both proficient in Italian and English at a level appropriate to their age. Tests on creative thinking (the Torrance Fluency and Imagination measures) and metalinguistic awareness (Word Order Correction) are administered. The performances of these bilingual children are then compared to those of little or no

bilingual experiences having controlled statistically the differences of their background. The bilingual children in both places are proved to have performed significantly better in the tests.

Another research conducted in a non-Anglophone country provides further proof of the cognitive advantages of early bilingual immersion. Goncz and Kodzopeljic (1991) compared five groups of children in Vojvodina in former Yugoslavia. Each group consists of 20 to 22 five and six years old children. They range from no bilingual proficiency/experience at all, to some bilingual proficiency/experience either gained through second language immersion at school or exposure in the community. For those with bilingual proficiency/experience, they speak either Serbo-Croatian or Hungarian as their L1, and use English, French or Serbo-Croatian as their L2. Again background variables such as socio-economic status and sex are statistically controlled. Their performances on metalinguistic tasks have been shown significantly better than those without. A further follow-up study was done when those bilingual children (n=50) enter grade 1. Their teachers find them having developed better skills in cognitive functions essential for early reading than those whose backgrounds are monolingual (n=30). Goncz and Kodzopeljic conclude early bilingual experiences have favorable effects on children's cognition.

However, some studies which dispute the advantages of early bilingual experience do exist (e.g. Macnamara, 1966; Rosenblum & Pinker, 1983). Their stance, some of which are based on empirical studies, is that early bilingual experience do not necessarily lead to cognitive advantage. Bialystok et al. (2004) review carefully the disparate results and identify two kinds of cognitive processing which have been commonly used as yardsticks for measuring cognitive achievement, namely

‘controlled processing’ and ‘representational processing’. Here are some of the functions associated with the two kinds of process:

Some functions associated with Controlled Processing and Representational Processing

Controlled processing	Representational processing
Selective attention to relevant aspects of a problem	Encoding problems in sufficient details
Inhibition of attention to misleading information	Accessing relevant knowledge
Switching between competing alternatives	Making logical inferences about relational information

(Extracted from Bialystok et al. 2004:291)

Attempting to reconcile the difference, Bialystok et al. maintain that from this review, it is true that representational processing is usually comparable between monolingual and bilingual children. Nonetheless, bilingual children do perform better in controlled processing than their monolingual counterparts (See also Bialystok, 1993 and Bialystok, 2001).

In addition to the study of the advantage of early bilingual experience, Bialystok et al. (2004) are also interested in whether the favourable effects of controlled processing would be more easily sustained in middle-aged and older bilingual adults than their monolingual counterparts. They administered an experiment utilizing a tool called ‘Simon Task’, which is a task based on stimulus-response compatibility and gauges the extent to which participants’ response to task-relevant information is affected by the irrelevant one. This would allow them to measure how well bilinguals and monolinguals perform in controlled processing respectively.

Compared to their monolingual counterparts, bilingual adults, both middle-aged or older, perform significantly better in the Task. Two conclusions made by Bialystok et al. are as follows. First, there is evidence showing controlled processing is indeed sustained in middle-aged and older bilingual adults. Second, given that controlled processing is known to be degenerating as one ages, bilingualism can effectively attenuate the decline of what occurs with normal cognitive aging.

There is yet another way of looking at bilingualism from a more holistic angle, which is from the perspective of curriculum. I shall talk about the concerns from this angle first before coming up with a final point of view regarding the choice of MOI in content subjects in this macro analysis.

2.1.3 Concerns at Curriculum Level

One of the contributions in the heated debate between Chinese medium instruction and English medium instruction is perhaps the generation of abundant arguments for and against each side which, ironically enough, equips armchair speculators well to take either side at ease. But as to the question whether such debate has in any way contributed to students' better learning of the language and the content subjects, there is a big question mark hanging over. Is there more to offer based on the actual practice instead of the dualistic argument? Christian et al. (1990) and Met (1998), believers in the value of content area instruction in promoting L2 proficiency, have some advice. But a discussion of the works by Jim Cummins, upon which their beliefs largely rest, is necessary.

Cummins (1981) see the ultimate goal of any ESL students in immersion setting (like the ones in Hong Kong) is the achievement of two kinds of proficiency, namely the

‘Basic Interpersonal Communication Skills’ (BICS) and ‘Cognitive Academic Language Proficiency’ (CALP). While BICS are arguably easier to acquire, CALP generally takes five to seven more years to develop.

The distinction between BICS and CALP is not without critiques. For example, it has been criticized as an autonomous perspective on language which has not given enough consideration to subtleties in sociolinguistic interaction (Edelsky et al., 1983; Wiley, 1996). Martin-Jones and Romaine (1986) also criticizes its interpretation of academic failure due to academic and/or linguistic deficit instead of inappropriate schooling. On the other hand, Garcia (quoted in Cummins, 1999) queries the supposedly absolute order of BICS and CALP. Scientists learning to read journal articles written in a L2 or L3 without being able to say a word in the target language is a clear proof of its fallacy. He worries such an order would lead to valuable time being lost among L2 learners.

In response to the ignorance of sociolinguistic subtleties and promotion of a deficit theory, Cummins (1999) gives an interesting and thought-provoking analogy:

The usefulness of any theoretical construct should be assessed in relation to the issues that it attempts to address, not in relation to issues that it makes no claim to address...{It}is like saying: "This apple is no good because it doesn't taste like an orange."

(p.4)

As for Garcia's query, Cummins maintains such an order is only applicable to immigrant children trying to learn a L2. It is not meant to generalize for all situations of L2 learning. The point is that there are in fact two constructs in (second) language

acquisition, which are found in linguistic reality (see also Biber, 1986 and Corson, 1995) and have significant pedagogical implications.

Based on Cummins' as well as Krashen's & Terrell's idea which will be presented in Section 2.2.2, Christian et al. develop trust in content-based instruction, where presence of meaningful input will be greatly facilitative to L2 learning. In addition, five to seven years of development of CALP is a heavy and long term 'investment'. Naturally, Christian et al. call for collaboration between language subjects and content subjects (See Met, 1998 for a similar view). This would best be taken in the form of integration. Two general directions regarding this are:

- 1) Content material is incorporated into language classes (i.e. Content-based ESL class)
- 2) Accommodation is made for the students' limited language proficiency in content classes (i.e. Language-sensitive content class, or 'Sheltered' content instruction).

Examples for how lessons in either direction might be conducted are detailed in their article. As a reasonably experienced front-line teacher, I find those examples given feasible and practical enough in addressing the need to secure students' long-term investment for CALP effectively. The examples mentioned are also reminiscent of what is proposed in curriculum improvement, which emphasizes the importance of integration and is a big issue in education nowadays.

Like Christian et al., Met's conviction (1998) in content-based instruction is also rooted in a great deal of research studies which she mentioned in her article. By

observation, she noted there are a number of different kinds of content-based language teaching which she neatly summarizes in a continuum as follows:

Content-driven			Language-driven		
			Language		
			Subject	Language	classes with
			courses plus	classes	frequent use
			language	based on	of content
Total	Partial	Subject	classes/	thematic	for language
immersion	immersion	courses	instruction	units	practice

Content-based language teaching: A continuum of content and language integration

(Met 1998: 41)

The guiding criterion on the continuum is whether the programme of concern is content-driven or language-driven. Content-driven programmes like immersion program models are defined to be having at least half of the curriculum where subjects are taught in target language. As for the language-driven programs, content subject matter is absorbed in the language lessons in a way communication of the matter is effectively enhanced.

Being descriptive of different kinds of content-based teaching, Met’s continuum can cater for the discussions regarding Christian et al. and Kwo made earlier. For example, the two directions identified by Christian et al., namely Content-based ESL class and Language-sensitive content class, will sit comfortably towards the right end of the

continuum. On the other hand, among the possible models given by Kwo as presented in Section 1.5, Models 5 and 6, Grouping by levels/subjects for instance, would correspond to 'Subject courses plus language classes/instruction' in the case of Hong Kong, which is in the middle of the continuum.

The rationale of content-based instruction, as Met puts it, has been helped by constructivist theory¹³, which is essentially holistically oriented and meaning-based. Empirical evidence shows information is stored as networks in the human brain (Caine & Caine, 1991). Learning will become much deeper and more powerful if connections are present among different items and concepts taught. This corresponds to the integrated nature of content-based instruction.

Relevant to my discussion here is Met's (1998) discussion of the selection criteria of which subject to teach in the target language and how it could be delivered effectively with reference to the continuum. In content-driven programs where selection of content is a straightforward matter, issues that curriculum designers would be interested in may be whether students in the program have sufficient linguistic proficiency to carry on; whether the course content offers adequate exposure to different language skills to address students' communicative needs; and what possible remedies could be done if the answers of the previous two questions are negative.

Language-driven programs, where choice of content is open, offer more challenge to curriculum designers. In addition to the issues arising in the content-based programs, they need to justify how the content selected would fit to students' linguistic level,

¹³ Constructivism also guides much of the development of qualitative research, which is discussed in Chapter 3 Research Methodology as well.

cognitive maturity and/or knowledge in other subjects. There has always been an illusion that since social science subjects offer a wider range of language functions and vocabulary than hard science subjects, they should be taken for the programme irrespective to the issues aforementioned. Met rightly points out what has been commonly neglected is that the proficiency needed for accessing the concepts presented in depth can be far beyond that of many students. For students of intermediate level or below in the target language, content that is conducive to concrete experience is in fact better. Visuals and hands-on experience of measurement and/or experiment, for example, provide adequate contextual clues which make input more comprehensible. That is why hard science subjects would be the better choice for limited English proficiency (LEP) students despite their narrower range of language in Met's view.

It is worth pointing out the intriguing difference in opinions regarding the choice of bilingual content subjects between Met and the German Model explained by Masch earlier. While the former aims at bilingual competence, the latter is concerned more with bicultural competence. It is this difference which brings them to the recommendation of hard science subjects and social science subjects being taught in the L2 respectively. However, recalling Hong Kong's official language policy of 'Biliteracy and Trilingualism', which stresses on linguistic instead of cultural proficiency, Met's proposal is felt to be more relevant.

Hau et al.'s (2000) findings on the effects of L2 and L1 instruction in the linguistic and content achievement of Hong Kong students may further persuade one to think twice for providing total L2 immersion at school. It is true that the EMI schools in Hong Kong largely resemble the model of late immersion of L2. With the

participation of over 12000 junior form students and the duration of over a number of years, Hau et al. find that except for the elite group, students of average or poor level are highly disadvantaged in the learning of content subjects with L2 instruction compared to their CMI counterparts where L1 instruction was offered. They compare this result with the ones related to the 'St Lambert Model' in Canada aforementioned in Section 2.1.1.1, and draw the following conclusions:

1. While early immersion is effective in Canada, late immersion, at least in Hong Kong, does not show comparable results.
2. Lambert's (1992) conclusion about the positive effects of L2 instruction on school subjects is not valid, again at least in Hong Kong.
3. While not intending to reject Cummins's model of Language Interdependence Hypothesis, the researchers feel that the higher threshold necessary for gaining benefits from L2 instruction of the content subjects may be much higher than what may commonly be thought of.

Despite showing the negative effect on content knowledge, the report is affirmative of the favourable effect on students' achievement in their L2 and, surprisingly, their L1 as well, in total immersion.

What is the answer? According to Hau et al., Hong Kong students can either start their L2 immersion much earlier just like their Canadian counterparts, or they should be given a sufficiently long transition period so that appropriate level in L2 is reached prior to total immersion. My opinion is that neither is feasible. The first choice entails raising huge salary of kindergarten teachers so that university graduates with better English would consider joining the profession, which at present is only joined by

Form 5 or Form 7 graduates with dismal examination results. This is a financial commitment way beyond what the Hong Kong government is ready to afford. The second choice is essentially the same argument used by the Education and Manpower Bureau, which has been proved to be doing the students disservice economically, politically and socially as discussed in Section 1.4. A true way out has yet to come.

Hau et al. remind us how tremendously LEPs could have suffered in Hong Kong in the loss of content knowledge if total L2 immersion had been adopted for all. Met's view that social science subjects may be too hard for LEPs in the content-based program is essentially an echo of Hau et al.'s. But different from Hau et al.'s, Met provides us with more choices in her continuum on content-based language teaching presented earlier. If not total immersion, then what about partial immersion? Given the need to maintain an adequate standard in L2, more exposure than at present is definitely necessary for the majority Hong Kong students studying in CMI schools. The partial immersion, placed next to the total immersion in the continuum, needs therefore to be considered.

If partial immersion is adopted in the local secondary schools, what forms and subjects should be involved? Compared to the senior forms, junior forms (i.e. forms 1-3) could more easily be involved for adopting partial immersion because the ethos of examination preparation is less strong. It is obvious that the pressure could be too heavy for a school to shoulder if it fails to keep its standard on the public examinations because partial L2 immersion is adopted in some of its examination subjects.

Regarding the subjects to be involved, Met's suggestion of Mathematics and

Integrated Science should be taken since it is quite true that the majority students in CMI schools are LEPs. What is worth mentioning further, however, is that there is an additional practical reason for such choice: there is a tendency for some local secondary schools, mine included, to change their MOI back to English from Form 4 onwards for science subjects in the hope to prepare their students for entering local tertiary institutions, where English textbooks are customarily used. Mathematics and Integrated Science are therefore desirable choices.

While massive adoption of the social science subjects in partial immersion would be unwise as Met points out, their fairly rich content and relevance to students' daily life does warrant a try if it is done more carefully. Economic and Public Affairs (EPA), a social science subject where topics such as 'Hong Kong Trade' and 'Election' are highly relevant to students' lives, may be considered as a subject included in the partial English immersion.

The present suggestion of providing the majority students with partial L2 immersion, where mainly hard science subjects as well as one social science subject (i.e. EPA) are to be taught using English as the medium of immersion in junior forms, is generated from the discussion of works by Cummins (1981, 1997), Met (1998) and Hau et al. (2000). Coincidentally, this suggestion also corresponds to Models 5 and 6, 'Grouping by levels' and 'Grouping by subjects', of Kwo's Model presented in Section 1.5. The interconnectedness may give one more faith in adopting this suggestion for real trials.

With regard to Christian et al.'s recommendation of more cross-curriculum effort aiming at subject integration, there is a certain difficulty adopting it in local secondary

schools though it is educationally sound. This is so because the organizational health¹⁴ is usually weak in local secondary schools as my experience shows. Such a rigorous collaboration effort may easily become futile. Schools wishing to conduct partial immersion in cross-curriculum fashion may consider inviting a powerful agent outside for change¹⁵.

Having discussed the macro issues of MOI, it is time to talk about how shall the actual bilingual lessons be conducted, which is the 'micro issues' of MOI I am turning to.

2.2 Micro Issues of the Medium of Instruction:

Effective innovation is usually the combined effort from both top-down and bottom up (Fullan, 1994). Therefore, in addition to talking about the top-down macro issues like the possible models of MOI in Hong Kong, it is equally, if not more, important to discuss how the teaching shall be delivered at the bottom level in a way conducive to promoting bilingualism.

2.2.1 Medium of Instruction at Oral Level

From the government's view, there are probably only two choices of the medium of instruction in a lesson, which are pure medium and mixed medium. A linguistic view

¹⁴ Just like a person's health, the 'health' of an organization can be described and diagnosed. Below is a definition of 'organizational health' given by one of the many private consultants providing help in the area:

'Organizational health is the dynamic state of well-being in which an organization's formal and informal structures contribute positively to its overall effectiveness and to the quality of workplace life for the people within the organization. (VanSant, 2000)'

(<http://www.orghealth.net/Definitions/index.asp>)

¹⁵ There is a seminar I attended in June 2003 called 'Language Enrichment Program for Secondary 2 and Secondary 3 students in CMI schools'. It was a project focusing on L2 enrichment through content subjects. While the actual arrangement may be different, it embraces the exact same value and principles outlined by Christian et al. Three out of 10-strong schools were invited to share their experiences in the implementation of the project. While degree of success is said to be varied, all frankly admitted that nothing would have been done if it was not the Education and Manpower Bureau which pushed them to join the project.

yields a more sophisticated description of the latter, which divides the mixed medium into code-mixing and codeswitching. Li (1994) takes sentences as the base of analysis and sees code-switching as 'inter-sentential' while code-mixing as 'intra-sentential'. Together with the pure medium, choices of medium of instruction now rise to three. There used to be a dualistic view that pure medium is educationally sound while the mixed medium is not. It will be evident in the following, that such a view is not entirely true.

2.2.1.1 Purist, Code-mixing & Code-switching Approaches

The prevalent mode of teaching at oral level in Hong Kong had been commonly held as a mixed-code one, where Cantonese is the dominant code supplemented with occasional lexical items in English (see Tse 1992). Code-mixing has often been regarded unfavorably in local formal circles. For example, it has been common to see renowned politicians and educationalists publicly deplore 'codemixing' as 'bad' language behaviour in the media (Li and Tse, 2002). This negative view has been surprisingly consistent across different sectors in different countries, be it the educators in Singapore (Kamwangamalu and Lee, 1991), Japanese government in Japan (Stanlaw, 1987), and native speakers of Punjabi in U.K. (Romaine, 1989). None of the subjects reported in those studies has been able to be consistent with their words and deed. As reported, those advocates of the purist approach are often found to be practicing mixed-code in different forms in reality.

Code-switching, like its sibling codemixing, has long been advised to be avoided if not forbidden in foreign language classrooms, despite the fact that it is a common feature of a bilingual or multilingual classroom (Simon, 2001). In Hong Kong, the argument is that the learners would not be practicing communicating in 'pure' Chinese

or English with code-mixing and/or code-switching; 'cross-contamination' of languages is then likely¹⁶. This may explain the typical view in Hong Kong that code-mixing and code-switching are the cause of the declining standards in both languages (See S. Lee, 2000; Luke 1992; So 1992).

It is under this situation where the purist approach to teaching has been demanded. In Hong Kong, this can be interpreted as pure English medium of instruction or Chinese medium of instruction. The government originally adopted a more 'friendly' position in encouraging schools to select either medium in the 80's as witnessed in the two Education Commission Reports No. 1 & 2. The percentage of the two mediums was roughly 30% to 70% respectively, based on the perceived advantages of mother tongue education and the results of a number of in-house research and research conducted by the local universities (See Education Commission Report No. 1 para. 3.16-18). The approach of 1997 saw the government adopting a much firmer position as in the Firm Guidance in 1998 in enforcing language purity in the classroom, hoping that the students would become 'purists' when they leave secondary school.

There are two considerations being ignored here. First, it is a commonly known fact only the very top students in highly prestigious EMI schools in Hong Kong, say the top 5 or 10 percent of the population, are able to communicate fluently in a pure English environment. The ones studying in the comparatively less prestigious EMI schools, the next 10 to 20 percent of the population, are likely to experience much difficulty studying in an absolutely total immersion environment. This is especially so for junior forms students whose L2 competence has yet to develop further to cope with the rigorous academic English.

¹⁶ See also the discussion of Jacobson's New Concurrent Approach in Section 2.2.1.2.

Another consideration being ignored is that code-mixing and code-switching, the objects to be rid of in the purist approach, is in fact a natural phenomenon that could hardly be eradicated in places like Hong Kong. This is so because the absence of it would see many communicative functions unfulfilled. The reasons are explained in the following.

The phenomenon of code-mixing and code-switching is viewed as examples of transference by Clyne (1991), which may occur at different levels such as lexical, semantic and syntactic levels. Let's take the most common one, lexical code-mixing, as an example. Whenever there is a 'lexical gap', where a concept denoted by the foreign word is specific to that language, lexical transference can easily occur in the first language. Innovative technology is an example. Other common lexical transferences are words expressing culture-specific concepts like 'yam cha' where presence of English equivalents is out of the question.

Li (1994) lists some more communicative functions of codemixing based on his research and some others':

...code-mixing of English symbolizes a bicultural identity without committing the mixer to either culture...English can serve as a useful emotional buffer for the expression of taboo, euphemism, embarrassment, and friendly, face-saving advice, etc. In all these cases, English creates a real impression, if not illusion, that the speaking self is emotionally detached from the true self....

(p.17)

Public criticism of 'mixed code', therefore, is not really rational and justifiable for its ignorance of semantic loss and communicative functions when a purist approach is

adopted.

Adopting the purist approach in either English or Chinese is further hindered by one more fact in Hong Kong – a paradoxical social norm against using English casually. Although English is attached with a higher socio-economic status over Chinese the first language, English is rarely used for intra-ethnic communication, the most common type of communication in Hong Kong (see Kwok and Chan, 1972, Fu, 1987). The desirability of speaking in the first language known by all in the territory is one possible reason explaining the norm. Another speculation could well be made on the grounds of the traditional Chinese culture, where attempts to speak in English the ‘prestigious language’, a possible gesture of showing off, shall be discouraged in view of group harmony. There are already sociolinguistic viewpoints stating that Asians tend to be more conscious of the consequences of their actions on other members of their groups (Scollon & Scollon, 1993). While further proof of this may be necessary, it is beyond the focus of this thesis. Suffice it to say here, such norms will definitely trouble Hong Kong students when they are being asked to communicate with each other in English at school, or a Hong Konger who needs to communicate a foreign concept in Chinese which is in fact best expressed in English. This trouble will not go away as long as a purist approach is adopted.

This brings us back to the track of code-mixing/code-switching in consideration of the medium of instruction at oral level. While code-mixing’s future is gloomy given such a negative view locally and abroad as aforementioned, code-switching shall be a more promising way out. Simon (2001) is a strong believer in the value and rationality of codeswitching. Her observation that codeswitching is a common feature of a bilingual or multilingual classroom despite that such practice is commonly forbidden rings true.

Simon supports this with some research findings gathered by Martin-Jones (1990) to show how English, the target language, was used for instructional and control functions on one hand, and Spanish the mother tongue was used by teachers for social functions in the classroom on the other hand.

My experience as both an English teacher and a homeroom teacher simultaneously for over eight years, together with local literature like Johnson & Lee (1987), does testify such association between discourse functions and choice of codes. Shall I continue to express myself in English when chatting with students as a homeroom teacher, which is right according to the methodologically imposed practice but perceived to be rather odd by the students? The conflict lies in the assumption of both the pedagogic role and the social role using the same code at once.

Communication in a foreign language classroom is definitely more complex than ordinary social communication. Dabène (1984, quoted in Simon, 2001) is meticulous enough to spot the nuance. For one, the foreign language is both a means and an end in the communication process, resulting in the presence of communication and meta-communication. Furthermore, an ethnographic approach, now common in investigating classroom interaction at a deeper level, also clearly exhibits the complex and sophisticated way teachers and learners communicate. Code-switching there, according to Dabène, can be satisfactorily explained by pedagogic and social functions under the concept of the classroom as a social situation.

As a foreign language specialist, it can be understood that Dabène's observation is drawn from foreign language classroom. But the insight gained regarding the legitimacy of code-switching does coincide with the experience of Hong Kong

classrooms. Johnson & Lee (1987) reports from the empirical data gathered, that there is, on average, a switch of code every 18 seconds by the content subject teachers in the classroom. Most of the samples collected are 'insertion switches', which are equivalent to code-switching. Code-mixing samples are small, and there is no evidence of the presence of the much criticized methodological practice of concurrent translation (For more details, see Wong-Fillmore 1985 and Krashen, 1985).

One of the three key factors consistently accounting for the switch is formality. Defined to be the degree of personal interaction by Johnson & Lee, it is essentially the same thing as 'social functions' defined by Dabène. The other two key factors are text-dependency and didactic-explanatory consideration, which again coincides with Dabène's 'pedagogic functions'. From the empirical data (n=586), Johnson & Lee shows such bilingual presentation of English and Cantonese is more effective in raising the test scores than monolingual English presentation of the students of all abilities.

Evidence like this makes it difficult to refute a belief exemplified in 'mother tongue as a pathfinder' hypothesis by Butzkamm (1989), which maintains L2/FL learners simply cannot avoid resorting to their L1 and to knowledge and skills acquired through it. Sensible teachers, therefore, must help students to develop connections between their L1 and L2. Codeswitching in the lesson is one effective way.

Codeswitching as a recommended practice, supposing it to be implemented in the partial English medium of instruction, will benefit further from more studies where its effectiveness is explicitly measured. In light of this, the New Concurrent Approach pioneered by Jacobson since 1975 is of particular significance.

2.2.1.2 The New Concurrent Approach (NCA)

When it comes to bilingual instructional methodology at oral level, there are generally three approaches as outlined by Jacobson (1983). They are the conventional approach (language separation by time or topic), the unstructured approach (flipflopping or concurrent translation) and the structured approach (new concurrent approach). Jacobson is satisfied with neither the conventional approach nor the unstructured approach. The conventional approach is said to bring unfavorable treatment to the less prestigious language (usually students' mother tongue) being acquired. On the other hand, the unstructured approach is believed to be ineffective to expose students long and decent enough in the language being acquired, though subject matter may be successfully taught and learnt.

It is the structured approach, termed New Concurrent Approach, which Jacobson prefers and is able to show positive empirical evidence for. New Concurrent Approach is, in essence, codeswitching in a highly structured manner. Alternation is not random but purposeful. It usually occurs between 'thought groups'. No intra-sentential code-mixing, with which the traditional bilingual educators disagree¹⁷, is present. It is used in content teaching only.

How an actual lesson might be conducted using the New Concurrent Approach is shown by Jacobson in his 1983's article. It is a science lesson where English and Spanish are used concurrently:

¹⁷ For example, Li (1998) reported the critical attitude towards code-mixing among the academics he encountered in a seminar organized by the Society of Hong Kong Scholars in 1994.

- T: This is a seed. We plant it in the soil to develop roots. To make it grow fast, we water it.
Despues que la planta ha echado sus raices y la hemos regado bastante, produce un tallo y las hojas. Que mas tiene la planta?
- S: Tiene hojas y una flor.
- T: Muy bien, tiene hojas y a veces tiene tambien flores. Have you ever actually seen plants with leaves and flowers?
- S: Yes, in my backyard.

There are two switches in this sample, first from English to Spanish, then from Spanish to English. The first switch is initiated for conceptual reinforcement and lexical enrichment in Spanish. The second switch is made to explore the child's own experience. The Spanish answer is further expanded to assure the student that it is correct. After analysis of five NCA class segments, Jacobson finds that most students are able to 1) respond grammatically, and 2) switch from one language to another easily. He concludes from the study that NCA can result in smooth and parallel development of English, Spanish and the subject matter in content subject lessons.

This approach has formed the protocol of the increasingly popular two-way immersion (TWD) programs (also known as dual language programs) in US nowadays, where academic instruction in content subjects takes place through both the first and the second language, with the latter being used at least 50% of the time. There is caution to note, though. While the prospect of this approach looks promising, a major desirable element present in the program, namely the presence of both American and Spanish students studying in the same class, would not be present if it is adopted locally. Such desirable element can only be the envy of the proponents of the program in Hong Kong.

Undoubtedly, training is needed for teachers wishing to adopt NCA. Nonetheless, my

intuition as a rather experienced front-line English teacher convinces me that teachers should subsequently find it easier to manage than pure English Medium instruction. For one, the part of education conducted in Cantonese, the vernacular for both teachers and students, is in general easier to manage than that of English, the second language for both. What is more important is that Hong Kongers are already used to code-mixing, so much so they cannot live without it (Li & Tse, 2002). Recalling the proposition that codemixing is akin to code-switching, the practice of NCA should not be felt foreign once introduced locally.

Skeptics do have reservations over the use of such an approach in teaching. Concurrent use of two languages in a lesson is traditionally despised by orthodox educators for the fear of 'cross-contamination' of languages, as Simon (2001) pointed out earlier. Confusion and code-mixing were believed to be likely to happen as a result. Separating the languages, on the other hand, is thought to enable the child to acquire a new linguistic system more easily as he internalizes a given lesson, as Jacobson recounted on behalf of his opponents.

Jacobson (1990) maintains there are two problems with this assumption. First, it assumes the child is incapable of sorting out language data belonging to two different sources and assigning them to two systems. Such assumption is certainly open to question. But sadly it was felt to be so evident that rather little research was ever done in the past to ascertain the validity of this. Secondly, 'neither topic nor person nor time nor place are easily controlled' in reality. Even if the separation can be so controlled, it is perhaps 'uncontrollable within the (children's) mind.' (p.6).

The New Concurrent Approach (NCA) is one of the possible language distributional

patterns which Jacobson outlines and believes to be viable based on research. Despite his early skepticism in his article in 1983, Jacobson states in his later article in 1990 that the other patterns such as separation of language by topic, places or time, which are more favoured by traditional bilingual educators, could be equally viable. The problem, however, is that those patterns are believed to be viable based not on research findings, but on armchair speculation. He suggests more research be done on not only the NCA, but also the other language distributional patterns for the benefits of the future bilingual programs.

Jacobson's firm attitude towards evidence-based opinion is a good reminder when adopting any foreign-born proposals in Hong Kong, the NCA included. Gaining wider and wider recognition in US, (any evidence? Look at the critique as well) the research on NCA done by Jacobson so far, however, is all at the elementary level; neither does any other research on NCA seriously touch upon the secondary level to date. While Spanish children and Hong Kong students share English as their common second language, will Hong Kong students perceive English as such a significant matter as their Spanish counterparts in US do, where English is not only the language for upward mobility but also the majority language? The other factors which apparently contributed to NCA's success such as parent involvement and the monitoring of experts are also likely to be less strong if the NCA is to be adopted on a greater scale. Knowledgeable coordinators will have to take this all into account if NCA is to be adopted in Hong Kong.

Having talked about the possible medium of instruction at the oral level, I shall talk about the next level of concern – the print level.

2.2.2 Medium of Instruction at Print level

In achieving effectiveness of raising second language level, comprehensible input is of utmost importance. It has been generally agreed that one of the viable ways for acquisition of second language to take place is through studying content subjects, of which the message shall be comprehensible, in the target language (Krashen, 1991¹⁸). The qualifier 'comprehensible' is important since most of the students in Hong Kong have a rather limited English proficiency. Without proper revision of the ordinary textbook materials available in the market, any bilingual program may run the risk as pointed out by Gibbons (1982) – that ordinary subject matter input at secondary level is too complex to be comprehensible for the majority of students in Hong Kong. Bilingual programs thus shall employ techniques to make classroom input as comprehensible as possible for the students. Three techniques commonly quoted for such purpose in the field are simplification, easification and modification.

2.2.2.1 Linguistic Simplification

Simplification, according to Tickoo (1993), can be divided into two categories: linguistic and pedagogic. Examples of the former include Esperanto, 'pidgin' &

¹⁸ Krashen's 'Five Hypotheses' are one of the most famous and controversial theories in Second Language Acquisition. These Hypotheses include 'The Acquisition/Learning Hypothesis', 'The Monitor Hypothesis', 'The Natural Order Hypothesis', 'The Input Hypothesis' and 'The Affective Filter Hypothesis' (Richards & Rodgers, 1992). It is 'The Input Hypothesis' that is relevant to my discussion here. The hypothesis states:

An acquirer can 'move' from a stage I (where I is the acquirer's level of competence) to a stage I + 1 (where I + 1 is the stage immediately following I along some natural order) by understanding language containing I + 1. (Krashen and Terrell 1983: 32)

This 'I + 1' concept is commonly referred to as 'comprehensible input'. The major attack on Krashen is that the definition of 'comprehensible input' is not clear. Is it the input that itself shall be comprehensible, or together with the external contextual clues? It has been argued that plenty of such clues actually is counter-productive for acquisition of the medium of the input. Another argument is that babies who were raised without the 'care-taker language' could speak just as well as those with. What is more, the supposedly comprehensible input such as the motherese was shown to be quite structurally complex at times. Timonthy Mason (1999) provides an excellent account of the criticism made (so as Brumfit's summary of 'Monitor Model' in Byram (2000)). But at the end, he still implicitly agrees that there are more credits to drawbacks of Krashen's Hypotheses.

foreigner-talk, while graded readers are representative of the latter. Tickoo admitted that it may not be the case that all techniques of simplification may settle easily in such rigorous categorization. In addition, different scholars may use the same term to mean different concepts (for example, see Long & Rose, 1993), where graded readers are taken as an example of linguistic simplification). Nevertheless, this provides a useful starting point to understand what simplification can be. For clarity, the term linguistic simplification will be used instead to refer to what Tickoo means by pedagogic simplification.

Long & Rose (1993) describe what is commonly done in linguistic simplification, the prevailing method of text modification in ESL/EFL. It is characterized by shorter, simpler sentences that avoid idiomatic expressions, complex structures and uncommon words. Further down the continuum of linguistic simplification, it is possible to see the exclusive use of pre-specified structures, a particular verb tense and/or a particular list of a limited number of words in simplified texts. Tammola (1984) provides a more technical account in simplification analyzing the arrangement of 'text atoms', or propositions, and utilizing mechanical counts (e.g. number of subordinate clauses). While details may be of more interest to specialists in text analysis than the focus of this thesis, suffice it to say, it echoed what Long and Ross put in laymen terms aforementioned in many ways.

There are some studies showing linguistic simplification is facilitative to comprehension. For example, generalizing from a number of previous research projects, Long & Ross (1993) show it improves comprehension of surface propositional content, and is particularly useful to learners of lower second language proficiency. Rivera and Stansfield (2001) also reported evidence on its favorable

effect on LEP students in their performance of a comprehension test where test items are simplified.

Lotherington-Woloszyn (1993) reports that intermediate ESL students possess a higher hope in understanding a second language text which is linguistically simplified, though their actual performance is not improved much. However, this rather reserved conclusion may result from some weaknesses in its research design, which is to be elaborated below.

The methodology used for testing students' comprehension - asking ESL students to recall the ideas from the passage – is debatable for a number of reasons. First, being in lack of proficiency in oral English (and finding it hard to express the ideas clearly), some students may opt not to recall the ideas orally. Secondly, having short memory, some may not be able to recall ideas though understanding them. Another concern derives from the fact that understanding and reporting – one being a receptive skill and the other a productive one – are innately different. Whether they can be treated as the same construct in evaluation, as is the case of this study, is arguable. This all might have counteracted the favourable result of linguistic simplification.

Rivera and Stansfield continued to report that neither does there seem to be any effect of linguistic simplification on the first language students. In their study, no significant difference in the performance was observed between the original and simplified versions in a science test for the 4th and 6th grade pupils whose first language is English. On the other hand, Abedi (1997) showed that a simplified version of a test works best for both the LEP and non-LEP students.

Despite the initial support, doubts regarding the effectiveness of simplification indeed level out many of its advantages. Common complaints include simplified texts frequently distort normal patterns of information distribution (Honeyfield, 1977; Bhatia, 1993)¹⁹, the message often gets complicated by doing so (Widdowson, 1979; Blau, 1982), and the texts become less comprehensible because of the elimination of redundancy, a strategy commonly used for linguistic simplification by graded reader writers (e.g. Parker & Chaudron, 1987; Carell, 1987; Long & Ross, 1993). Furthermore, while Tickoo (1993) is displeased with the lack of authenticity of the simplified texts, Lotherington-Woloszyn (1993) becomes concerned that some linguistic simplification strategies like highlighting vocabulary actually goes against the cultivation of good reading habit where textual instead of lexical meaning should be sought for. Another problem identified in her study is that some simplification devices like in-text glosses are simply ignored by ESL learners because of their poor reading strategies. Both Tickoo and Lotherington-Woloszyn concluded that linguistic simplification, though with some value, is far from the ultimate solution in facilitating comprehension. More strategies are needed.

2.2.2.2. Easification

Another possible strategy to be used is easification. Easification is the process of guiding 'the reader through the text without making any drastic changes to the content or linguistic form of the text' (Bhatia, 1993, p.146). The techniques to be used may include, for example, employing illustrations, highlighting complex syntactic structures, and clarifying the relationships between different sections. Bhatia believes easification is desirable because readers can be helped effectively without destroying the generic integrity of texts, which should also be one of the learning focuses

¹⁹ See also the discussion of easification in the Section 2.2.2.2.

especially for tertiary students entering their chosen academic fields soon.

Building on the theories proposed, Noguchi (1998) outlines two strategies of easification used with her undergraduate ESL students majoring in the pharmaceutical science: keeping a reading portfolio and adopting a teaching aid called PAIL. For the former, it is the practice of keeping a writing portfolio in the field of TESL which inspired her to ask students to keep reading portfolios, which, with the guidance of professionals, shall contain various types of texts likely to be encountered in students' specific discourse community. This is done in the hope that students will always have easy reference when in doubt in their future career or during the revision of the conventionalized features of different texts in their current studies. Such is connected to her second strategy of easification: PAIL. Acronym of 'Purpose, Audience, Information and Language', it also signifies that a text is a container of ideas. Before approaching a text intensively, students are asked to identify the surface features of the text by utilizing the four areas outlined in PAIL first. Once those features of the text are better known, comprehension of the text becomes easier during the later readings.

In addition to the reading portfolio and PAIL, Noguchi (1998) also describes the possible easification activities to be done for different text types in the domain of Pharmaceutical Science. Examples include highlighting relevant dates, completing a flow chart of procedure, and giving and justifying prescriptions in arbitrary patient cases. All this facilitates self discovery of meaning instead of relying solely on teachers' instruction. Learner autonomy is promoted. Nonetheless, it is worth pointing out that those activities suggested by Noguchi are all reminiscent of the pre-, wh- and post-reading activities advocated by the reading process approach based on schema

theory in the context of Teaching English as a Second Language. (See Weaver, 2002 for the explanation of the schema theory). The easification activities suggested by her are essentially the same wine under different labels.

Speaking of the difference between easification and simplification, the former mainly concerns adding information, graphics and related reading activities facilitative to comprehension to the text, while the latter concerns modification within the text. The same is true between easification and elaborative modification, another important method for improving reading comprehension which we shall turn to in the next section.

2.2.2.3 Elaborative Modification

In view of maximizing textual comprehensibility, Long & Ross (1993) propose yet another alternative method: elaborative modification. It is built on research findings of the effective strategies adopted by native speakers (NS) towards non-native speakers (NNS) in situations other than formal instruction. Typical techniques of elaborative modification may include:

- a) The fronting of topic providing ease of reference
- b) Extra words added to show common relationship such as the temporal/causal relationship
- c) Repetition and paraphrasing of keywords/concepts to deal with the typically short term memory of L2 learners (p.31)

Elaborative modification can be divided into two parts according to Long & Ross: linguistic adjustments and conversational adjustments. While reporting all the examples given would be inappropriate, I would quote a few for indication. For linguistic adjustments, examples include employment of higher frequency words,

lower density of words in sentences (but more clauses in total), and fewer opaque references. It is the form of the language that is being modified. On the other hand, conversational adjustments are concerned with the content and interactional structure in NS-NNS communication. The illustrative practices include adding more redundancy through repetition and paraphrase, and engaging in topics which are more predictable and of narrower range. Though divided for ease of academic reference (perhaps), strategies described in either categorization shall not be construed as mutually exclusive. One could easily imagine them being used concurrently to maximize comprehension in reality.

Some comparison between elaborative modification, linguistic simplification and easification shall now be made. Let's compare the differences between elaborative modification and linguistic simplification first. Long & Ross observed that semantically rich modifiers and transitional markers are retained in elaborative modification. Second, the extended passages are more lengthy because more propositions will be given for showing the textual relationship more clearly. This shortcoming is nevertheless compensated by the welcoming avoidance of the passages being 'choppy and stilted'. This comment is similar to Horiba's conclusion (1996) from her study, stressing the empirical proof of the desirable effect of elaborations in comprehension and second language text memory. Finally, despite the adding of words and propositions, the output of the original texts modified elaboratively are usually recognizable, meaning it still has some authenticity. Such is very uncertain in linguistic simplification.

In the pursuit of ascertaining the effectiveness of elaborative modification, Long and Ross carried out a research involving nearly 500 Japanese college ESL students in

different locations. Varied in topics, 13 sets of texts containing three forms, namely native speaker baseline (NS baseline), simplified and elaboratively modified, were produced. Multiple choice reading comprehension questions were also set and validated by experts. Common rituals of research such as randomization and statistical analysis were followed. It was found that students scored higher in both simplified and modified versions than the NS baseline version, though statistical significance cannot be established for the latter. Long and Rose offer two persuasive explanations for this ambivalent result. First, it was speculated that simplification and modification cater best for different test items. For surface level of processing, either simplification or modification will do. But for deeper level, it is modification that holds higher hope. Since the test did not fine tune to this complexity, the relative strength of the two could not be shown. Thence came the lack of statistical significance.

The second reason offered is the unfair comparison among the different versions of text. In the three indicators, namely 'Length', 'Complexity' and 'Readability', the statistics for the modified version are all unfavourable. Compared to the NS baseline text, the modified version is one grade higher in readability, 16% more complex in words per sentence and nearly 60% more in number of words. And compared to the simplified text, the modified version is six grades higher in readability, 125% more complex in words per sentence and 50% more in number of words. Due to the customary practice of standardization, equal time was given to students doing any version. There came the unfavourable condition for those reading the modified text.

Another similar study ascertaining the effectiveness of elaborative modification was reported in Korea more recently. Oh (2001) followed much of the footsteps of Long and Ross in her study with 430 Korean students. The major differences of her study

from the one by Long and Ross are that her subjects were junior high students instead of college students, and the linguistic proficiency of the students was also examined in her study. The result this time was clearer and more positive. First, regardless of students' linguistic level, the effectiveness of both simplified and modified versions over the unmodified one is statistically confirmed. Second, the interaction between different types of modification and different levels of comprehension process was more clearly shown. The unique strength of elaborative modification for deeper level of processing was proved with its significant improvement on students' performance in inference items. Third, students perceived modified inputs more favourably than the unmodified one.

Summing up from the foregoing discussion, all three methods can be considered. Elaborative modification is, broadly speaking, hopeful in facilitating second language reading comprehension. But when it comes to maximization of its desirable effect, further manipulation with the details of a text is perhaps needed. Simplification, the most common and yet controversial mode of modification, has both its strengths and drawbacks. Given its reductive nature, one would say simplification may seem to be an easier approach to text modification than elaborative modification and easification. Research also shows it works well with lower level linguistic processing, though it performs much worse in higher level one and its product is often conceived as a substandard genre.

Elaborative modification, in general, is more desirable since it deals with the shortcomings described more effectively without losing much advantage regarding lower level linguistic processing. The drawback, however, is that more skills and time are needed given its productive nature. This is also shared by easification. What may

justify the extra resource, though, is its positive intention in promoting learner's autonomy and preservation of the syntactic structures of the original text, providing a more authentic model for L2 learning. The most desirable modification, it seems to me, is the incorporation of all these three, the extent to which may be determined by different situations and needs. For example, given that linguistic features common to academic genre tend to be less obvious for junior form textbooks, simplification may form the bulk of the strategies. Where appropriate, elaborative modification and easification may be used for maximizing processing ease. A sample of the typical notes produced for the project can be found in Appendix 1.

2.3 Overview of this Project

2.3.1 The Background of the Project and the Research Questions

From the preceding discussion, the EMI-CMI dichotomy breeding from the 'Firm Guidance' is shown to be inadequate in meeting the political, economic, and educational needs of the society of Hong Kong. Baker's (1995) 'Typology of Bilingual Education' presented in Section 2.1.1 rightly predicts 'limited bilingualism' from 'Mainstream with foreign language teaching', which is run under the Firm Guidance. Some kind of 'Bilingual Exit', which is proposed by So (1987) and stresses the urgency for a way out from the dichotomy of English versus Chinese, is much needed in Hong Kong.

This study, embodied in the form of a project entitled 'Partial English Medium of Instruction', is initiated in an attempt to find a possible 'bilingual exit' through a small-scale empirical research. Essentially, the project is comparable to the German Model presented in Section 2.1.1.2, where a number of subjects are to be conducted bilingually. The difference between them is that the aim of this project is about

cultivating students' bilingual competence instead of bi-cultural competence. This difference may generate different approaches to selection of participating subjects, assessment methods, pedagogical arrangements and so on, when it is run.

The project will include much of the advice discussed so far. For example, 'Grouping by subjects' and 'Grouping by levels', two possible arrangements outlined by Kwo (1987) in the pursuit of broader bilingualism, will be incorporated. Regarding the choice of subjects, Met's (1998) suggestion that Mathematics and Integrated Science are better options for limited English proficiency (LEP) students will be taken together with, perhaps, a social science subject like Economics and Public Affairs (EPA), which offers rich L2 content and is relevant to students' lives. The levels where the partial English Medium of Instruction is conducted will be negotiated with the panel heads concerned. In addition, the successful pedagogical arrangements of the German Model the protocol of this project, such as generating bilingual vocabulary lists and administering relevant exercises like sentence making, will be used where appropriate.

How can the proposed 'bilingual exit' be considered a possible way out for Hong Kong? The criterion which may be used can be how well the students in the project are doing in test situations where contents are taught in partial English MOI. Another criterion which may be adopted is students' own opinion on the project.

The criteria mentioned form the two major research questions of the project:

1. Whether students can maintain their progress in the project according to the standard set by local schools, and to what extent.

2. Whether there is a change of student willingness to accept the partial English medium of instruction after the project is in place for a substantive period of time, and to what extent.

2.3.2 The Project: Preliminary Procedures and Significance

The preliminary procedures of the project are outlined below. As the project to be undertaken is still in its infancy at this stage, the procedures are indicative only.

Where change is necessary it will be signaled later in the thesis:

1. Panel Heads of Mathematics, Integrated Science and EPA will be contacted.
The themes and forms appropriate for partial English medium of instruction will be negotiated.
2. Teaching materials in the selected areas will be created utilizing methods discussed in Section 2.2.2, namely 'Linguistic Simplification', 'Elaborative Modification' and 'Easification'. This is done to maximize comprehensibility.
3. Appropriate methods of assessment for a) the students and b) the project itself will be decided by the panel heads and myself.
4. Questionnaires will be administered before and after the project is run to solicit students' view.
5. Meetings will be regularly held to evaluate the project.

Being new to the administrative post in the new Partial English MOI project, I thought of locating a handbook showing basic techniques in running bilingual programs at schools prior to the implementation of the project in 2001. The closest found, however, were just research literature of bilingual programs worldwide (as discussed earlier in

this Chapter) and a book called ‘A parents’ and teachers’ guide to bilingualism’ by Colin Baker (2000). It was not until 2003 that a guide called ‘The Dual Language Program Planner: A Guide for Designing and Implementing Dual Language Programs’ by Howard et al. (2003) was published that suited my original needs. The Guide, of course, was never consulted in the first place. Nevertheless, the key concerns discussed there coincidentally match most if not all my thoughts about effective implementation of the project, which have been/will be expressed either explicitly or implicitly in different places in this thesis. It is felt that extracting and presenting those concerns here may facilitate understanding of the project:

Key Concerns in implementing a Dual Language Program

	Concerns	Questions
1.	Population	What is the student population and its needs?
2.	Parent/Community Support	How far do the parents and/or community support and understand the project?
3.	Administrative Support	How far do the administrators support and understand the project?
4.	Teacher and Support Staff	How far do the teachers and support staff support and understand the project?
5.	Teaching Materials	How is the availability of the teaching materials of the project?
6.	Instructional Strategies	How knowledgeable are the teachers in using instructional strategies appropriate to promote bilingualism?
7.	Goals	How clearly are the goals known by teachers and students?
8.	Assessment & Evaluation	Is there any modification needed for students’ and project’s assessment?
9.	Integrating the program into the School Context	How ‘seamless’ it is between the project and the rest of the school?

(Extracted and simplified from Howard, Olague & Rogers, 2003:28-30)

It is customary for a researcher to talk about the significance of his/her research.

So here it is. This project will be most relevant to the school where it takes place. The conclusions reached and experiences gained will provide a convincing precedent of

how the matter of medium of instruction should be handled in the future. In addition, despite its small scale, this project can serve as a pertinent reference to local language policy makers as research of its kind is rare. It could also contribute to the discussion of MOI worldwide.

Having presented the overview of the proposed project, I would like to move on to the next chapter, 'Review of Literature: Research Methodology'. It will discuss what paradigm of research this project shall resume to secure its scientific value amid its small scale.

3. Review of Literature: Research Methodology

Any mature educational project cannot do without evaluation. The evaluation I would propose to adopt for this project is somewhere between the conventional scientific research and action research of social science. On one hand, considerable amount of literature on medium of instruction has been read and research methodologies will be presented. Formal qualitative and quantitative methods such as interviews, questionnaires and analysis of data using SPSS are also to be employed. This resembles research from the old scientific paradigm. On the other hand, as the coordinator of the research who will also be staying in the front-line with some of the colleagues involved in the innovation, and constantly thinking of possible improvements together with them throughout, I am more involved and 'subjective' in the interpretation of results compared to the typical research coordinator. I may also constantly initiate new changes and remedies where appropriate. This is reminiscent of the action research from the case study research paradigm (See Section 3.1.2 for further discussion).

This in-betweenness, however, can be attributed to the fact that I am primarily concerned with utilizing whatever means is beneficial to the implementation of the innovation. Forms of research are only a subsidiary consideration. As Drew et al. (1996) put it, researchers should avoid the temptation to let research methods instead of the nature of the study shape their research design. I am certainly aware of the presence of the dualism in research methodology, like Tellez (2001) points out. But like a bilingual facing incompatibility of two cultures, I select to 'pick and choose' between them, the exact same situation described by Paulston (1992).

3.1 The Debate of Conventional Scientific Research and Case Study Research

The debate between conventional scientific research and the popular case study research is a hot issue in education. Central to these two debates are two different perceptions toward the world, which are positivism and constructivism/interpretivism.

3.1.1 Positivism and Constructivism/Interpretivism

August Comte, the Father of positivism (The Oxford Companion to Philosophy, 1995), stresses the possibility that human beings could be objects for scientific study too back in the 19th century. This contrasts with the prevalent method of subjective method in humanities like psychology then. It also gives rise to the fondness of using categories and hierarchies for description of different subjects as witnessed in his narrative of the progress of history and scientific studies. This school of thought views the world having only a single 'reality'; truth is best discovered and understood through objective means like experiments. This is all representative of the belief of 'old paradigm science' (Wadsworth, 1998).

Constructivism, as Shank (1993) recounts, has its root far back to William James at

the end of 19th century, who maintains truth was nothing exact but just provisional and contextual. While the idea could be argued to be less favourable than positivism seeing the great achievement of science and technology in the 20th century, large names in philosophy such as Richard Rorty, Nelson Goodman and Paul Feyerabend indeed owe much of their achievements to this root. Constructivist rhetoric in modern days would propose, for example, that truth is never to be based on a single foundation; realities are multiple instead of single, and they are 'socially constructed'.

The different views towards truth by positivism and constructivism not only gives rise to the different preferences in research methodologies, but also pedagogies. Biggs and Watkins (1995) outline the two significant approaches towards learning and teaching, namely quantitative view and qualitative view. They maintain the adoption of the constructivist perspective of teaching and learning would employ a more student centred approach where knowledge is collaboratively, hence more deeply, constructed. The quantitative, positivist view held by the teachers, however, would only entail the students' assimilation of more and more facts and skills from them. Implicit to their discussion is that there is a welcoming trend in pedagogy that more and more constructive practices are encouraged and adopted. From here, constructivism does have its merit.

So far, I have talked about the distinction between positivism and constructivism, and the contribution of each. The next section will be devoted to the research paradigm springing out from constructivism, the case study research, and its related method, Action Research.

3.1.2 Conventional Scientific Research and Case Study Research

The comparison between the conventional scientific research and case study research provided by Gomm et al. (2000) is worth reporting. Compared to experimental and survey approaches, case study research concerns about a larger number of features of each case with the information gathered and analysed. While the experimental approach concerns with measuring the effects by controlling the important variables, case study research simply records what comes out naturally. In other words, case study research is emergent rather than being tightly pre-figured as that of the conventional scientific research.

Case study research can be done in either interventionist or non-interventionist ways. Action research is an example of a case study research done in an interventionist way. Ethnographic study, which on the other hand involves description, analysis and most importantly ‘immersion’ in cases so that phenomena studied can be placed in their social and cultural context (Lewis, 1985: 380), is an example of a case study done in the non-interventionist way.

A different categorization used to describe the interventionist type of case study research which is also gaining popularity is ‘Emancipatory Research’. Mertens (1998) reasons that some proponents of emancipatory research are in fact against the ones supporting interpretive/constructivist research. The argument lies in the practice that there is only a small group of experts dominating over ‘a larger number of relatively powerless research subjects’ (p.15), though to a lesser extent than typical positivist research. Mertens also points out some other differences between the two regarding epistemology and methodology, though it is felt they are minor ones.

Byram and Feng (2004) find yet another way of categorizing the matter – ‘Research’ and ‘Scholarship’. Research refers to the search for explanation or understanding of ‘what is’, which involves much empirical work. Scholarship aims to establish ‘what ought to be’. It entails reflection on theory and analysis of ideologies. Byram and Feng find such categorization more useful for description of second and foreign language learning in cultural-specific dimensions.

Given that the focus of this paper is not cultural-specific, I shall keep my discussion to the more common distinction of ‘Positivism Vs Constructivism/Interpretivism’. Below is a summary of the different concerns between the two schools of thoughts. Some are already discussed while some others are extracted from Mertens (1998).

Concerns	Positivism	Constructivism/Interpretivism
1. Ontology (nature of reality)	One reality	Multiple realities that can be shaped by different values such as social, political and economic values
2. Goal	Explanation	Understanding
3. Relation between knower and would-be known	Objectivity important for researcher	Interactive link between researcher and participants possible
4. Methodology	Primarily quantitative	Primarily qualitative
5. Kinds of Research	Conventional Scientific Research	Case Study Research done in either the interventionist (e.g. Action Research) or non-interventionist way (e.g. Ethnography Study)

Case study research is worth further discussion given the nature of my project. Hitchcock & Hughes (1995) observe that the major characteristic of a case study research is the exclusive concentration upon a particular event or a series of

interrelated cases over a specified period of time. As one of the common approaches of qualitative research, it has a number of unique advantages. For one, case study methods usually cast a finer-meshed net for evidence than experiments and surveys, and permit detailed evaluation of the subject of interest, partly because of their access to subjective factors like thoughts and feelings (Bromley, 1986). When a phenomenon being investigated is contemporary in some real-life context, and/or alternative ways of doing things are being sought, Hitchcock & Hughes believe such kind of research is appropriate.

Having discussed Scientific Research and in particular Case Study Research, upon which discussion of Action Research rests, I am now in a better position to talk about Action Research, which is ultimately the research paradigm the project proposed would take.

3.1.3 The Nature of Action Research

Action research is worthy of consideration given the involvement of the researcher in the study and the need for continuous improvement. Being a related method to case study research, action research shares the advantages of a case study research, too. But as an increasingly popular research method especially in educational context (Wadsworth, 1998), there is also uniqueness of action research.

Kurt Lewin is generally regarded as the pioneer in action research. He defines action research as a cyclical process itself, a circle composed of 'planning, action and fact-finding about the result of the action' (Lewin, 1948:206). More specifically, it starts by raising a question about daily practice which is somehow felt to be problematic. Then the questioner plans ways to get answers, the ideas of which may

come from a literature review or simply hunches. The ideas will then be field-tested. The result of which gives information as to what appropriate action to take further regarding the problem.

Burns (2000) recalls that in education, action research is associated with a broader movement of 'reflective practice' and 'the teacher as researcher'. It is useful in triggering group action to deal with teaching and learning problems in the immediate context. Some refer to action research done in educational organizations as practitioner research (e.g. W. Jacobson, 1998), which is essentially the same wine under different labels.

Greenwood and Levin (1998) speculate that there are three essential elements present in Action Research, the absence of any of which would not qualify the research as the Action Research – Research, Participation and Action. What is significant here is the active participation of the researcher and all the stakeholders. The result of the innovation implemented is the responsibility of all the participants as well. What will continually come out from Action Research is a 'liberated state', which can be taken as greater self-realization. This is also reminiscent of the concept of 'emancipation' mentioned in Section 3.1.2 before. In addition, knowledge production is gained through solving real-life problems; participants will also more likely develop sustainable learning capacities.

Further comparison between action research and conventional research is provided by Wadsworth (1998). Action Research is concerned with continuous improvement instead of objective evaluation. Conventional research is interested in hypothesis 'if this, then what', whereas action research focuses on 'what if we..., then maybe'. It is

possibility instead of prediction that is primarily concerned. More frequent participation of and modification by the innovator are common. Conventional researchers might feel there is too much 'bias' and 'contamination'. Nonetheless, action researchers would see as this necessary and reflective of real life.

Some more differences between them are outlined by W. Jacobson (1998). The search for generalized truth and theories²⁰, central to conventional research of explanatory nature, is replaced by the search for practical actions to problems which may only be useful in immediate contexts. Action research refuses to believe in a single effective practice universal to all situations as participants and their interests vary considerably from one situation to another. As a result, replicability of findings, which are highly emphasized in conventional explanatory research, is not an agenda at all in action research.

Action research as a kind of commonly conceived qualitative research is also different from the other kinds of qualitative research in many ways, as the following quotation neatly summarizes:

... (action research) is different from other qualitative or ethnographic research in that it is not seeking to contribute to large scale explanations of events. Nor is it seeking to discover grounded theory by the meticulous analysis of data. The purpose is always to improve practice, rather than to find truths, universal or particular.

(Griffiths and Davies 1993:45)

Though discovery of a grounded theory is not an agenda, existing grounded theories may be used by action researchers for understanding the experience or thinking of the

²⁰ Also known as 'covering laws'.

participants better in the research.

Greenwood and Levin (1998) are rather unhappy with the common belief that action research must be qualitative research rather than quantitative research. They are also dissatisfied with the idea that such belief in turn breeds another idea, namely that action research will have to be less scientific than conventional research. They maintain an action researcher should not accept any pre-determined approach to research, which makes the research design inadequate in some way. As long as all the stakeholders' interests are taken care of, any qualitative and quantitative methods, statistical analysis included, can be used. And the scientific value of action research, as a result, will not be necessarily lower than that of the conventional one.

Greenwood's and Levin's belief that it is the content instead of the form of any research that is the most important is certainly congruent to my belief in research aforementioned: Content precedes forms. The advice Drew et al. (1996:165) made regarding the choice of research design, that one shall get rid of the 'temptation to let a preference for methods rather than the nature of study shape their choices', shall also be remembered. It is a pity, though, the common belief about action research is indeed commonly found in academic circles. Anyone taking a random glance through some of the action research undertaken can testify the case. For example, none of the action research reported in Patterson et al. (1998) and 國立臺東師範學院主編 (2002) ever made use of any quantitative instruments in the research.

3.1.4 Action Research: Doubts and Resolutions

Although being extremely popular in different areas of social enquiry nowadays (Gomm et al., 2000), case study as a research paradigm, action research included,

does not stand without severe critique. The greatest one is its lack of generalizability and its 'sloppy' methodological approaches (Hodgkinson, 1957). This is the reason why it faded in social science research in American post-war period where quantitative methods were much in vogue as Hitchcock & Hughes (1995) recall.

While being empathetic to action research, Smith (2001) also throws doubts on behalf of the opponents (e.g. Winter, 1982):

As might be expected there was some questioning as to whether this was 'real' research. There were questions around action research's partisan nature – the fact that it served particular causes. There were also questions concerning its rigour, and the training of those undertaking it.

(p.10-11)

Skepticism was also present among some university lecturers in Australia. Instead of a useful research tool, action research was seen to be organized common sense and a time-consuming way to re-invent the wheel. (Gibbs, 1995) There was also a danger that researcher involved would be able to select data which fit in to their implicit model towards an issue because of the reliance on participants' honesty (Gibbs, 1995), though that is perfectly possible (and indeed reported) in natural science²¹. In addition, because of its simplicity, action research is often taken as merely following the cyclical process. (Smith, 2001)

²¹ There are a number of respectable books published on this. For example, 'Stealing into Print: Fraud, Plagiarism, and Misconduct in Scientific Publishing' by Marcel C. LaFollette (University of California Press). It talks about the scientific fraud in USA starting from 1980s. Another book, 'Betrayers of the Truth' by William Broad and Nicholas Wade (Simon and Schuster) takes a historical account and points at the scientific fraud undertaken by big names like Issac Newton and Cyril Burt. It presents a skeptical view towards the honesty and integrity among scientific researchers.

There is a list of criticisms against action research made on behalf of the opponents by Hitchcock and Hughes. The typical ethical problem of action researchers is that many portray in their writings that 'researcher knows best'. It is also common to see reflection, one of the integral parts of action research, is done in a way nothing more than anecdotal description by many unskillful amateurs of action research. Furthermore, in order that action research can work, collaboration is of utmost importance. The proposition that educational organizations at large do have the organizational culture which is supportive of action research, and/or other educational research activities sounds way too ambitious.

To defend the value of Action Research, the definition of research by Bogdan and Biklen (1992) is perhaps useful here. They believe research is 'a perspective that people take toward objects and activities'. (1992:223) Much of the discontent about action research will dissolve if, in Smith's words (2001:11), 'we have satisfied ourselves that the collection of information is systematic, and that any interpretations made have a proper regard for satisfying truth claims'. And counteracting the perceived simplicity of action research, McTaggart (1996) maintains action research should not be construed as procedure or method of doing a research. Rather, it is 'a series of commitments to observe and problematize through practice a series of principles for conducting social enquiry' (1996:248).

Speaking of the problem of generalizability of case study research, Hitchcock & Hughes (1995) believe it can partly be offset by comparing similar cases. So doing will make it possible that a more general framework and theoretical insights be developed. They also welcome triangulation of data (i.e. the inclusion of a range of techniques to obtain data from different sources) to establish higher internal validity

in raising its scientific value. These advices will be borne in mind for the project which is essentially a case study to be undertaken.

Gibbs (1995) cautions that lecturers should display their fairness and objectivity by collecting data which is not only representative of the general situation, but also challenging their 'unsophisticated conceptions of a certain topic'(p.32). It is also the participant observers' responsibility to avoid seeing the reality from pre-conceptions from theory which may well be developed in different countries and situations.

And when criticism is made, let's not forget there are always two sides of a coin. The benefits of action research are exemplified by Gibbs (1992), who is writing on the advantages of action research on his Improving Student Learning Project:

- Those studying the innovations would be very close to what was happening.
 - What was learnt would be able to be applied immediately.... The project was not concerned with tightly controlled experimental comparisons of fixed alternatives.
 - Those involved would learn and develop as teachers; the project was concerned with staff development as well as with innovation.
 - Through the cyclical process of action research, more progress would be made in developing teaching and assessment methods and in developing ways of monitoring the quality of student learning.
- (p.30)

Undoubtedly, there are unique merits of action research towards the understanding and improvement of education which could not be replaced by any other research methodology. There is certainly substance of the phrase 'Research that produces nothing but books will not suffice.' (Lewin, 1948:202-03)

3.2 The Debate of Quantitative and Qualitative research

Within the conventional scientific research, it is an acknowledged phenomenon that researchers are commonly separated by the quantitative/qualitative dualism as discussed before by Greenwood & Levin (1998) (see also Salomon, 1991; Shank, 1993; Tellez, 2001). It is a common argument of the quantitative proponents that given the clarity of numbers, we can get closer to the 'truth'. Schrag (1992) also wrote enthusiastically to support the positivist research paradigm, which is essentially quantitative research. On the other hand, there are influential writers in language arts education who favour qualitative research much more than the quantitative one (e.g. Graves 1983), resulting in a situation as if the quantitative research could not be published in that area. Furthermore, Tellez's experience (2001) in the United States shows that researchers from the same department could battle for graduate students who would use their methods. As discussed, in the debate of Action Research, the root of this battle lies in the two different worldviews held, namely positivism and constructivism/interpretivism.

Tellez is very critical of the methodological dualism present. He cited Dewey's attacks on dualisms among his contemporaries, who commonly and erroneously assumed the constant flux world would be better understood and explained by chopping matters into two parts. And speaking of the so-called objectivity of quantitative research, researchers should not succumb to using 'vague' words (e.g. 'a low or high level of significance') to discuss the objective numbers they got. What Tellez tries to prove, essentially, is the distinction between quantitative and qualitative research is unnecessary. Breaking down such dualism in research methodology would enable us to describe and predict phenomena more accurately.

The fair comment made by Gillham (2000) is worth reciting:

‘[The] *multit-method* approach to real-life questions is important, because one approach is rarely adequate; and if the results of different methods converge (agree, or fit together) then we can have greater confidence in the findings.’

(p.10)

Salzman & Newman (2002) echo this and maintained their empirical research in college compositions benefits enormously from the ‘mixed methodological approach’ – using both qualitative and quantitative methods. Other allies of this include She & Fisher (1998), Warwick (1973) and Drew, et al. (1996)

From the discussion of this section, it can be established that the combination of both quantitative measure and qualitative measure will be much sounder than using only one of them in evaluating the project of partial English Medium of Instruction to be taken. In addition, adopting action research for the program is highly desirable given its favourable proclaimed benefits of ‘participants’ sustainable learning capacities’ and ‘continuous improvement’ as mentioned in Sections 3.1.2. & 3.1.3. Discussion of the research methodology to be used for the project will stop here briefly. The subject will be picked up in greater details later in Chapter 5 ‘Research Methodology and Evaluation’. Now, I would proceed to another major aspect of the project – evaluation.

Chapter 4: Review of Literature: Evaluation

Speaking of evaluation, let’s recall the criteria against which the project is to be judged as stated in Section 2.4:

‘How can this project be considered a possible ‘bilingual exit’? The criterion which may be

used can be how well the students are doing in test situations where contents are taught in partial English MOI. Another criterion which may be adopted is students' own opinion on the project.'

This chapter will explore ways to evaluate the project with regard to the two criteria cited, and the advices to be taken on the pertinent evaluation issues in general and specific to bilingual programs to safeguard the integrity of the evaluation process.

4.1 The Possible Tools and General Issues of Evaluation

4.1.1 The Possible Tools of Evaluation

What are the possible tools for evaluating students' progress in and their opinion of the program? Analyzing students' test scores in the part where partial English MOI is conducted would be an appealing choice which involves quantitative evaluation. This may involve, for example, comparing the test scores between contents taught in partial English Medium of Instruction and those in Chinese Medium of Instruction (See Section 5.2.1 for details). As for the qualitative evaluations, Marshall and Rossman (1999) outline many choices which are available. They are summarized as follows:

Qualitative Data Collection Methods for Evaluation

	Methods	Brief description
Primary Methods	Participation	Firsthand involvement in the social world chosen for study
	Observation	Systematic noting and recording of events and behaviours in the social setting chosen for study
	In-Depth Interviewing	A conversation which purposefully uncovers the participant's view
	The Review of Documents	Content analysis on documents produced in the course of everyday event or constructed specifically for the research at hand

Secondary Methods	Life Histories and Narrative Inquiry	A method that gather, analyze and interpret the stories people tell about their lives
	Historical Analysis	An account of some past event or combination of events
	Films, Videos, and Photographs	Visual records capturing the daily life of the group being studied
	Kinesics	Study of body movements aiming at unveiling hidden messages
	Proxemics	Study of space and its relationship to culture
	Unobtrusive Measures	The researcher gathering data without interfering the ongoing flow of everyday events.
	Questionnaires and Surveys	Eliciting data by asking questions to a group of people
	Projective Techniques and Psychological Testing	Ambiguous stimuli given to elicit personality data

Given Marshall’s and Rossman’s initial scope in social science research, naturally not all of them are applicable to the evaluation of an education-oriented program. Among the choices outlined, those looking more considerable for evaluating the project include:

- Observation
- In-Depth Interviewing
- The Review of Documents
- Questionnaires and Surveys

‘Observation’, despite its long history in the field of education, is eventually given up for the anticipated fear and negative reactions by the teachers participating the program. ‘In-Depth Interviewing’ is also dropped in favour of the diary based on the advice of Bechhofer and Paterson (2000), who stress the diary is a more detailed way

of recording feelings which may be difficult to talk about (See Section 5.3.1 for details).

What will be taken on board for evaluating this project qualitatively are 'Questionnaires' and 'The Review of Documents'. As the key stakeholder of the project, students should be given chance to voice their opinions about it. This can be done extensively and intensively. For the more extensive evaluation, all students participating in the project will be asked to fill out a questionnaire which aims to solicit their views towards the subject partial English MOI prior to the implementation of the program. This pre-questionnaire will form a good reference for comparison with a post-questionnaire which is to be administered after the project is in place for a certain period of time, say over a year. Despite its qualitative orientation, the data obtained in the questionnaire will be analyzed quantitatively. More will be discussed on this in Chapter 5 'Developing a Research Design and Methods'.

The more intensive way for evaluating the project qualitatively will be the student diary. Selected students representative of those who participate in the project will be asked to keep diaries. These would allow access to rich qualitative data of the project that complement the more quantitative analysis aforementioned. The other two qualitative tools from 'The Review of Documents' for the project's evaluation are the minutes of the meetings held for the project, and the research diary. They both will show the views of the participating teachers and the Coordinator (i.e. myself) towards the project. These methods, which all come from 'The Review of Documents', have the advantage of being 'unobtrusive and non-reactive' (Marshall and Rossman 1999:117) - the setting is hardly disturbed and information collected can be checked easily.

‘Content Analysis’ has been associated with ‘The Review of Documents’ as the table presented earlier shows. A further elaboration of the term is provided by Prior (2003):

Content analysis can take many forms. In its simplest, empirical, sense it can involve little more than enumerating the frequency with which certain words, items or categories appear in a text....

Naturally, enumeration of words and themes has its place, but only within a well-considered theoretical frame...if we wish to move beyond the surface content of a document and into its functioning, then deeper and more sophisticated strategies may be required. (p. 23)

What Prior is concerned about is that simple counts, on their own, are ‘insufficient to highlight the full pattern of referencing between objects cited in the text.’ (p.122) Reference must be strategically studied in context for effective content analysis. A similar caution is also made by Marshall and Rossman (1999) that care must be taken in showing the logic of interpretation used in inferring meaning from the documents. This advice will be borne in mind when content analysis is performed for evaluation.

Here is a recapitulation of the evaluation tools to be used in the project:

1. Student Scores obtained from the tests and examinations
2. Student Pre- and Post- questionnaire
3. Student Diary
4. Minutes of the Meetings
5. Research Diary

The different pieces of evidence gathered from a variety of sources will ultimately make the whole evaluation business more objective and credible. This is similar to the idea of ‘triangulation of data’ first coined by Denzin (1970) (Quoted from Bechhofer

and Paterson, 2000), which suggests several observations of a datum is better than one or two. The slight difference, however, is that the word 'triangulation' implies that three are desirable, while the number of evaluation tools to be employed actually exceed three this time.

4.1.2 The General Issues of Evaluation

What are the general issues universal to program evaluation? Internal and external validity would be on the top of the list. On the other hand, the concept of formative and summative evaluation is also frequently used in comprehending the roles of different evaluations/evaluators in a project. When it comes to questionnaire, which is a popular evaluation tool and is indeed used in this project, basic but important guidelines regarding its execution are well documented. These general issues will all be discussed in this section. However, I wish to talk about a more generic consideration first – the 'evaluation design'.

In addition to the evaluation tools and a number of general issues mentioned, the plan specifying when, how, and from whom measurements will be collected in the evaluation is just as important. This is what Fitz-Gibbon and Morris (1987) define as a 'design' of an evaluation, which can be taken as a framework of a program evaluation. Fink (1995) also argues that an evaluation design is essential when trying to appraise the effectiveness of a program objectively. She outlines three basic program evaluation designs as follows:

1. Experimental evaluation designs with non-random selection into the evaluation and relying on one group to act as a control or comparison for itself....
2. Experimental evaluation designs with random selection into the evaluation and relying on one

group to act as a control or comparison for itself....

3. Experimental evaluation designs with random selection into the evaluation and random assignment into experimental and control groups....

It is clear from the above that Fink's concept of evaluation design has a strong flavour of the conventional scientific research paradigm, making it unavoidably encounter difficulty in describing this project which is an action research from the case study research paradigm. The reason that it is still being discussed here is because one of the evaluation tools to be used in the project, Student Questionnaire, can be effectively described by it. Let's recall the 'design' of Student Questionnaire here. A student questionnaire on students' attitudes towards partial English medium of instruction is to be administered prior to the implementation of the program. A post questionnaire asking essentially the same questions will be administered after students have been in the program roughly a year. Statistical comparisons of the results of the two will yield changes of attitude, if any, towards partial English medium of instruction. This corresponds to the first type of research design in Fink's list.

Two issues which are closely related to evaluation design are reliability and validity. Reliability will be saved for further discussion later in Section 5.2.2.3. Suffice to say here, it is concerned with the stability of response obtained from the subjects of the project.

There are two types of validity: internal validity and external validity. Fink (1995) recalls that the former is about the extent to which the evaluator is confident that the result obtained is due to the program itself rather than factors beyond control; the latter is about the extent to which the evaluator is confident that the result obtained in

the program is applicable to other programs under similar condition elsewhere at other times.

The first type of experimental evaluation does not go without threats of validity. First, the internal validity suffers from maturation. Students may have become more mature intellectually and emotionally after a year when their initial responses toward the partial medium of instruction were recorded. Students' responses themselves are another possible threat to the internal validity of the evaluation, for they can fluctuate for unknown and uncontrollable reasons.

Given that there isn't any control group of the program, external validity suffers. One may contend that the external validity of the program could have been secured by having a control group elsewhere. So doing, however, may still encounter a number of difficulties. First, deliberately creating a control group (i.e. not providing the English partial medium of instruction to some) raises the ethical problem. As Fitz-Gibbon and Morris (1987) ask, can one be justified of withholding potential program benefits for the purpose of creating a comparative research design? If the control group is to be found in another school, then a responsible researcher will have to find a school which is comparable in key aspects to ours, e.g. academic achievement, socio-economic status, ethos for learning and teaching, etc. Clearly, this entails some difficulty that one might not have thought of before.

A practical book regarding school program evaluation is written by Sanders (1992). In fostering school improvement, formative evaluation is reported to be commonly recommended. Formative evaluation is about gathering 'feedback on aspects of the program that are undergoing review and possible revision' (p.7). It is usually

conducted mid-way in the program by internal or external staff. The result of which is just for their reference instead of being open to outsiders. Summative evaluation, on the other hand, can be initiated and participated by program staff and outsiders towards the end of the program. Quite often its end results will lead to awards, replacements and/or major overhauls.

The concept of formative and summative evaluation can also be applicable to the coordinator overseeing the evaluation. Fitz-Gibbon and Morris (1987) speculate two kinds of program evaluator, namely formative and summative evaluator. A summative evaluator is one who will eventually produce a report or summary statement of the effectiveness of a program. A formative evaluator, on the other hand, usually has a much looser job role. He may be asked to investigate potential problems and come up with possible solutions; he may be responsible for monitoring students' progress and attitude change through tests and questionnaires; he may be a helper, a planner and/or an advisor of the program simultaneously or at different times.

The distinction of formative and summative evaluations/evaluators is fairly common in research. This concept entails a single label (i.e. formative or summative evaluation/evaluator) to be attached to a certain evaluation/evaluator of a conventional research. For example, a pre-student questionnaire on students' views towards the subject of partial English MOI, administered prior to the implementation of the program, can be conveniently labelled 'formative evaluation'. The post-student questionnaire, which is done after the program has been in place for 15 months, can be accordingly termed 'summative evaluation'. The distinction has its value in helping one to comprehend evaluation tools.

Nevertheless, as it will become obvious later as the project goes on, the label 'summative evaluation/evaluator' will become inapplicable. Let's take one of the major evaluation tools of the project, the minutes of the meetings, as an example. All the meetings held, except for the first meeting held in January 2002 where the purpose is solely clarification of aims and procedures, have the function of 'gathering feedback on aspects of the program that are undergoing review and possible revision' (formative). But despite the completion of the post student questionnaire, meetings held after that are still basically 'gathering feedback on aspects of the program'. In other words, no meeting can be called 'summative' even the summative post-questionnaire was done.

Why does the label of 'summative evaluation' become inapplicable for the other evaluation tools in this project? The root is believed to be lying in the differences between conventional research and action research – the former typically has a finite time frame which makes locating the mid-way and the end possible; the latter is 'a cyclical process' which can, theoretically, go on and on without an end. Under this realm, evaluations/evaluators assume only the 'formative' role. This explains why, except for the student questionnaire, all other evaluation tools in this project, namely Student Scores, Student Diary, Minutes of the Meetings and Research Diary, are more appropriately taken as having formative orientation. Likewise, a person like me who is involved in an action research may only be called a 'formative evaluator'.

In addition to the concept of formative and summative evaluation, Sanders (1992) also talks about the proper way to administer a questionnaire, an important evaluation tool to be used in this project. It is summarized in a few basic guidelines below:

Basic Guidelines of Administering a Questionnaire

1. Provide clear instructions, including a due date
2. Don't ask leading questions
3. Group questions according to topic
4. Make it attractive
5. Keep it short
6. Do not assume too much knowledge
7. Begin by asking easy, impersonal questions

(extracted from p.25 & p.27)

Though looking rather simple on the first glance, reading and executing the guidelines above still make much practical sense.

Speaking of the possible way in which students' responses can be effectively gathered in the questionnaire, Likert scales are recommended for its ease of use by the respondents (i.e. students) and the researcher.

So far I have talked about some possible tools and general issues of evaluation which are related to this project. Given the presence of other bilingual programs where evaluations have been taken, the evaluation of this project may benefit further by looking at the ways they were done. Therefore, I will now turn to the next section, 'The Evaluation of Bilingual Programs'.

4.2 The Evaluation of Bilingual Programs

In different times and corners around the world, there have been evaluations of

bilingual programs done and new evaluation tools developed. Evaluations of different bilingual programs, though based on different contexts, will provide hints as to how to conduct evaluation of this project more effectively.

Early French Immersion Program in Canada is probably the most frequently quoted program in the field of bilingualism. The formal evaluation of this program was mainly done in 1979, which is presented by Cummins and Swain (1986).

A variety of tests were conducted to solicit data of cognitive ability, L1 and L2 skills, mathematics, science and work-study skills of students from the immersion program and the comparison groups, which comprise of English program students and French program students on conventional programs. There were altogether 10 different tests administered. Five of them which are felt to be indicative are listed below:

1. Canadian cognitive abilities test, nonverbal battery (CCAT)
2. Canadian tests of basic skills (CTBS)
 - a) vocabulary
 - b) reading
 - c) language skills (spelling, capitalization, punctuation and usage)
 - d) work-study skills (map reading, reading graphs and tables, etc)
 - e) mathematics skills (concepts and problem solving)
3. Metropolitan achievement tests: science (MAT)
4. Test de rendement en français (testing general achievement in French)
5. Test de compréhension auditive (testing understanding of spoken French)

Prior to the tests it was found that the IQ scores in the immersion groups were

significantly higher than in the conventional program groups. One can speculate that this might be explained to the cognitive advantage of bilingualism as discussed in Section 2.1.2. But there was not any formal explanation of this in Cummins and Swain. For fair comparison, they used a one-way analysis of covariance to adjust the differences in IQ between the two groups.

It was feared that the immersion program might have detrimental effects on students' academic and cognitive achievement. While it was true that students' initial lags in some areas such as English and Mathematics were apparent up to Grade 3, the immersion students started to perform equally well or even outperform their counterparts in the comparison groups from Grade 4 onwards in each of the following:

- a) French (students' L2)
- b) English (students' L1)
- c) Content achievement such as Mathematics and Science
- d) Work-study skills

The conclusions drawn by Cummins and Swain are like this. First, Early French Immersion program is able to promote bilingual proficiency to a far greater extent than its conventional counterparts. Contrary to what was previously feared, the program shows no negative impact on students' L1, content and cognitive achievement. In fact, there are indications that the program may have positive effects on L1 development. Second, long term evaluation is necessary to show the favourable effects of the program as initial lag in achievement is typical among immersion groups.

Apart from Cummins and Swain, a small scale study on the perspective of the students educated in Early French Immersion program is conducted by Foster (1998). Three graduates from the program four years ago are asked to give response to a semi-structured questionnaire designed by the researcher. The topics include students' decisions about post-secondary education, career choices, language-related experiences since graduating from high school, recommendations for participants and educators in French immersion programs and attitudes about their own children's participation in French immersion. Though their immersion experiences affect neither their post-secondary education nor career choices, their responses about the program are all positive in other indicators. In addition, they feel the experience let them perceive and conceptualize ideas differently from their non-immersion counterparts. This is one of the many studies supporting the value of the Canadian Immersion Program.

Measuring the language development of academic register in minority languages has always been difficult because minority languages are rarely used for teaching at school where academic register is developed. Dealing with the bilinguals of English and Spanish in Australia, Gibbons and Lascar (1998) approached the difficulty by performing register analysis of the primary and secondary textbooks used in some South American countries. Then, they developed means which allow them to measure acquisition of Spanish academic register economically from scratch. A register-sensitive multiple-choice cloze test was developed as a result. It is now possible to measure the language development of academic register in minority languages.

Systematic evaluation of bilingual children's ability upon children's arrival at school

is said to be rare (OFSTED, 1992). This presents difficulties to the teachers who would like to design more individualized plans for students in need. In light of this, Haworth and Joyce (1998) developed a form called 'The Bilingual Language Assessment Record' which, upon completion, will provide useful information of the language capacities of the children.

The procedure of administering the Record is like this. First, the one who is familiar with the children (e.g. the teacher or caretaker) collects samples of a child's utterances in his/her L1 and L2 in different situations. The results of the sample shall be compared with those from the same-age bilingual peers. Areas of comparison include, for example, the following:

1. orientation and concreteness of the topic (is it only here-and-now orientation or things being talked about are always actual instead of hypothetical?)
2. the complexity of words and sentence structures used, and the level of creativity of the languages being used. The records are then filed for checking progress and discovering any possible areas to improve later.

The rationale of the record is to assess students' oral proficiency in a natural setting without any norm-referenced assessment, which may harm the young children. It also incorporates both L1 and L2 so that there can be a more holistic view of the children's linguistic proficiency.

On the other hand, students' self evaluation as a means of continuous assessment is also proposed in the field of second language teaching. Heaton (1990) recommends administering questionnaires regularly which involves questions about the progress

and problems students face with their language learning. Teachers can give comments to the students based on the evaluation either on the evaluation form, or during the interview which shall be held when deemed necessary. It is also encouraged that students keep a diary about their learning so as to facilitate their completion of the questionnaire.

The evaluation of bilingual education which is said to be the largest of its kind in Hong Kong was done by Hau et al. (2000). 56 local secondary schools were asked to participate to form a representative sample regarding MOI, school intake, religious backgrounds etc. 12,784 students in grade seven were involved. Their placement scores were collected prior to entering those participating schools. Achievement tests were administered at the end of Grades 7, 8 & 9 each year in the three core subjects (i.e. Chinese, English and Mathematics) and three additional subjects (i.e. History, Geography & Integrated Science). Students were selected on a modified random matrix sampling design in two testing sessions conducted on the same day. In the first session each student took a test on one core subject, and in the second session they took a test on one additional subject.

The primary research question is whether the medium of instruction has an impact on the achievement on both the core subjects and the additional subjects. The use of English at school is further clarified in a questionnaire administered to participating students. It consists of four questions for each of the six reviewed subjects. The first three are measured on a three-point scale (1=Chinese only; 2=mixed; 3=English only). The last one was measured on a seven-point scale, ranging from Chinese only (1) to always switching between Chinese and English (4) and English only (7). They are as follows:



1. Language used in tests and exams
2. Language used for homework assignments
3. Language used for textbooks
4. Language used by the teacher.

On top of these, eight additional questions are asked referring to the use of English in other school activities such as morning assembly and open day. They are again measured on a seven-point scale instead of three to cater for its variety.

Statistical maneuvering enables the researchers to level out students' initial differences in achievement and measure the effects based on the different medium of instruction they received. Correlations between the English instruction and post-test achievement scores were moderately positive in English as well as Chinese. While a slightly negative correlation was observed in Mathematics, a much more significantly negative correlation was present in all three additional subjects over time. As discussed in Chapter 1 and 2, Hau et al. are skeptical about the large scale provision of English medium of instruction in Hong Kong. But they do acknowledge the value of EMI in securing students' proficiency in L2 as well as L1 as presented in Section 2.1.3.

From the examples of evaluation of bilingual programs discussed so far, three common directions can be located. They are evaluations on students' achievement in:

- a) linguistic proficiency
- b) content knowledge, and

c) cognitive abilities

Cognitive abilities and content knowledge are usually measured by formal testing tools. The Canadian Cognitive Abilities Test (CCAT) by Cummins and Swain (1986) and Achievement tests by Hau et al. (2000) are some examples. Interviews are sometimes used as in Foster (1998), where wider conceptualization resulted from bilingual experience is revealed. As for the evaluation of linguistic proficiency, there is more variety. One may create a test from scratch as in Gibbons and Lascar (1998), or use readily available tests like Canadian tests of basic skills (CTBS) in the Canadian program. In addition, apart from administering formal written evaluation tools like 'English Story Completion Test' by Cummins and Swain (1986), students' oral proficiency can be ascertained in natural settings by means of 'The Bilingual Language Assessment Form' as proposed by Haworth and Joyce (1998).

The more meta-cognitive evaluation on the progress of language learning can also be facilitated by questionnaires as well as diaries as in Heaton (1990). Statistical tools may be employed for evaluating the results obtained in the questionnaire as in Hau et al. (2000).

The discussion of the possible tools to use in evaluating bilingual programs will stop here. In the next Chapter, 'Developing a Research Design and Methods', I will explain the setting up of the research design aiming to objectively evaluate the project drawing from some advices already discussed in this Chapter.

Chapter 5: Developing a Research Design and Methods

I have so far reviewed the literature on the medium of instruction, research

methodology, the evaluation tools and some issues of evaluation. The purpose of this chapter, 'Research Methodology & Evaluation', will be to develop an overall design 'specifying when, how, and from whom measurements will be collected in the evaluation', reminiscent of what Fitz-Gibbons and Morris (1987) propose in Section 4.1.2. This overall design will provide for the elicitation of the data needed to find a response to the research questions. Let's recall them here:

1. Whether students can maintain their progress in the project according to the standard set by local secondary schools, and to what extent.
2. Whether there is a change of willingness to accept the partial English medium of instruction after the project is in place for a substantive period of time, and to what extent.

Bearing in mind that the project claims itself an action research, gathering of evidence in this regard is also another major task to do throughout the project.

It is important to recall that effective evaluation can take whatever forms, no matter it is quantitative, qualitative, conventional, case-study oriented, or a combination of them, as long as it is deemed reasonable.

5.1 Issues of Research Methodology for the Present Study

5.1.1 The Case and Key Informants

The case is a partial English immersion project in the school where I work. It is a secondary school established in 1984 in Tsing Yi, a remote island inhabited by almost entirely lower class families living in the public housing estates there. The area has been growing rapidly thanks to its size and its proximity to the new Chek Lap Kok

International Airport opened in July 1998. More private and middle-class estates were built and the image of the island has changed accordingly. But student socio-economic status remains largely the same as the Assistant Principal reveals²².

The school is reasonably reputable in Tsing Yi, and has been popular among students with average or above average results who prefer a shorter commute for school. Nonetheless, most of the academically capable students allotted to the school through the central allocation system would opt to leave since it is a Chinese medium school reputable for extra-curricular activities instead of proper academic studying.

There are four classes in each form, each consisting of over 40 students. When the project was introduced in March 2002 there were three elite classes and one non-elite class in each form. The elite classes were composed of students ranking the top 75% in the previous academic year. Since students were randomly assigned there, the three classes are of equal standard. The non-elite class comprises the remaining 25% of students.

This arrangement was reversed from September 2002 onwards where the ratio between elite and non-elite classes was one to three instead. However, no matter what class, the expectation on the teachers and students was the same when it came to tackling either the partial English medium or the normal curriculum.

Prior to the introduction of the project, a Committee called Curriculum Reform

²² The Assistant Principal has been reminding homeroom teachers in our school to encourage students in financial need to apply for government subsidy on different occasions, for 'we are classified as the bottom 10 percent schools in Hong Kong in terms of family income by the Education and Manpower Bureau'.

Committee had been set up. As its name implies, the Committee was to be involved in issues regarding curriculum reform ultimately, but would be primarily concerned with the implementation of the Partial English Immersion Project as its first step. This was so because the adverse effect on students' command of English resulted from the 'mother-tongue' education surfaced to a point which warranted immediate remedial action in 2002. The core members of the Committee consisted of the Coordinator of the Committee (i.e. myself), the Principal and an Assistant Principal. The Principal had been clear about what needed to be achieved at the outset and deliberately put the Assistant Principal on the Committee as he felt the Coordinator needed to be 'backed up with authority in practical matters'.

There was also one representative from the subjects of Integrated Science, Mathematics, and Economic and Public Affairs who were supposed to be the mediators between the Committee and other teachers teaching the subjects. It turned out that the representative of Integrated Science was its Panel Head, while the ones in Mathematics and Economic and Public Affairs were subject teachers. Each of them taught one or two classes in either one or two forms. The ethos in the Committee was generally fine except for a member or two who displayed a rather unsupportive attitude because of the compulsory participation in the project.

It was soon found that mediation could not be done effectively since not all subjects in all forms (the total being eight) were being represented by the six core members. More subject teachers were invited to join the meetings based on the extent to which they were involved in teaching the subjects²³. The number usually exceeded 10, and

²³ Mathematics and EPA at junior forms are customarily taught by a mixture of 'core' and 'non-core' teachers, the former is characterised by having teaching duties in senior forms in the same or related subject.

new faces were present in different meetings based on the new teaching load and specific agenda. But the core members understood they had the duty to be present in every meeting.

Students as the most important group of informants in this project were notionally divided into one large group and one small group. The large group consisted of all the junior form students (n~300-500 throughout the project) who would be taught in the partial English medium. They would undertake the pre-and post-student questionnaire. The small group (n=12) consisted of those selected from that population based on their willingness to accept the offer and their suitability to represent students of different aptitudes. They would keep a diary of their feelings in the first two months of the project. Once the diaries were collected and brief interviews done, they would be disbanded so that my effort could be saved for any other concerns as the project went on.

5.1.2 Ethical Issues

Whenever there is research there are ethical issues to deal with. Ethical issues common to educational research such as informed consent and confidentiality are well documented (for example, see Burgess, 1988; Mathison, S. et al., 1993). However, action research as a comparatively newer form of educational research also has to deal with ethical issues different from the traditional ones guiding conventional scientific research. Zeni (1998) is well aware that many of the ethical rules guiding the traditional outsider in quantitative research are irrelevant to action research which is predominantly 'insider and qualitative'. A guide of ethical issues to action research devised collaboratively by her and her teacher researcher colleagues consists of six parts. Not all the parts are directly related to questions to ethical issues. Some of them

only aim at providing chances for researchers' reflection over the, say, roles of the researchers and the aim of the research. It is the fifth part, "ethical questions specific to 'insider' research", that has exclusive focus related to action research. There is a list of 12 questions; the ones felt to be most relevant to this project are summarized as follows:

Some relevant ethical questions to the Project

1. What do your students know of this project? Who told them? What are the risks to them or their families of their knowing (or not knowing) what you write or collect? Explain your decisions.
2. Who else will read your field notes or dialogue with you to provide 'multiple perspectives'?
3. How will you store and catalogue your data during and after the study?
4. Will your findings be confirmed by observers who do not share your assumptions? How will you protect yourself from the temptation to see what you hope to see?
5. Who is responsible for the final report? Will other stakeholders (teacher? Principal? School board?) review your report in draft? Will this:
 - a) improve your accuracy?
 - b) compromise your candor?

(Zeni, 1998:16-17)

One can easily see that these questions reflect the very important essence of action research. Teachers and parents involved are more than participants; they are actually 'co-researchers' and deserve the entitled rights. For example, right to participation and right to protection. Attempting to maintain a high standard of ethics of this action research project, I shall try to address the questions aforementioned.

Prior to the implementation of the project a pre-questionnaire was devised aiming to solicit the views towards partial English medium of instruction. Students were informed in the questionnaire of what change they would expect to see and invited to voice their opinion towards the project with no risk involved. On the other hand, addressing the right to participation of colleagues at school, the Principal spoke at length more than once in several staff meetings explaining the rationale behind the

project. Both the Principal and I felt that the more the 'co-researchers' know at the outset, the more feedback we could collect the better.

Although the project is primarily an initiative concerned with students and teachers, parents as one of the 'co-researchers' in the process of action research deserve the right to participation too. For this reason a notice was sent to the parents prior to the implementation of the project where the rationale was explained. Since their experience of the project is largely hearsay and unavoidably impressionistic, their views would only be solicited on casual basis. For example, during the social events organized by the Parent-Teacher Association. The principal took the lead.

A high level of participation is especially important for the teachers who are directly delivering the lessons in partial English medium. Regular meetings were held from the implementation of the project, where general statistics such as students' mean marks in Chinese and English parts in the subjects involved were given for reference. While minutes of the meetings were written by myself, interpretations of the project were largely formed collaboratively. The concern of bias of 'multiple perspectives' was properly taken care of for there had constantly been more than 10 colleagues joining the meeting each time.

Colleagues were told that all the raw data are open for viewing except the student diary, which was stored at home instead of the office. This was done, obviously, for the right to protection of the students who kindly agreed to share their very personal thoughts with me, the principal researcher. Another piece of data of which the colleagues might well be unaware its presence was my research diary. It contained personal feelings too sensitive to be shared. It was the single piece of data only

reported in this thesis instead of having been reported in the meetings or exchanged casually among colleagues.

5.1.3 Methods of Data Collection

As for any research, there are notes to make regarding the data collection. Being the Coordinator of the Curriculum Reform Committee, I could easily gain the access to students' quantitative data on the tests and examinations by asking teachers concerned to fill out mark sheets prepared beforehand. As for the pre- and post- student questionnaires, there was not much problem giving brief announcements in the morning assembly by myself to inform the students to fill them out under the supervision of other teachers at appropriate times of the day.

It is trickier for the collection of the qualitative data in student diary. This is so because asking a student with whom the researcher does not have some kind of rapport to write reflections intensively is quite impossible. As mentioned in Section 5.1.1, the choice of subjects in that regard was limited to those whom I had taught before, and who were perceived to be able to execute the task despite their varying levels of academic achievement. The diaries were collected before the summer holiday of 2002, and a little certificate of appreciation was to be given to those who submitted the diary to me.

Having reiterated the case and its related issues, it is time to talk about the tools to be used for evaluating the project. Quantitative tools will be discussed first in Section 5.2 followed by the qualitative ones in Section 5.3.

5.2 Quantitative Tools for Measuring Students' Performance and Attitude

The two quantitative tools adopted for measuring students' performance and attitude are student test scores and student questionnaire. They respectively enable me to answer the two research questions, namely if students are performing well according to the standard set by local schools, and if they become more willing to accept partial English MOI after taking the project.

5.2.1 Measuring Student's Performance: Student test scores

An objective indicator telling how well the students are doing in the partial English medium of instruction lies in their performance in the tests and examinations.

A brief description of the tests and examinations may be necessary before talking about the detailed calculating procedure. With the project up and running in Mathematics, Integrated Science and Economic and Public Affairs, part of the teaching would be conducted in 'Chinese' and the rest in 'English'²⁴. Accordingly, tests and examinations would consist of two parts, Chinese and English.

At the beginning of the project, it was agreed that English part would contribute to no less than 15% of the test paper in the participating subjects in no less than two out of the four assessments in each year. The Chinese part would accordingly contribute to no more than 85%. As the project continued it became typical that 20% or more were set for the English part in three or even all the assessments in each year. A sample of the typical test paper in the Project can be found in Appendix 2.

The calculation to be made with the student test scores to answer the first research

²⁴ 'Chinese' is defined as using Cantonese for oral teaching, and Modern Standard Chinese (MSC) for print materials. 'English' is defined as using Cantonese supplemented with English for oral teaching, and English for print materials.

question, namely, whether students can maintain their progress in the program, is like this. First, mean marks of the Chinese parts and English parts obtained by the students in each paper concerned would be calculated. The number of passes²⁵ in each part of each paper was counted. This could show how well the students were doing in the Chinese parts, and tell whether they can maintain their progress equally well under the partial English medium of instruction overall.

Ideally, to obtain a more accurate evaluation, it may be desirable to seek a consensus as to the proportion of different test items (e.g. multiple choice questions and long questions) present in Chinese and English parts among different participating subjects. If this was not done, then valid comparison of the percentages between the Chinese part and the English part may not be possible. So doing, however, would require way beyond the resource the school can afford. And whether that is really necessary given the nature of action research in this study is open to question. Therefore, the setters of the examination papers of different participating subjects had simply agreed that the difficulty of the English parts and Chinese parts should be roughly the same.

Due to heavy workload, only the scores from the final examinations would be collected and analyzed at the initial stage. It is expected the analysis would be extended to the other tests and examinations when additional resource is available.

5.2.2 Measuring Students' Attitudes: Student questionnaire

The second quantitative tool to be used in the project is the student questionnaire, which measures the changes of students' attitude towards the program as my second research question aims to. Regarding this, two questionnaires were administered. The

²⁵ The common yardstick for passes in H.K. secondary schools is 50% or above.

first was administered in February, 2002. The second questionnaire, which was largely the same as the first except the addition of a few more items, was administered roughly 15 months later in June, 2003. The time is felt to be long enough to observe any change of the attitude while students' memory and experience of the program was reasonably fresh. Also, it is long enough for them to have forgotten what they said in the first one, thus raising the reliability of the results obtained. The complete pre- and post- questionnaire, written in Chinese first and translated to English for reporting purpose, can be found in the Appendix 3.

Some issues of administrating a questionnaire were consulted prior to its administration. Apart from its apparent strengths such as cost effectiveness and low pressure on respondents, Gillham (2000) talks about the potential problems of using a questionnaire for evaluation. For example, misunderstandings during answering the questionnaire cannot be corrected; respondent uncertainty over the use of data will also lead to biased answers. Further possible pitfalls in reliability of the results obtained lie in the absence of pilot testing of the questionnaire prior to its full implementation and the sloppy answers given by respondents because of length and/or textual boredom.

In many ways Gillham's advice is congruent to Sander's (1992), which was presented earlier in Section 4.1. Let's recall it:

Basic Guidelines of Administering a Questionnaire

- | |
|---|
| 1. Provide clear instructions, including a due date |
| 2. Don't ask leading questions |

3. Group questions according to topic
4. Make it attractive
5. Keep it short
6. Do not assume too much knowledge
7. Begin by asking easy, impersonal questions

Some ways to minimize misunderstandings during answering the questionnaire by Gillham are already dealt with by Sander. For instance, providing clear instructions, grouping questions according to topic, and avoiding assuming too much knowledge. As for the sloppy answers given by respondents, it can be partly offset by keeping the questionnaire short and making it more attractive.

The major difference between Gillham and Sander is perhaps the latter did not mention pilot testing of questionnaire, which was also absent in the present study. Tight schedule prior to the implementation of the program in 2002 meant the effort had to be directed to the more pressing concerns such as notes making and meetings striving to reach consensus. Being aware of the pitfall, I tried to remedy it by inviting a colleague to inspect the questionnaire before it was administered (details to be presented in Section 5.2.2.3). Fortunately, no complaint about misunderstanding or other problems was filed after the questionnaire was finished. The same questionnaire was therefore used with only minor amendments in wordings in June 2003 (See Section 5.2.2.1.3 for details).

5.2.2.1 Concerns of Questionnaire

To show the steps taken for securing the integrity of the Student Questionnaire, some

of the concerns regarding effective questionnaire administration will be elaborated further in the following sections.

5.2.2.1.1 Minimizing Textual Boredom and Grouping questions according to topic

Minimizing textual boredom is important because it affects truthfulness of the responses obtained. Textual boredom can be minimized by varying the way the questions are asked as Gillham suggested. Here are some examples showing different sentence structures used in the Student Questionnaire:

Sentence Structures in the Student Questionnaire

Structure	Example			
1. Yes/No Question	3. Do you think partial English MOI has been beneficial to you in the followings: a) Having raised your reading ability in English 1 2 3 4 5 6 7 _____ Completely disagree No opinion Completely agree			
2. Wh- Question	5. Reading habits a) How much time do you spend on reading extra-curricular Chinese Language books every week? i. Never ii. 0.5-1 hour iii. 1-2 hour iv. 2-4 hours v. over 4 hours			
3. Statement	7. Standard of language a) You think your standard of Chinese Language is good 1 2 3 4 5 6 7 _____ Completely disagree No opinion Completely agree			
4. Statement & Question	4. Partial English MOI will continue in the next academic year. How willing are you to see that happen in the following subjects? <table><tr><td>Subject</td><td>The extent you like the subjects</td></tr></table>		Subject	The extent you like the subjects
Subject	The extent you like the subjects			

	a) Economics & Public Affairs	1	2	3	4	5	6	7
		Very unwilling		No preference			Very willing	
	b) Mathematics	1	2	3	4	5	6	7
		Very unwilling		No preference			Very willing	

Let’s talk about grouping questions according to topic. There are two major groups of questions being asked: 1) students’ view towards medium of instruction, different academic subjects and language attainment and 2) students’ linguistic practice. This corresponds to the two common categories of questions in a questionnaire observed by Gillham: 1) questions about opinions, belief, judgements, and 2) questions about behaviour. The questions about behaviour in the questionnaire are not actually related to this project; they are asked here because it is perceived to be of interest to the Panel of English in my school.

The two major areas of questions breed seven different constructs as follows:

Major Area and Construct solicited in the Student Questionnaire

Major Area	Construct solicited
1. Students’ view towards different kinds of medium of instruction, different academic subjects and language attainment	a) Views towards MOI in general
	b) Views towards partial English MOI in raising language standard
	c) Willingness to accept partial English MOI
	d) Views towards subjects
	e) Views towards personal standard of language
	f) Expectations on language attainment
2. Students’ linguistic practice	a) Extent to which receptive skills are practiced

Based on the constructs, different questions were written. Here is a summary of all the questions present in the Student Questionnaire with the constructs each of them aimed

to elicit:

Grouping of Questions in the Student Questionnaire

Question Number	Questions	Construct solicited
1	How willing are you to accept: a) Mother tongue education (i.e. textbook, notes, teaching and examinations are all in mother tongue) b) English medium education (i.e. textbook, notes, teaching and examinations are all in English)	Views towards MOI in general (1a)
2	Please describe the extent to which you like the following subjects: a) Chinese b) English c) Mathematics d) Economics & Public Affairs e) Integrated Science f) World History g) Design & Technology h) Home Economics	Views towards subjects (1d)
3	Do you think partial English MOI will be beneficial to the followings: Raising: a) reading ability in English b) writing ability in English c) aural and oral ability in English d) interest in the subjects taught e) any other advantages or disadvantages (Please elaborate):	Views towards partial English MOI in raising language standard (1b)
4	If partial English MOI is adopted in the following subjects starting from March this year, how willing are you to accept? a) Economics & Public Affairs b) Mathematics c) Integrated Science d) World History e) Design & Technology f) Home Economics g) Geography	Willingness to accept partial English MOI (1c)
5	Reading habits a) How much time do you spend on reading extra-curricular Chinese Language books every week? b) How much time do you spend on reading extra-curricular English Language books every week?	Extent to which receptive skills are practiced (2a)
6	Listening habits a) How much time do you spend on watching English Language programmes, or listening to English Language radio stations or English songs every week? b) How often do you use Nicam system to turn the English Language	Extent to which receptive skills are practiced (2a)

	programmes into Chinese? c) How often do you speak English with friends/ teachers/anybody?	
7	Standard of language a) You think your standard of Chinese Language is good b) You think your standard of English Language is good	Views towards personal standard of language (1e)
8	Expectation a) I hope I will be able to read and write well in Chinese Language b) I hope I will be able to read and write well in English Language c) I hope I will be able to speak well in English Language	Expectations on language attainment (1f)

To collect students’ responses, a Likert scale of 7 points was used for each of the question except Questions 5 and 6, where five options specifying more discrete amounts of time were provided. Discrete amount is felt to be more reflective of reality than the notionally based Likert Scale there.

5.2.2.1.2 Avoiding Assuming Too Much Knowledge and Ensuring Clarity of the Questions

Having been working with matters related to medium of instruction for a long time may make one automatically assume concepts in the field are self-explanatory even to outsiders. Being aware of such a tendency, I try to ‘stand in the shoes’ of the students and explain every technical term as much as possible in the questions. Consider the following two examples:

Example 1

1. How willing are you to accept: a) Mother tongue education (i.e. textbook, notes, teaching and examinations are all in mother tongue) b) English medium education (i.e. textbook, notes, teaching and examinations are all in English)

Example 2

Since March 2001, partial English MOI has been adopted in some sections in some of the subjects, namely EPA, Maths, Integrated Science as well as Geography. If you recall, notes, exercises and examinations in those sections were in English, while teacher's teaching was in Cantonese.

In Example 1, it is evident the terms 'mother tongue education' and 'English medium education' may not be clear to the students despite their experience of having to indicate their preference for a CMI or EMI secondary school at the end of their primary education. The words in parenthesis made sure students were not assumed to have too much knowledge of the questions they are asked for. Similarly, Example 2 elaborated on the term 'partial English MOI' despite students' experience of having been subjected to the program for 15 months. This transition paragraph was given before related questions were asked to keep the assumption of prior knowledge to its minimum.

Avoiding assuming too much knowledge of the students is, to a certain extent, creating the clarity of the questions asked. Another way that was adopted to ensure clarity of the questionnaire was to invite a third party to inspect it prior to its distribution. A Mathematics teacher who participated regularly as the subject representative in our meetings kindly took the job. As I recall, it was he who suggested the term 'Partial English Medium of Instruction' be explained in a transition paragraph instead of a parenthesis like the terms 'mother tongue education' and 'English medium education'. The practice of inviting a third person to inspect the questionnaire before administering it also has implication on the matter of validity. This will be picked up in the next section.

5.2.2.1.3 Other Concerns: Wordings, Reliability and Validity

As discussed, the student questionnaire was administered twice. During the second time the questionnaire was administered, a few more items were added and minor changes in wordings were made to reflect the time factor the students had since the time they filled in the questionnaire the first time. Here is an example:

First Time:

Starting from March this year, partial English MOI will be adopted in some sections in some of the subjects. This means textbook, notes and examinations will be in English, while teacher’s teaching will be in mother tongue.

Second Time:

Since March 2001, partial English MOI has been adopted in some sections in some of the subjects, namely EPA, Maths, Integrated Science as well as Geography. If you recall, notes, exercises and examinations in those sections were in English, while teacher’s teaching was in Cantonese.

Reliability and validity are pertinent concerns to questionnaires, too, as mentioned in Section 4.1.2. Litwin (1995) talks about different kinds of reliability and validity in surveys, which are also applicable to questionnaire. They are summarized as follows:

Table 5.2.2.1.3 Types of Reliability

Types of Reliability	Characteristics
Test-retest	Measures the stability of responses over time in the same group of respondents
Intra-/Inter-Observer	Measures the stability of responses over time in the same individual respondent or two or more respondents
Alternate-form	Uses differently worded stems or response sets to obtain the same information about a specific topic

Internal consistency	Measures how well two or more respondents rate the same phenomenon
----------------------	--

(Litwin, 1995: 30)

Types of Validity

Types of Validity	Characteristics
Face	Casual review of how good an item or group of items appear and its authenticity
Content	Formal expert review of how good an item or series of items appear
Criterion: Concurrent	Measures how well the item or scale correlates with 'gold standard' measures of the same variable
Criterion: Predictive	Measures how well the item or scale predicts expected future observations
Construct	Theoretical measure of how meaningful a survey instrument is after years of experience

(Litwin, 1995:45)

Let’s discuss the validity of the questionnaire first. As discussed earlier, the tight schedule prior to the implementation of the project prevented detailed testing of the questionnaire developed. Nevertheless, a colleague was invited to look at the questionnaire before it was distributed. The face validity was ensured. To a certain extent, the content validity was also secured as this colleague, who was responsible for counseling matters, had good experience in handling questionnaires. The rest of the validities mentioned, namely concurrent validity, predictive validity and construct validity, were inapplicable given the uniqueness and the action research orientation of this project.

To ensure high reliability of the questionnaire means much pilot testing and statistical analysis would have to be done, which is beyond what the program could afford in the beginning. For example, some students may have to be called out to do the

questionnaire again at a not too distant time to ascertain the intra-observer reliability. A separate statistic, Cronbach's coefficient alpha, would also have to be calculated for measuring the extent of correlation present among different items aiming to measure the same construct²⁶.

Another concern, the inter-observer reliability, is not applicable because the questionnaire was answered by the respondents. But in retrospect, one thing that might raise the reliability of the comparison between the pre- and post-questionnaire is the use of alternate form, which alters the original order the questions are asked in the post-questionnaire. Students' answers in the post-questionnaire would therefore be less likely influenced by their previous answers in the pre-questionnaire. However, it must be stressed that this is only a minor improvement, because the 'practice effect', the tendency to answer questions based on memory, was kept minimum by the long time (15 months) present between the pre- and post- questionnaire.

5.2.2.2 Procedure for Questionnaire Analysis

Let's recall once again the second research question of this project which the questionnaire may serve to answer:

'Whether there is any change of student willingness to accept the partial English medium of instruction after the project is in place for a substantive period of time, and to what extent'

²⁶ 'Academic Technology Services' of 'University of California Los Angeles' (UCLA) offers the following description of 'Cronbach's alpha':

'Cronbach's alpha measures how well a set of items (or variables) measures a single unidimensional latent construct. When data have a multidimensional structure, Cronbach's alpha will usually be low. Technically speaking, Cronbach's alpha is not a statistical test – it is a coefficient of reliability (for consistency).'

Source: <http://www.ats.ucla.edu/stat/spss/faq/alpha.html>

‘Change of student willingness’ may be obtained qualitatively and/or quantitatively. This project utilizes both ways to gauge the change as the combination of them is already established as most effective. The qualitative way, student diary, will be discussed in the next section. This section will focus on the quantitative way, the student questionnaire.

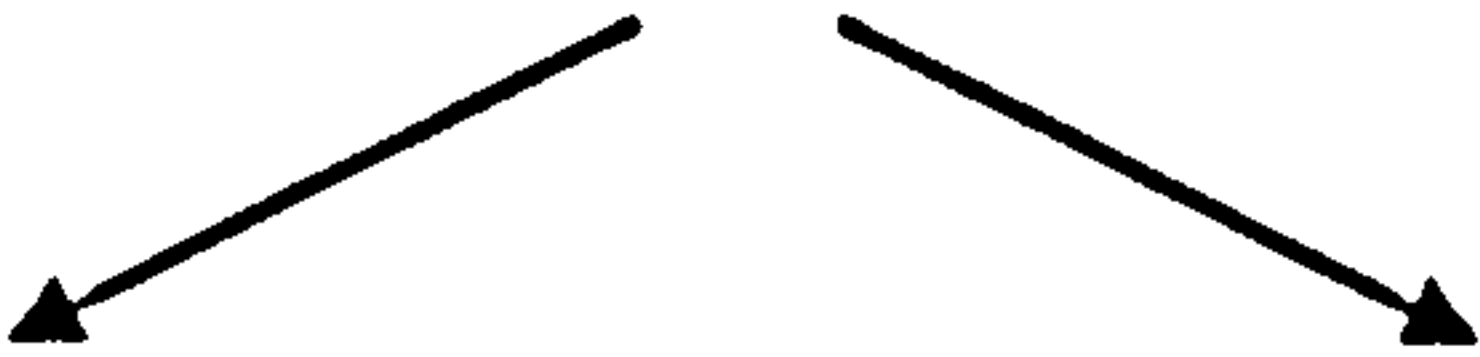
My second research question can be separated into two parts, namely, ‘whether there is any change of student willingness to accept the partial EMI’, and ‘to what extent’. Each part in fact requires different quantitative measures to deal with. For the first part, inferential statistics will be employed; as for the second part, descriptive statistics is felt to be more appropriate.

The rationale of the idea above is as follows. Inferential statistics is used for the first part because determining ‘whether there is any change of student willingness’ is essentially about ascertaining whether the differences obtained (if any) are attributed to real differences instead of chances. Inferential statistics, which develops from mathematical probability (Hopkins et al., 1996), is therefore the right direction to go. Having said so, one should be reminded that inferential statistics only enables us to obtain a p-value, which tells if the comparison is significant. There is no direct reference in the hypothesis testing to the *magnitude* of the effect of interest, which is the ‘to what extent’ part. Given the incomplete story told by a single p-value, descriptive statistical approach, which may include charts and calculation of means at its basic, is needed to provide a more meaningful interpretation of the data obtained.

Here is a table summarizing the steps to be taken for the part of inferential statistics:

Inferential statistics

Step	Procedure	Explanation
1.	Conduct the Kolmogorov-Simimov test	Kolmogorov-Simimov test is a statistical test which ascertains the normality of the data distribution. It tells whether parametric tests (e.g. T-test) or non-parametric tests (e.g. Wilcoxon Signed-Ranks tests) shall be used to determine statistical significance. If the p-value is smaller than 0.05, the null hypothesis (i.e. the data is normally distributed) shall be rejected. In which case, non-parametric tests shall be used.



If null hypothesis is rejected			If null hypothesis is accepted		
Step	Procedure	Rationale	Step	Procedure	Rationale
2a	Conduct Wilcoxon Signed-Ranks tests	To test whether changes between pre- and post-questionnaire are statistically significant	2b	Conduct T-Tests	To test whether changes between pre- and post-questionnaire are statistically significant
3a	Observe the sign of test statistics from the Wilcoxon Signed-Ranks tests	The signs of test statistics allow deeper understanding of the direction of change.	3b	Obtain the mean differences of each item between the pre- and post-questionnaire	The mean differences, which come with positive or negative signs, allow deeper understanding of the direction of change.

Neither the Wilcoxon Signed-Ranks test nor the T-test is immune to the problem of multiple testing, which is about testing hypotheses about the difference between two means many times. Here is a more detailed description of the problem:

If a single test was to be employed to test a null hypothesis, using 0.05 as the significance level and if the null hypothesis was actually true; the probability of reaching the right conclusion (i.e.,

not significant) is 0.95. If two such hypotheses were tested, then the probability of reaching the right conclusion (i.e., not significant) on both occasions would be $0.95 \times 0.95 = 0.90$. If more hypotheses (n) were tested and if all of them were in fact true, the probability of being right on all occasions would decrease substantially (0.95^n). In other words, the probability of being wrong at least once (or getting a significant result erroneously) would increase drastically ($1 - 0.95^n$). Put simply, by running more tests on a given data set, there is an increasing likelihood of getting a significant result by chance alone.

Quoted from 'The Royal College of Surgeons of Edinburgh – Surgical Knowledge and Skills Website' ([www.edu.rcsed.ac.uk/statistics/the %20bonferroni%20correction.htm](http://www.edu.rcsed.ac.uk/statistics/the-%20bonferroni%20correction.htm))

Given that there are as many as 30 individual items present in the questionnaire, statistical significances obtained may well be due to chances alone if all of them are analyzed. The most obvious way to minimize such problem would be to reduce the number of testing to be done. That is why only the questions which are essential in understanding students' change of attitude towards the subject partial English MOI would be analyzed in Chapter 6. Another way to minimize the problem which will also be adopted is a measure called 'Bonferroni Adjustment':

'The Bonferroni adjustment for such multiple significance testing is simply to multiply the p-value by the number of tests carried out. The corrected value is then compared against the level of 0.05 to decide if it is significant. If the corrected value is still less than 0.05, only then is the null hypothesis rejected.'

Quoted from 'The Royal College of Surgeons of Edinburgh – Surgical Knowledge and Skills Website' ([www.edu.rcsed.ac.uk/statistics/the %20bonferroni%20correction.htm](http://www.edu.rcsed.ac.uk/statistics/the-%20bonferroni%20correction.htm))

In other words, when performing k paired comparisons, the p-value obtained is multiplied from each test by k . That is, $p' = kp$ is calculated with the restriction that p' should not exceed 0.05. This is what 'Bonferroni Adjustment' is, which adjusts the probability of Type I error where true null hypotheses are rejected due to multiple testing.

The second part of the research question of focus, which is 'to what extent', takes much simpler step. As said, use of descriptive statistics is necessary. This may include, for example, creation of bar charts and calculation of means. Where appropriate, calculations of percentage change of selected items between the pre- and post-questionnaire may also be done for clearer description of the extent of change.

So far two quantitative evaluation tools, namely Student Test Scores and Student Questionnaire, are discussed in Sections 5.2.1 and 5.2.2. I shall now turn to Section 5.2.3, which discusses the qualitative tools to be used to complement the quantitative ones in answering the research questions.

5.3 Qualitative Tools for Measuring Students' Attitudes and the Process of Action Research

In addition to the more quantitative tools used, a more qualitative tool, student diary, would be used to answer the second research question, whether students' attitude towards partial English medium of instruction has changed after taking the project. On the other hand, other qualitative tools like minutes of the meetings held among participating teachers are useful in measuring the process of action research of the project and will be looked at, too.

5.3.1 Measuring Students' Attitudes: Student Diary

The qualitative tool to measure students' change of attitude is the student diary. A number of student diaries were to be collected after the project was initiated for two months. The reactions and problems found in this initial stage, which is believed to be more spontaneous compared to the later stages, will facilitate prompt and timely adjustment of the project before it is too late. My choice of student diary is also

affected by some pertinent literature on evaluation, which will be explained in the following paragraphs.

Traditionally, interview is thought to be the most direct and easiest way of gaining good qualitative data. This is, however, challenged by Bechhofer and Paterson (2000). In addition to showing the complexity of a successful interview in their book, they maintain that 'talking to people' has now been associated to negative things such as bureaucracy and tough assessment.

Bechhofer and Paterson believe the diary is a better alternative. First, the diary has been analysed in social research since the early times of 20th century. What is more important, however, is that the diary allows people to record events and feelings which may be difficult and embarrassing to talk about even with close friends. When it comes to meticulous observation, they argue the smaller and salient events are in fact better recorded in a diary, provided that people are asked to write in a systematic format at regular and short intervals. This allows researchers to see insights that other comparable tools such as interview and survey could not offer.

Two students of different academic ability were to be invited to write the diary about their feelings in the partial EMI lessons from April to early June 2002. All students were either taught by myself in the concurrent academic year or had been taught by myself in the previous academic year. Despite this connection, all of them were told their diaries would only be used for research purpose and never be disclosed without their consent. Accordingly, teachers' names present in their writings would be changed in this thesis. They were also free to write in either Chinese or English (or both as some of them eventually playfully did) as they wished. They were encouraged

to write on a daily basis, though I made it clear to them that twice a week was acceptable if they were busy.

To provide clearer guidance, there was a briefing given by myself to them on a cordial basis as to how they were expected to do their reflections in their diaries prior to the commencement of their writing. As a general rule, there should be a description of all or the most memorable partial English MOI lessons they had in a day followed by a paragraph of feelings.

Content analysis, as discussed in Chapter 4, would be done. A simple counting of the favourable and non-favourable responses would be done followed by a more in-depth content analysis of the meaning from the words written with an awareness of the context the subjects (i.e. the students) were in. This is the advice given by Marshall and Rossman (1999) and Prior (2003) in Chapter 4.

The major limitation of asking students to write a diary is that it is time-consuming for the students. This also gives rise to the problem of assembling a cohort of student writers representative of the student population, for the academically disadvantaged may not accept the invitation easily. This unavoidably makes students' diary a short-term tool for evaluation.

While short-comings are present for using the diary as a research tool, they can be effectively offset by the other more quantitative research tool which is of longer duration and wider coverage in this project – the Student Questionnaire. This again shows the power of the combination of quantitative and qualitative measures in research evaluation.

5.3.2 Measuring the Process of Action Research: Minutes and Research Diary

Another part of the project which needs evaluation is the process of action research. If the process of action research is going well, there shall be traces of problems being raised, plans being contemplated, relevant actions being field-tested, and what to do next from there. The presence of the 'cyclical processes' as Lewin (1948) mentioned shall be evident. What shall also be present is a sense of sustainable development not only in the project itself, but also among the participants. In my case it would be the participating teachers and myself. It is felt qualitative research tools can show the presence of these (if there is any) adequately.

The first qualitative tool to be used in measuring the presence of action research was the minutes of the meetings held among the participating teachers every year. Comments and actions made as recorded in the minutes would be analysed. To maintain objectivity, it is worth mentioning that while the minutes would be written by myself, they would have to be read and seconded by participating teachers.

Anonymity of participants, though a common measure in ensuring confidentiality, was only adopted towards the end of the analysis. While protection of participants' privacy is always important, it was not felt as an urgent matter in the beginning because minutes written, which were circulated among teacher participants, already borne their real names. Another reason for not adopting anonymity until the end is that I found analysis easier when the names are familiar ones. Towards the end of the analysis and submission of this thesis, however, anonymity was felt more urgent because there came the chance, albeit little, that some colleagues who did not belong to the committee might gain access to this thesis after its submission. It was during the final stage of analysis that anonymity was adopted.

Another qualitative tool to be used in this part was the research diary, which was written by myself. The purpose was to record any personal views and feelings essential to the understanding of the project, but which nevertheless might affect the rapport among the participants if it was reported in formal documents such as the minutes as well as the yearly program plans. To ensure its faithfulness, the research diaries would be occasionally read so that errors of perception during the time the diaries were written could be corrected. Again feelings and incidents written by myself would be analysed. However, because formal documents had already provided much of the data needed to evaluate the process of action research, the research diary would only be written once every three months on a casual basis.

Having gone through a number of different research tools, it is time to summarize the research questions and the tools to be used for the evaluation of the project before I turn to the approaches to be adopted for analyzing the data:

Summary of the Research Questions and the Tools for Project Evaluation

	Questions to answer	Tools	Orientation of Tools	Procedure
Part 1 Research Questions	1. Whether students can maintain their progress in the project, and to what extent	Student Test Scores	Quantitative	Calculations of the mean marks and the number of passes in the English parts and Chinese parts
	2. Whether there is a change of willingness to accept the partial English medium of instruction after the project is in place for a substantive period of time, and to what extent	a) Student Questionnaire	Quantitative	Pre- and Post-questionnaires administered with a year and a half time gap
		b) Student Diary	Qualitative	Students' reflections of the project at the initial stage analysed
Part 2 Action	3. Whether there is presence of cyclical process and sustainable development of	a) Minutes of the Meetings	Qualitative	Comments and actions made analysed

Research	the project	b) Research Diary	Qualitative	Feelings and incidents written by the researcher analysed
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Given the length and intensity of the project, a chronology is given for ease of understanding what was done, when and by whom. This is reminiscent of the ‘design’ given by Fitz-Gibbons and Morris (1987) in Section 4.1.

Chronology of the Project

Time	Action/Evaluation	Participants
January 2002	1 st Committee Meeting 2002	Coordinator of the Project, Principal, Assistant Principal, Teacher representatives from Mathematics, Integrated Science and EPA
February 2002 onwards	Production/Amendment of notes for teaching in partial English MOI	Coordinator of the Project and Teacher representatives from Mathematics, Integrated Science and EPA
March 2002	Student Pre-questionnaire	S1 & S2 students of 2002
April 2002	Launch of Program	N/A
May 2002	2 nd Committee Meeting 2002	Coordinator of the Project, Principal, Assistant Principal, Teacher representatives from Mathematics, Integrated Science and EPA
May-June 2002	Student Diary	1 boy and 1 girl from each S1 & S2 class (n=12)
June 2002	Analysis of Results of Final Exam 2002	Coordinator of the Project
July 2002	3 rd Committee Meeting 2002	Coordinator of the Project, Principal, Assistant Principal, Teacher representatives from Mathematics, Integrated Science and EPA
September 2002- July 2003	Research diary	Coordinator of the Project
March 2003	Analysis of Results of 2 nd Standard Test 2003	Coordinator of the Project
June 2003	Analysis of Results of Final Exam 2003	Coordinator of the Project
June 2003	Student Post-questionnaire	S2 & S3 students of 2003

July 2003	1 st Committee Meeting 2003	Coordinator of the Project, Principal, Assistant Principal, Teacher representatives from Mathematics, Integrated Science and EPA
July 2003 onwards	The Project continues except that evaluations done will not be reported in this thesis	N/A

5.4 Approaches to Analysis of Data

After discussing the case and the tools used in the project’s evaluation, it is time that a summary be made about the approaches to analysis of data in this project.

To reiterate, both quantitative and qualitative tools would be used for evaluating the program of Partial English Medium of Instruction. This was done to reap the benefits of the ‘multi-method approach’.

Students’ achievement is best shown by their performance in tests and examinations. The first research question, ‘Whether students could maintain their progress in the project according to the standard set by local schools’, can therefore be answered by looking at the mean marks and the number of passes of the Chinese parts and the English parts attempted by the students in Mathematics, Integrated Science and EPA, the three participating subjects. When ‘passes’ are talked about, what it means is scores with 50% or above, which is the common yardstick for a pass set by the local schools in Hong Kong.

Multiple sources would be relied on to answer the question ‘Whether there is a change of willingness to accept the partial English medium of instruction after the project is in place’ and ‘Whether there is evidence of the benefits of action research for the program’. Let’s talk about students’ change of willingness first. The change was to be

gauged extensively and intensively. The extensive, more quantitative measure to be used was student questionnaire, which gathered opinions of all students before and after participating in the project for 15 months. The intensive, more qualitative measure to be adopted was student diary, which recorded observations and feelings by students representative of the population in the project.

The question whether benefits are present because of action research, which is better taken as a question of interest instead of a research question, may be answered by analysing the minutes of the meetings held in the project and the research diary kept. While these documents would be primarily written by myself, there were measures to ensure their integrity. For instance, the minutes would be distributed to members on board, and the research diaries would be reviewed so that errors could be corrected.

Similarly, the subject of reliability and validity were given consideration for the questionnaire and student diary, the other two pieces of document present in the evaluation. For the questionnaire, some measures like inviting another colleague to inspect the questionnaire before its administration had been employed to ensure its reliability and validity despite the rather tight scheduling in the beginning. For the student diary, analysis to be made was based on both the simple count of students' feelings and a more in-depth interpretation of the words they wrote, which is in fact another example of the 'multi-method' approach. Good reliability of the in-depth interpretation was further maintained when the situation where the words were written was given attention to in the analysis.

Chapter 5 will end here. The next chapter, 'Analysis of Data – Effects & Effectiveness of the Project' will see how the approaches mentioned are put to work.

Chapter 6: Analysis of Data – Effects & Effectiveness of the Project

Let us be reminded once again about the research questions of this project:

1. Whether students can maintain their progress in the project according to the standard set by local schools, and to what extent
2. Whether there is a change of willingness to accept the partial English medium of instruction after the project is in place for a quantifiable period of time, and to what extent

In addition, I will also investigate if there is evidence of benefits of action research in the project.

Different from the previous section, this section will be guided by research questions instead of tools, for it is about time that ‘meaning’ shall take over after the ‘forms’ are explained.

6.1 Whether students can maintain their progress in the project according to the standard set by local schools, and to what extent

The first research question is about how well students have been progressing in the project judged by the standard set by local schools. To answer it, the mean marks of the Chinese and English parts in tests and exams were calculated and the number of passes in each part of each paper was counted.

During the first time the assessment was done (i.e. the final exam in 2002), it was agreed that the English part should weigh 1/5 of the paper while the Chinese part would weigh the remaining 4/5. Later the rule became less strict in view of the actual

needs. The minimum score of the English part was no less than 10%, while the maximum should not exceed 50%. As a result, different papers from different subjects will have different ratios between their Chinese parts and English parts. This rule was applicable for the three major participating subjects (Mathematics, Integrated Science & EPA). The rule was not applicable for Geography, which was not formally under the project. But its' mean percentage was still calculated for comparison purpose.

There were three cohorts of students labeled during the three assessments taken place in the first and second academic year. Cohorts 1 and 2 refers to S1 and S2 students in Academic Year 1 (2001-02); Cohort 3 refers to S1 students in Academic Year 2 (2002-03).

The mean percentage was calculated by dividing the marks obtained from the total marks in the part. Let's take S1 Math in the 2002 Final Exam as an example. The average marks obtained by all S1 students in the English part were 9.6%. Given the full mark of that part was 22%, the mean percentage of the English part of S1 Math was 44%, which can be found on the top left corner in the first table below. Because it is below 50% which is the common yardstick for a pass for Hong Kong secondary schools, an 'F' meaning 'fail' is put next to the number '44'.

Mean Percentages of Chinese Parts and English Parts of the Participating Subjects

Mathematics (Math)					
Academic Year 1 (2001-02)		Academic Year 2 (2002-03)			
2002 Final Exam		2003 2 nd Standard Test		2003 Final Exam	
ENG	CHI	ENG	CHI	ENG	CHI

Cohort 1	44(F)	56(P)	76(P)	68(P)	77(P)	48(F)
Cohort 2	63(P)	67(P)	69(P)	65(P)	40(F)	61(P)
Cohort 3	-	-	20(F)	50(P)	N/A	N/A

Integrated Science (I.S.)

	Academic Year 1 (2001-02)		Academic Year 2 (2002-03)			
	2002 Final Exam		2003 2 nd Standard Test		2003 Final Exam	
	ENG	CHI	ENG	CHI	ENG	CHI
Cohort 1	44(F)	69(P)	N/A	N/A	48(F)	49(F)
Cohort 2	50(P)	52(P)	*	*	*	*
Cohort 3	-	-	51(P)	76(P)	56(P)	61(P)

Economic and Public Affairs (E.P.A.)

	Academic Year 1 (2001-02)		Academic Year 2 (2002-03)			
	2002 Final Exam		2003 2 nd Standard Test		2003 Final Exam	
	ENG	CHI	ENG	CHI	ENG	CHI
Cohort 1	44(F)	72(P)	N/A	N/A	63(P)	69(P)
Cohort 2	42(F)	61(P)	49(F)	69(P)	46(F)	73(P)
Cohort 3	-	-	53(P)	65(P)	N/A	N/A

Geography (Geog)

	Academic Year 1 (2001-02)		Academic Year 2 (2002-03)			
	2002 Final Exam		2003 2 nd Standard Test		2003 Final Exam	
	ENG	CHI	ENG	CHI	ENG	CHI
Cohort 1	N/A	N/A	71(P)	62(P)	75(P)	57(P)
Cohort 2	N/A	N/A	70(P)	53(P)	67(P)	64(P)
Cohort 3	-	-	44(F)	62(P)	65(P)	70(P)

Notes:

- 1. All numbers are in percentages.
- 2. ‘N/A’ means there is not an English part in the subject during that assessment.
- 3. An asterisk ‘*’ means the subject is not offered to that Cohort
- 4. ‘-’ means the Cohort did not yet enter to secondary level

What is interesting is that the number '44(F)' appeared in the three major participating subjects (i.e. Math, I.S. and EPA) for Cohort 1 in 2002 Final Examination. The data was reviewed twice, and it was confirmed that the same percentage was only due to coincidence instead of input error.

Now I would like to look more closely at what the figures in the table of mean percentages revealed:

Overall Passing Rate of the Chinese and English Parts of All Subjects

Generally speaking, the number of passes of the Chinese parts was much higher than that of the English parts. To be exact, there were 24 subject/levels offering both Chinese and English parts across the three assessments in Academic Year 1 (2001-02) and Academic Year 2 (2002-3). From which, 22 subject/levels in the Chinese part obtained passes (P). Only 14 subject/levels managed to do so in the English part.

Overall Passing Rates of the Chinese and English Parts of the Three Major Subjects

Among Mathematics, Integrated Science and EPA, the one which had the greatest number of passes in English parts of the assessment was Integrated Science, which stood at 3 subject/levels out of 5, with one marginal fail of 48% in 2003 Final Exam for Cohort 1. It was followed by Mathematics, which stood at 4 subject/levels out of 7. EPA, which involves the richest content presented in L2, came last. Only 2 subject/levels passed out of 6, though there was a marginal fail of 49% in 2003 2nd Standard Test for Cohort 2. This trend is reminiscent of Hau et al (2000), whose research findings implicitly suggest the more second language involved in the subject, the less content knowledge of that subject can be acquired.

S1 Mean Percentages of the Chinese and English Parts of the Three Major Subjects

Another piece of evidence which may support Hau et al's proposition is the lower mean percentage of the English parts across the major participating subjects. This is particularly so when students were in S1 level. For instance, the English parts of EPA, which is argued to be most seriously affected by L2 instruction, scored 28% and 12% less than their Chinese counterparts in 2002 Final Exam (Cohort 1) and 2003 2nd Standard Test (Cohort 3) respectively. Mathematics was not doing much better. In an extreme case (2003 2nd Standard Test for Cohort 3), the difference between the English and Chinese parts was more than double (i.e. Eng: 20% Vs Chi: 50%). Integrated Science, which had the greatest ratio of passes in the English part on the whole, saw its English part consistently scoring 5% to 15% lower than its Chinese part in all three assessments from 2002 to 2003.

S2 & S3 Mean Percentages of the Chinese and English Parts of the Three Major Subjects

When students entered S2 and S3 levels, however, there was a sign of recovery for the mean percentages of the English parts of the two major subjects, Mathematics and Integrated Science. The English parts of these two subjects scored even higher than their Chinese counterparts at times. For example, there were two assessments for Cohort 1 and three assessments for Cohort 2 when they were at S2 and S3 level respectively. Three out of five assessments saw their English parts scoring higher than their Chinese parts. Chinese part's advantage also became much less obvious for Integrated Science at S2 level. The difference between the two parts was just 1% (Cohort 1 2003 Final Exam) and 2% (Cohort 2 2002 Final Exam).

There may be two concerns regarding the better performance observed in the English

part. First, such trend may be attributed to the possibly easier questions asked there (some teachers did confide they sometimes did so). Second, floor effects, in which a high proportion of students clustered towards the minimum scores in the earlier assessments, may have been present, making the trend observed invalid.

For the first concern, a case can be made that older students, for reasons such as linguistic ability and motivation, can become more able to study in English. More data is needed for verifying its plausibility. As for the second concern, since most of the mean scores fall between 40%-70% across time, subjects and cohorts, floor effects (or ceiling effects, with an excess of maximum scores) are negligible if there are any.

Discussion of S1, S2 and S3 Mean Percentages

The fact that Mathematics and Integrated Science recover beyond S1 levels is congruent to Met's (1998) belief as discussed in Section 2.1.3, that hard science subjects are a better choice than social science subjects for students with limited English proficiency (LEP). As Met points out, the possibility of visuals and hands-on experience of measurement or experiment present in hard science subjects promises greater contextual clues and comprehensible inputs. Junior form students in Hong Kong are mostly LEP students. That is why hard science subjects like Mathematics and Integrated Science, despite their narrow range of language, may be better choice to start with than social science subjects like EPA for local junior form students.

Passing Rates and Mean Percentages of Geography

Geography, which was not formally under the project, had a high passing rate of 5 subject/levels out of 6, and an enviable mean percentage of 65% or above for the subject/levels which passed. Nonetheless, caution needs to be taken. The English part

of Geography, at panel's decision, only consisted of translation questions at word level. This is different from the English parts of the other subjects, where a variety of less predictable questions such as 'Fill in the blanks' or 'Long questions' were asked. The positive data from Geography should therefore be taken with caution.

There is, however, a more positive interpretation to this - that students are generally willing to study in English if the assessment is clear and simple. This has inspired me to include a content subject vocabulary section like the one used by the Geography panel in the English unit test, to further motivate students of lesser ability to study in English.

Passing rates between Academic Year 1 and Academic Year 2

There was a welcome trend observed - the passing rate in the English part increased in the three major subjects as the project continued. Out of the 6 subject/levels in the Final Exam in 2002 in Academic Year 1, there were only 2 subjects (i.e. Cohort 2 Math & I.S.) the English parts of which pupils managed to pass. The Chinese part got the upper hand by having passes in 5 out of 6 subject/levels in the same assessment. The ratio was 2:5. Approximately 9 months later in the 2nd Standard Test in 2003, the ratio stood at 4:6. About 3 months later in the Final Exam in 2003, the passing ratio rose to 3:4 out of the 6 subject/levels counted.

Passing Rates, Mean Percentage and Standard Deviation of Elite and Non-elite Classes

Another trend noted was the higher ratio of better performance in the English part of the elite classes. Here is another version of the table 'Mean percentages of Chinese Parts and English Parts of the Participating Subjects' showing the performance of elite

and non-elite classes. The standard deviations of each item are also given:

Mean Percentages of Chinese Parts and English Parts of the Elite and Non-elite Students

		Academic Year 1 (2001-02)				Academic Year 2 (2002-03)							
		2002 Final Exam				2003 2 nd Standard Test				2003 Final Exam			
		ELITE		NON-ELITE		ELITE		NON-ELITE		ELITE		NON-ELITE	
		ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI
MATH	Cohort 1	46(F)	57(P)	37(F)	53(P)	90(P)	91(P)	71(P)	60(P)	90(P)	70(P)	72(P)	40(F)
	S.D.	27	17	25	18	17	9	25	24	16	15	27	18
	Cohort 2	78P)	75(P)	18(F)	42(F)	91(P)	82(P)	61(P)	60(P)	72(P)	86(P)	28(F)	53(P)
	S.D.	23	15	23	22	13	11	28	19	17	12	24	20
	Cohort 3	-	-	-	-	29(F)	60(P)	17(F)	46(F)	N/A	N/A	N/A	N/A
	S.D.	-	-	-	-	22	16	18	17	N/A	N/A	N/A	N/A

		Academic Year 1 (2001-02)				Academic Year 2 (2002-03)							
		2002 Final Exam				2003 2 nd Standard Test				2003 Final Exam			
		ELITE		NON-ELITE		ELITE		NON-ELITE		ELITE		NON-ELITE	
		ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI
I.S.	Cohort 1	45(F)	71(P)	42(F)	63(P)	N/A	N/A	N/A	N/A	65(P)	58(P)	43(F)	46(F)
	S.D.	21	15	21	17	N/A	N/A	N/A	N/A	19	8	21	12
	Cohort 2	58(P)	58(P)	26(F)	35(F)	*	*	*	*	*	*	*	*
	S.D.	22	11	19	11	*	*	*	*	*	*	*	*
	Cohort 3	-	-	-	-	70(P)	82(P)	42(F)	73(P)	69(P)	66(P)	49(F)	58(P)
	S.D.	-	-	-	-	19	6	18	10	16	7	20	10

		Academic Year 1 (2001-02)				Academic Year 2 (2002-03)							
		2002 Final Exam				2003 2 nd Standard Test				2003 Final Exam			
		ELITE		NON-ELITE		ELITE		NON-ELITE		ELITE		NON-ELITE	
		ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI
EPA	Cohort 1	47(F)	73(P)	38(F)	71(P)	N/A	N/A	N/A	N/A	76(P)	77(P)	56(P)	66(P)
	S.D.	19	11	17	16	N/A	N/A	N/A	N/A	23	11	29	13

	Cohort 2	49(F)	67(P)	21(F)	44(F)	75(P)	76(P)	40(F)	67(P)	72(P)	86(P)	38(F)	69(P)
	S.D.	21	11	15	11	13	8	23	17	18	6	30	11
	Cohort 3	-	-	-	-	66(P)	72(P)	48(F)	63(P)	N/A	N/A	N/A	N/A
	S.D.	-	-	-	-	18	10	22	12	N/A	N/A	N/A	N/A

		Academic Year 1 (2001-02)				Academic Year 2 (2002-03)							
		2002 Final Exam				2003 2 nd Standard Test				2003 Final Exam			
		ELITE		NON-ELITE		ELITE		NON-ELITE		ELITE		NON-ELITE	
		ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI	ENG	CHI
GEOG	Cohort 1	N/A	N/A	N/A	N/A	83(P)	71(P)	67(P)	58(P)	90(P)	69(P)	67(P)	51(P)
	Cohort 2	N/A	N/A	N/A	N/A	88(P)	69(P)	64(P)	47(F)	91(P)	78(P)	59(P)	59(P)
	Cohort 3	N/A	N/A	N/A	N/A	64(P)	67(P)	37(F)	60(P)	73(P)	78(P)	62(P)	67(P)

Notes:

1. Cohort 1= S1 students in 2002-03
2. Cohort 2= S2 students in 2002-03
3. Cohort 3= S1 students in 2003-04
4. * = Subject not offered to that Cohort
5. - = Cohort not yet entered to secondary level

Out of 18 subject/levels of the three major participating subjects counted, there were 6 subject/levels in which the elite classes obtained either equal or higher mean percentages in the English part than the Chinese part. Most of these clustered in the subjects of Mathematics and Integrated Science when students were at S2 and/or S3 levels. This ratio was much higher than the non-elite classes where the figure stood only at 3 subject/levels.

Let’s talk about the standard deviation. Without any exception, the standard deviation of the English part was greater than that of the Chinese part across every subject in every form. The F-test can ascertain whether the difference between any two means and their standard deviations is statistically significant. Yet, given that the trend was so obvious to both elite and non-elite classes, one could safely conclude the variation

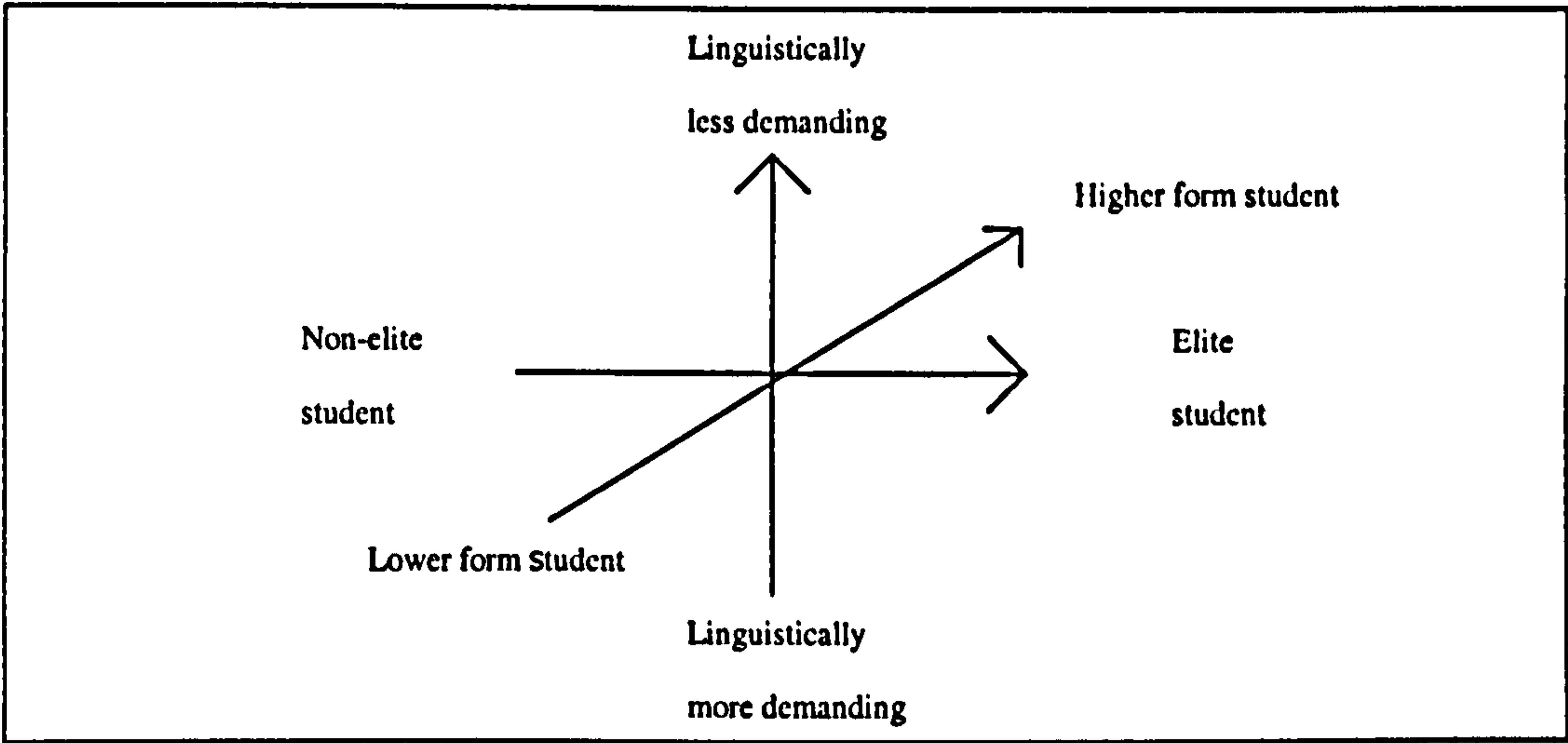
of marks in English part was consistently greater than that of the Chinese part.

This phenomenon, in retrospect, does make sense for two reasons. First, the unequal ratio between the English part and Chinese part (i.e. 1/5 Vs 4/5) limited much mark variation in the English part. What is even more important, however, is that scores achieved in the Chinese part largely takes only the knowledge in the content, while scores achieved in the English part usually takes both the knowledge in the content and the second language, which can vary from student to student.

A short summary of the preceding analysis may be like this: While L2 instruction may have disadvantaged student studies to a certain extent, elite class students, on average, had coped with the challenge much better than their non-elite counterparts.

It is time to conclude what has been discussed to answer the first research question. As can be seen, there was evidence showing L2 instruction may have disadvantaged student studies. The impact of the disadvantage, however, came in different levels. At one extreme, the impact would be most significant for the non-elite class students at S1 level studying linguistically demanding subjects like EPA. Such impact would be least significant (or even becomes positive as the data showed) for the elite-class students at S2 or S3 levels studying linguistically less demanding subjects like Mathematics. A simple spatial diagram summarizing the idea may be like this:

Spatial Diagram on Elements Affecting Students’ Performance in Partial English Medium of Instruction



Students’ performance would be on the optimal when they are on the top right hand corner in the diagram. Conversely, their performance would be seriously affected when they are on the bottom left corner.

I would like to compare the findings presented in this section and the ones by Hau et al (2000) as discussed in Section 4.2. This is done because both, to different extents, are about the evaluation on bilingual education in Hong Kong junior secondary schools. From their research, Hau et al concluded Hong Kong students, being educated in a late immersion model, would experience large negative effects on their learning in content subjects (except Mathematics where only slightly negative effect was recorded) regardless their general or linguistic abilities.

There are, of course, some limitations of the comparison between the two studies. I would like to mention them here. First, Hau et al’s study compares students educated either in complete Chinese Medium or English Medium, but mine compares performances between the Chinese parts and the English parts in different content

subjects, which translates to Chinese Medium and Partial English Medium, by the same group of students. The subject, the number of them and the media of instruction being compared are not really the same. Another limitation is that Hau et al provide highly standardized assessments in their evaluation while mine is much less so because objective statistical evaluation is not a major concern in this project. Nevertheless, the proximity of interest and the work undertaken do warrant comparison.

The similar conclusion that can be drawn between the two studies is that, Mathematics seems least affected whether it be done in English MOI or partial English MOI. There are a number of differences, though. First, while negative impact is observed in using English MOI in Mathematics in Hau et al, students' performance in partial English MOI and Chinese MOI is actually comparable when they were at S2 and S3 levels.

Second, the large negative impact found in Integrated Science in Hau et al's is much less certain in this project. It is true that S1 students scored 5% (Cohort 3 2003 Final Exam) to 25% (Cohort 1 2002 Final Exam) less in their English part than their Chinese part. But the differences narrowed down to only 1% (Cohort 1 2003 Final Exam) to 2% (Cohort 2 2002 Final Exam) in S2. Whether that can be qualified as 'large negative impact' leaves room for debate. Finally, Hau et al maintain the large negative impact is universal to all students regardless of general or linguistic abilities across different forms. The data from this project, however, shows evidence that students from the elite classes, especially those of S2 or S3 level, cope with the challenge of the partial English MOI much better than their non-elite counterparts.

Given the rising number of passes as the project goes on in not only the elite classes but also the non-elite ones, another conclusion to be drawn is that students (and possibly teachers as well) may have gradually come to terms with the Partial English Medium of Instruction after it was implemented. Such a phenomenon is in fact reminiscent of what was written in the students' diaries too, where many students have expressed a sense of improvement and accomplishment after a few weeks they were subjected to the partial English medium of instruction (See Section 6.2.1 'Findings of Student Diary' for details). Based on this, I would cautiously support the proposition, that students have generally managed to maintain their progress as the project Partial English Medium of Instruction continues.

6.2 Whether there is a change of attitude towards the partial English medium of instruction after the project is in place for a substantial period of time, and to what extent

To properly ascertain whether there was a change of attitude towards the partial English medium of instruction after the project was initiated, multiple evaluations were taken. First, I obtained feedback from a small group of students from their diaries during their first two months in the project. It is believed change of attitude, if any, should be the most conspicuous then. The research diary was also looked at for supplement. Second, I compared the different results of a questionnaire which all the students filled out before the project and after a year and a half the project was in place. This may provide a more longitudinal view of the change of students' attitude towards the subject of medium of instruction.

6.2.1 Findings of Student Diary

The student diary and research diary aim to solicit data other than the quantitative one

for a more complete evaluation of student progress in the project. While the research diary was kept on a quarterly basis by myself and therefore an on-going enterprise, the student diary was administered only once during the first two months of the project to view its effects in a more intensive way.

14 students were invited to write a diary, and eventually 11 of them handed it in. The distribution is as follows:

The Distribution of Student Diary Handed in

	1A	1B	1C	1D	2A	2B	2C	2D	Total
Boy	Y	N	Y	N	Y	N	Y	Y	5
Girl	Y	Y	Y	Y	Y	N	Y	N	6
Total:									11

Y= Handed in N= Not handed in

Students’ reactions recorded in their diaries towards the lessons were analyzed. It was based on the pleasurable and non-pleasurable dichotomy. Girls and boys’ data were presented separately as they were found to be quite different. Unlike before, data from elite classes and non-elite classes would be lumped together as the data from the latter were from only two non-elite classes (1D and 2D) and two diaries from which were received when the data was collected.

Here were some examples of pleasurable and non-pleasurable responses collected:

Pleasurable:

Example A

真係估唔到我咁勁，中晒。
('Can't believe I can answer all the questions in the lesson!')

Example B

Although the test is not very high marks, but I think it will not very low marks.

Non-pleasurable:

Example C

咁多生字，記都記到傻啊！
(So many vocabulary items to memorize. Drives me crazy.)

Example D

好彩今堂係最后一堂。
(So glad it's the last Math lesson in English.)

The pleasurable and non- pleasurable responses were counted, and the result was summarized as follows:

Ratio of Pleasurable & Non-pleasurable Responses

	1A	1B	1C	1D	2A	2B	2C	2D	Total
Boy	3:10	N	8:7	N	3:12	N	10:10	1:2	25:41
Girl	18:7	10:5	8:5	10:10	15:6	N	17:23	N	78:56
									103:97

(Ratio = Pleasurable: Non-pleasurable)

It was found that girls like the Partial English MOI more than boys, but overall speaking, the number of both pleasurable and non-pleasurable responses were roughly the same.

The rich qualitative data gathered hinted the presence of common categories and themes if the diaries were more seriously looked at. A coding system would be helpful in this regard. Marshall and Rossman believe (1999:155) data coding is a ‘formal representation of analytic thinking’. While choices of coding may include abbreviations of key words, colored dots and numbers, they maintain no fixed rule

shall be imposed on the researcher.

The coding of the student diary was like this. First, each student was given a three-character label – the first two characters showed the class (s)he belonged to and the last character gave information about gender. A male student from Class 1A would therefore be labeled ‘1A1’. The following table summarises the labels given for analysis:

Labels Given for Analysis								
	1A	1B	1C	1D	2A	2B	2C	2D
Boy	1A1	N/A	1C1	N/A	2A1	N/A	2C1	2D1
Girl	1A2	1B2	1C2	1D2	2A2	N/A	2C2	N/A

Note: N/A signals the student failed to hand in the diary

To find common trends towards the project, similar reflections from different students would be grouped together. The reflections were referred to as ‘cases’ in the analysis.

The typical case numbers would look like this:

‘CASE 1: 1A1’ ‘CASE 2: 1A1’ ‘CASE 5: 2C2’ ‘CASE 7: 2D1’

The meanings of these numbers are as follows:

Case Number	Meaning
‘CASE 1: 1A1’	Case number 1 quoted in support of a certain finding from the S1A boy
‘CASE 2: 1A1’	Case number 2 quoted in support of a certain finding from the S1A boy
‘CASE 5: 2C2’	Case number 5 quoted in support of a certain finding from the S2C girl
‘CASE 7: 2D2’	Case number 7 quoted in support of a certain finding from the S2D girl

There were at times a trend is based on two related reflections of a student. In cases like this, the case number would be subdivided itself into ‘a’ & ‘b’. For example:

Case Number	Meaning
‘CASE 1a: 1A1’	The first case of Case number 1 quoted in support of a certain finding from the S1A boy
‘CASE 1b: 1A1’	The second case of Case number 1 quoted in support of a certain finding from the S1A boy
‘CASE 5a: 2C2’	The first case of Case number 5 quoted in support of a certain finding from the S2C girl
‘CASE 5b: 2C2’	The second case of Case number 5 quoted in support of a certain finding from the S2C girl

Because of the relatedness of cases like this, the cases quoted would be put side by side for ease of comparison.

The way in which student writing was presented is also worth mentioning. Except for the few writings already written in English, students’ Chinese writings would be quoted followed by English translations given in brackets. I did not ask any one to cross check the translations because I have confidence in myself in this regard.

Simple abbreviations, T1, T2, T3 and so on, were used to protect students’ and teachers’ privacy. The ‘T’ number would only be repeated when the same person was mentioned.

The followings are further trends revealed in the students’ diaries.

6.2.1.1 Greater acceptance and gradual improvement

The first and most evident finding was students’ greater acceptance and gradual improvement as the project proceeded. Here are some examples, with the grammar mistakes faithfully preserved if they were written in English:

Greater Acceptance:

CASE 1a: 1A1

Date: 8/5/2002

今天要用英文教授的科目真多，令到我滿腦都是英文，煩極了！

(Today there are so many subjects taught in English. It makes my brain all stuffed with English. What a nonsense!)

CASE 1b: 1A1

Date:17/5/2003

今天 T1 向我們說本來有四課用英文教授，但因時間及我們的進度的問題，而縮短至只有兩課用英文教授。對我們這班來說，簡直就是又是喜，又是悲。喜的是我們考試的時候可以考更少的課文，而悲的是我們學少了很多課本知識和生字。

(Today T1 told us there were originally four chapters to be taught in English. But because of time and our progress, it would be reduced to only two chapters. For our class, this is both a happy and sad news. The happy news is that we can study fewer chapters for the exam; the sad news is that we learn less content knowledge and vocabulary.)

In less than two weeks the student had experienced a change from being negative of having to learn subjects in English, to feeling sorry that less content knowledge and vocabulary could be learnt in the project. Greater acceptance of the project Partial English MOI was obvious. Notice also the ambivalent attitude the student displayed in

seeing things cut short because of slower student progress:

‘For our class, this is both a happy and sad news. The happy news is that we can study fewer chapters for the exam; the sad news is that we learn less content knowledge and vocabulary.’

Isn't this similar to the dilemma the MOI policy makers of Hong Kong face? Adopting English MOI means more exposure to English and vocabulary acquired but the scope of assessment and the amount of content knowledge learnt will suffer. The other way round, the vice versa. Being aware of this dilemma, the student might come to understand more the importance of a 'bilingual exit' as this project strived to become later.

Gradual Improvement:

Here is an example of how a student came to terms with the challenge of partial English MOI:

CASE 2a: 1B2

Date: 30/4/2002

今日，我們經公堂用是英文上，我都覺得較難。因為我本身經公已經不好，如果再上英文，我可能會很辛苦。

(Today, our EPA lesson was conducted in English. I feel it is quite difficult because my EPA is already rather bad. If the lesson is to be conducted in English, I would really find it difficult.)

CASE 2b: 1B2

Date: 4/6/2002

Today! I have a quiz (I.S.). T2 say this can help us in the revision. Today, we used English to quiz, I feel it is not very difficult, if you study more hardly. I wish I can 考得好些!!!

(I wish I can get a better result!!!)

The student was well aware that learning a subject in her L2 is a 'double challenge'. Fortunately, she had gradually improved and coped with the challenge to her own satisfaction. Hard work had been singled out as the key to improvement and achievement in the project.

Greater Acceptance and Gradual Improvement:

In many diary entries the two trends, namely greater acceptance and gradual improvement in the project, were not easily separable. Here is an example:

CASE 3a: 2A2

Date: 3/5/2002

用英文教 I.S. 實太難, D 字好長好難記. 問答最短都有兩行, 背死人啦!

(Learning I.S. in English is so difficult. The words are difficult to remember. The answers of the questions are at least two lines' long. One would die by memorization!)

CASE 3b: 2A2

Date: 3/6/2002

宜家我已經非常適應用英文教 EPA, 我已經識讀好多長英文生字和句子, 好開心!

(Now I am very used to learning EPA in English. I have learnt the pronunciation of many vocabulary and sentences. Feel really great!)

The fact that the trends were not so easily separable, however, was not felt to be a problem. In evaluating students' change of attitude towards the project, what was important was the understanding of the facet of the 'forest' instead of the facet of the individual 'trees'. I was already much delighted to discover the trend of negative feelings to more positive feelings about the project.

To recapitulate, the cases quoted so far show students' attitude towards the project had changed quite significantly during the first two months of the project. It had changed

from being rather negative and desperate to more positive and confident. Time obviously played an important role in stabilizing their feelings towards the project, though it was only the matter of few weeks.

6.2.1.2 Other trends revealed in the student diary

Surprisingly, there were some other unexpected trends revealed in the student diaries, too. Although they were not directly related to students’ view towards the project, they were felt to be important in understanding what may make a project on change of MOI like this more effective. They are to be discussed in the following sections.

6.2.1.2.1 Constant concern of vocabulary and pronunciation

This was a rather unexpected finding - students’ constant concern of vocabulary. Here is a brief summary of the number of times the subject vocabulary was talked about:

Number of times vocabulary is talked about:

Class	Boy	Girl	Total
1A	3	7	10
1B	N/A	0	0
1C	4	5	9
1D	N/A	1	1
2A	7	3	10
2B	N/A	N/A	N/A
2C	0	2	2
2D	1	N/A	1
TOTAL	15	18	33

Some of the students were thankful for the greater vocabulary knowledge they gained with the partial English medium of instruction. For instance:

CASE 4: 2C2

我覺得自從用英文學 I.S., EPA, Maths 之後, 對 D 英文生字識多 DD!
(After using English to learn I.S., EPA & Maths, I feel my knowledge of English vocabulary has improved quite a bit!)

CASE 5: 1A2

所以我覺得用英文教學方式, 會學懂不同的生字.
(That's why I feel learning in English enables myself to learn different vocabulary items.)

Many, however, lamented the English vocabulary was a great hindrance to their progress:

CASE 6: 2A1

我連之前生字都未搞掂, 又加多三十幾個.
(I couldn't even manage the vocabulary taught before. Now thirty-some new vocabulary items are added.)

CASE 7: 1C1

其實用英語授課不太難, 但是串生字...才是大件事啊!
(Actually learning in English isn't that difficult, but having to memorize vocabulary...is really something!)

CASE 8: 1C2

雖然 I.S. 有很多不懂的生字, 只好查字典. 令自己認試這些生字. 唉!
(There are so many vocabulary items which I don't know, so I have to check with the dictionary to make myself understand the words. Too bad!)

Related to the concern of vocabulary was pronunciation. Some found it as troublesome as understanding the vocabulary:

CASE 9: 1A1

那些英文實在太難了, 有些連讀音也不懂. 所以經常要使用字典機來查詢讀音和

解釋，真是煩極了。

(Those English words are just too difficult. I don't even know some of their pronunciation. That's why I always need an e-dictionary for the pronunciation and meaning. So troublesome.)

The need to master the pronunciation well, however, was understood by many.

CASE 10: 2A2

今日我們在堂上複習，讀生字，做練習。宜家我已經非常適應，用英文教 E.P.A.，我已經識讀好多長英文生字和句子，好開心。

(Today we did revision, pronunciation, and exercises in the lesson. Now I am very used to learning EPA in English. I have learnt the pronunciation of many vocabulary and sentences. Feel really great!)

CASE 11: 1A2

雖然我在上課時，也寫了解釋，但是我不懂讀這些生字，因此我回家後利用電腦來學這些生字的讀音。

(Although I wrote down the meaning of the words during the lesson, I don't know how to read them out. So I use the computer at home to learn the pronunciation of the words.)

In my previous discussion of content-based instruction and concerns of medium of instruction (i.e. Chapter 2), concepts which are much concerned include a number of things. For example, simplification, elaboration, code-switching, and the favourable effect of a stronger version of bilingualism. Nonetheless, literature in the subject concerned rarely talks about the significance of vocabulary and pronunciation, which have somehow been one of the central concerns of the students in this project. This does bear implication to the researchers in the field of medium of instruction and bilingual education, which will be elaborated in Chapter 7 'Implications and Recommendations'.

6.2.1.2.2 The utility of quizzes in student progress

It was evident from the diaries that many teachers had utilized quizzes as a means to check and maintain students' progress. For example:

CASE 12: 1B2

Today! I have a quiz (I.S.). T2 say this can help us in the revision.

It is true that quizzes usually posed some threats to students. But from what the diaries revealed, it is equally true that the joy and self-confidence resulted from the success of the quizzes justified the 'frightening' feelings:

CASE 13a: 2C2

Date: 14-5-2002

段文字真係唔明, 遲 D 仲話要用英文默書, 考試, 諗起都驚.

(I really don't understand the paragraph. It is said there will be dictation and quizzes later on this. The thought of which is really frightening.)

CASE 13b: 2C2

Date: 27-5-2002

今日 T3 終於要默書 la ~即係死期到 la~ Miss 太恐怖 la ~默書時候, 又用英文問, 又用中文問, 簡直嚇死人 la ~不過我幾叻呀! ~ 14 題我 10 題 ar ~ 真厲害! ~

(Today T3 finally had dictation with us, which means it's time for execution! Miss Lee was so frightening. During the time of dictation, she sometimes asked in English and sometimes in Chinese. Really scary! But I was so bright! I got 10 out of 14 correct. Really something right!)

Such effect was felt to be equally strong even for students who had recorded repeated failures in quizzes and were known to be skeptical about the project of partial English MOI, like the following boy from S2A:

CASE 14a: 2A1

Date: 10-5-02

仲話下星期要默生字...要默生字真係好慘, 因為有 48 個生字要背.

(They also said there would be a dictation next week...dictation is really saddening, because there 48 words to memorize.)

CASE 14b: 2A1

Date: 23-5-02

我今日重默終於合格啦! 我重默三次終於合格, 好開心.

(I finally passed my re-dictation. I dictated three times and finally passed. I really feel happy.)

From the above, it seemed that quizzes, which had not been formally encouraged, turned out to play an important role in students' progress – they provided a great deal of extrinsic motivation for studying. Another oversight was that their informal nature allowed students' repeated attempts, which might be particularly necessary for learning content subjects in an L2. All these may suggest quizzes are indeed considerable in a partial English MOI context.

6.2.1.2.3 Influences of teachers' methodology on students' progress

There was no guideline at the outset as to how the teachers should go about teaching the partial English medium lessons. However, the diaries revealed the different methodologies adopted by different teachers had variable influences on students' progress.

First, regardless of the language used, teaching with clear explanation and examples was a much preferred methodology than simply teaching vocabulary items and administering drilling exercises.

CASE 15: 2C1

T4 今天教了一些英文字和距離公式怎樣應用, 就叫我們做作業, 看書, 做足全堂....每天都是這樣, 我覺得他的教學法一定要改.

(Today T4 taught us some vocabulary items and how to use the distance formula. After that we were asked to do the workbook exercise and read the book by ourselves for the whole lesson.... Every day was like that. I think T4 must change his/her pedagogy.)

CASE 16: 2C2

T4 都唔知教咩! 佢淨係將 D 生字解左幾個, 就算 la >.<

(Just couldn't understand what T4 is trying to teach. He only explained a few vocabulary items and that's all >.<)

It was clear from the examples above that mechanical drillings alone would not only result in boredom but also hatred towards the teacher. Let's consider the following case:

CASE 17: 1C2

初初聽 T5 教就唔知講緊 D 咩, 後來...T5 舉例了一個例題, 我就明白多了.

(At first I don't really understand what T5 is trying to explain. And then...T5 gave an example of histogram. Then I understood much more.)

Contrary to Cases 15 and 16, comprehension towards learning resulted more easily with explanation and examples in this Case. Notice also the Chinese word (多), which is an adverb meaning 'much more'. It implicitly showed the student's more positive feelings in the lesson.

Second, attending a lesson conducted in total English might cause problems even for the brightest student. The following case was taken from a top student in her form:

CASE 18: 2A2

今堂 T6 有好似上次成堂講晒英文, 所以相對來說亦容易理解得多.

(Unlike last time, T6 didn't speak in English for the whole lesson today. So it's relatively easier to understand.)

Surprisingly, a discussion with my thesis supervisor revealed that there could be different interpretations to the sentence 'so it's relatively easier to understand'. In his view, which is western oriented, the sentence did not necessarily imply the student found it difficult to attend a lesson conducted in English MOI at oral level – it only sounded like 'less than easy' at most. In my view, which is more Chinese oriented however, the sentence did imply that difficulty was present. Having re-read the translation and confirmed its accuracy, I started thinking about the discourse system behind the text written.

Scollon and Scollon (1993) write on different politeness systems in communication. Among them, Hierarchical politeness system may give hints to explaining the divergent interpretations. This system is characterized by the presence of unequal social positions. In communication, the one perceived in higher position may use more involvement strategies, such as being more direct and friendly which signify closeness in relationship. The other perceived in the lower position may utilize more independence strategies, such as being more indirect and polite so as to distance oneself from the other. The Hierarchical politeness system is also known as the Chinese politeness system because such communicative patterns between, for example, ruler and the ruled, father and son, and teacher and student, were rooted and widely documented in Chinese history.

In my view, 2A2 in Case 18 was felt to have assumed a hierarchical relationship with me (her former teacher) and 'the teacher' she described in the extract. Having felt

being in a lower position, she wrote ‘相對來說亦容易理解得多’ (it’s relatively easier to understand), an ‘indirect’, ‘polite’ way to signify the difficulty she experienced in English MOI at oral level without offending anyone. She did it elegantly which is on par with her academic achievement. The divergent views between my supervisor and myself can perhaps be explained by the fact that the student and I belong to the same culture which is different from my supervisor’s.

There is one more point I would like to make from this Case before moving on – the need to take the background of the subjects into consideration when in-depth content analysis is made. Let’s read some excerpts which are on the advice of content analysis from Section 4.1:

‘Naturally, enumeration of words and themes has its place, but only within a well-considered theoretical frame...if we wish to move beyond the surface content of a document and into its functioning, then deeper and more sophisticated strategies may be required.’ (Prior 2003: 23)

‘What Prior is concerned about is that simple counts, on their own, are ‘insufficient to highlight the full pattern of referencing between objects cited in the text.’ (p.122) Reference must be strategically studied in context for effective content analysis.’

Having the same ethnicity and some knowledge of the student’s conduct and academic achievement, I was able to pick up the real meaning of ‘相對來說亦容易理解得多’ (it’s relatively easier to understand) almost instinctively. But should I need to perform in-depth content analysis with subjects of different backgrounds in the future, the advice that ‘reference must be strategically studied in context’ needs to be borne in mind more tightly.

Earlier I maintained quizzes were considerable for boosting students’ progress in

partial English MOI. The way the quizzes were done to facilitate building up more confidence among students may be like this:

CASE 19: 2A1

今日 EPA 都是'Quiz, 好彩今次有溫書, 有兩張 Quiz paper, 一張晒, 另一張錯三個, 我突然覺得自己好掂, 好勁, 可能因為老師叫我認字唔係中字關係.

(There is a quiz of EPA today. Luckily I have studied this time. There are two pieces of paper. I got all correct in one of them. There are three mistakes in another. I suddenly feel I am so great, so superb. It's probably because the teacher asked us to recognize instead of spelling the words.)

Obviously, the quiz quoted above was an easy one. And whether the practice of giving an easier quiz would be beneficial to students' learning remained to be seen. But given students' more positive perception on their own progress, the practice, though it might well be temporary as the formal tests and examinations would be much more difficult, seemed to be worthwhile.

Summarizing from the cases quoted, there was evidence showing the change of students' attitude towards the project Partial English MOI in the first two months of implementation. Students changed from being rather negative and desperate in face of the 'double challenge' to being more positive and confident of their progress as time went on. There were four other concerns expressed in the diaries which were not actually anticipated but nevertheless showed importance in keeping the project on track. They are:

- a) Vocabulary
- b) Pronunciation
- c) Quizzes, and
- d) Teaching Methodology

I would now turn to the findings of the student questionnaire to discuss any further hidden change of attitude towards the partial English MOI.

6.2.2 Findings of Pre- and Post- Student Questionnaire

The pre-questionnaire was administered in February 2002 (Time 1) and the post-questionnaire was done in June 2003 (Time 2). The objective of this section is to ascertain further whether there is any change of attitude towards the subject of medium of instruction, and to what extent

6.2.2.1 Statistical significance informed by inferential statistics

As discussed in Section 5.2.2.2, the first step to analyzing the data collected from the questionnaire is to conduct the Kolmogorov-Simimov test, which allows me to ascertain the normality of the data distribution. This bears great importance for the tests used for statistical significance. If the data forms a parametric curve, then parametric tests like T-test can be used. If not, then non-parametric tests such as Wilcoxon Signed-Ranks test would be more appropriate.

The parts of the questionnaire which were felt to be particularly relevant to the research question, whether there is a change of attitude towards partial English MOI, are as follows:

Part	Question	Concerns
Part C	Question 3	<i>Views towards partial English MOI in raising language standard</i>
Part D	Question 4	<i>Willingness to accept partial English MOI</i>
Part G	Question 8	<i>Expectations on language attainment</i>

It means that Questions 3a-3d, 4a-4f and 8a-8c would be analyzed.

The two groups of students whose responses were analyzed were Form 1 and Form 2 students in February 2002. They were called 'S1S2' and 'S2S3' respectively to show that they became Form 2 and Form 3 students when they completed the post-questionnaire in June 2003. For ease of reference, a new numbering system was adopted for each of the questions to be analyzed. For example, 'S13A' signified S1 students' responses to Question '3a'. 'S34B' would be the response made to Question '4b' by S3 students. The results are as follows:

S1S2

Forms and Questions	Kolmogorov-Simimov test	P-value	Forms and Questions	Kolmogorov-Simimov test	P-value
S13A	0.208	0	S23A	0.241	0
S13B	0.165	0	S23B	0.249	0
S13C	0.158	0	S23C	0.255	0
S13D	0.208	0	S23D	0.216	0
S14A	0.203	0	S24A	0.176	0
S14B	0.188	0	S24B	0.149	0
S14C	0.195	0	S24C	0.16	0
S14D	0.189	0	S24D	0.184	0
S14E	0.195	0	S24E	0.163	0
S14F	0.224	0	S24F	0.162	0
S18A	0.184	0	S28A	0.225	0
S18B	0.195	0	S28B	0.192	0
S18C	0.193	0	S28C	0.264	0

S2S3

Forms and Questions	Kolmogorov-Simimov test	P-value	Forms and Questions	Kolmogorov-Simimov test	P-value
S23A	0.178	0	S33A	0.196	0

S23B	0.183	0	S33B	0.202	0
S23C	0.189	0	S33C	0.186	0
S23D	0.22	0	S33D	0.22	0
S24A	0.191	0	S34A	0.179	0
S24B	0.157	0	S34B	0.166	0
S24C	0.179	0	S34C	0.14	0
S24D	0.188	0	S34D	0.173	0
S24E	0.182	0	S34E	0.16	0
S24F	0.181	0	S34F	0.225	0
S28A	0.164	0	S38A	0.171	0
S28B	0.166	0	S38B	0.192	0
S28C	0.185	0	S38C	0.265	0

As can be seen, p-value was zero for all of the questions selected. The null hypothesis that the data was normally distributed was rejected. A non-parametric test, in my case Wilcoxon Signed-Ranks test, should therefore be used to test whether changes between Time 1 (i.e. March 2002) and Time 2 (i.e. June 2003) were statistically significant for S1S2 and S2S3.

Speaking of Wilcoxon Signed-Ranks test, the usual yardstick of $p\text{-value} < 0.5$ would be used for rejecting the null hypothesis. In addition, to adjust the probability of Type I error, Bonferroni Adjustment would be adopted, which was already mentioned in Section 5.2.2.2. Here is a recapitulation. For performing k paired comparisons, the p -value obtained would be multiplied from each test by k . That is, $p' = kp$ should be calculated with the restriction that p' should not exceed 0.05. Let's take Question 3 as an example. There were altogether 4 items in Question 3. According to the formula $p' = kp$, p' for Question 3 should not exceed 0.0125. Here is the analysis of Questions 3a-3d:

Question 3: <i>Do you think bilingual teaching will be (pre-)/ has been (post-) beneficial to you in the followings:</i>			
3a	Raising reading ability in English	3c	Raising aural and oral ability in English
3b	Raising writing ability in English	3d	Raising interest in subjects taught

S1S2

Forms and Questions	Wilcoxon Signed-Ranks test	p-value	p-value significant at 0.05 level	p-value significant at 0.0125 level (i.e. after Bonferroni Adjustment)
S13A VS S23A	Negative Rank > Positive Rank	0†	Yes	Yes
S13B VS S23B	Negative Rank > Positive Rank	0†	Yes	Yes
S13C VS S23C	Negative Rank > Positive Rank	0†	Yes	Yes
S13D VS S23D	Negative Rank > Positive Rank	0.002	Yes	Yes

S2S3

Forms and Questions	Wilcoxon Signed-Ranks test	p-value	p-value significant at 0.05 level	p-value significant at 0.0125 level (i.e. after Bonferroni Adjustment)
S23A VS S33A	Negative Rank > Positive Rank	0†	Yes	Yes
S23B VS S33B	Negative Rank > Positive Rank	0.001	Yes	Yes
S23C VS S33C	Negative Rank > Positive Rank	0.001	Yes	Yes
S23D VS S33D	Negative Rank > Positive Rank	0.195	No	No

† *p-value <0.001*

Except for Question 3d of S2S3, the differences observed in all the items in Question 3 were significant for both S1S2 and S2S3. In addition, negative rank was larger than positive rank for all, suggesting the following:

- a) students’ response in Time 1 was more favorable than Time 2, and
- b) the trend observed was a consistent one.

While further discussion will be made on this in the next section 6.2.2.2 ‘Extent of change informed by descriptive statistics’, I will continue to ascertain the statistical

significance for the rest of the questions first in this section.

The analysis of Question 4 would follow the same step as before. But I would like to say something about the number of items present in Question 4 first. Although there were 6 items present in Question 4 (i.e. 4a-4f), it was felt to be more appropriate to treat the number of items present in this questions as 3 instead of 6. This is so because items 4a-4c (i.e. EPA, Maths and I.S.) were participating subjects in the project while 4d-4f (i.e. History, D&T and Home Economics) were not. Therefore, this question conceptually contained 2 different groups of items, each consisting of 3 subjects. This yielded the figure 0.0167 when Bonferroni Adjustment was adopted:

Question 4: (Pre) <i>If partial English MOI is adopted in the following subjects starting from March this year, how willing are you to accept?</i> (Post) <i>Bilingual teaching will continue in the next academic year. How willing are you to see that happen in the following subjects?</i>			
4a	Economics & Public Affairs	4d	World History
4b	Mathematics	4e	Design & Technology
4c	Integrated Science	4f	Home Economics

S1S2

Forms and Questions	Wilcoxon Signed-Ranks test	p-value	p-value significant at 0.05 level	p-value significant at 0.0167 level (i.e. after Bonferroni Adjustment)
S14A VS S24A	Positive Rank > Negative Rank	0.001	Yes	Yes
S14B VS S24B	Positive Rank > Negative Rank	0.002	Yes	Yes
S14C VS S24C	Positive Rank > Negative Rank	0.029	Yes	No
S14D VS S24D	Positive Rank > Negative Rank	0.589	No	No
S14E VS S24E	Positive Rank > Negative Rank	0.144	No	No
S14F VS S24F	Negative Rank > Positive Rank	0.753	No	No

S2S3

Forms and Questions	Wilcoxon Signed-Ranks test	p-value	p-value significant at 0.05 level	p-value significant at 0.0167 level (i.e. after Bonferroni Adjustment)
S24A VS S34A	Positive Rank > Negative Rank	0†	Yes	Yes
S24B VS S34B	Positive Rank > Negative Rank	0†	Yes	Yes
S24C VS S34C	Positive Rank > Negative Rank	0†	Yes	Yes
S24D VS S34D	Positive Rank > Negative Rank	0.007	Yes	Yes
S24E VS S34E	Positive Rank > Negative Rank	0.113	No	No
S24F VS S34F	Negative Rank > Positive Rank	0.794	No	No

† *p-value <0.05*

A fairly consistent trend was shown. Except for item 4f of S1S2 and S2S3, positive rank was larger than negative rank for all other items, which showed students' response in Time 2 was more favorable than Time 1. This was different from Question 3, where the reverse trend was true. Another difference between them was that unlike Question 3, a number of differences found between Time 1 and Time 2 in Question 4 were not statistically significant. They were, namely, items 4c and 4d for S1S2, and items 4e and 4f for both S1S2 and S2S3. This may need explanation.

The larger number of insignificant results obtained could be partly explained by the smaller sample obtained for items 4e 'Design & Technology' and 4f 'Home Economics', where only boys answered the former and girls the latter. For item 4d 'History', where statistical significance could be obtained for S2S3 but not for S1S2, it only caused minimal inconvenience for analysis. That was so when its status as a non-participating subject in this project was considered. What is challenging is item 4c 'Integrated Science' in S1S2, as it was a participating subject and was significant at 0.05 level, but failed at 0.0167 level. Shall I reject the result altogether? To understand

this, a deeper understanding of Bonferroni Adjustment is necessary.

Bonferroni Adjustment is best used to cope with the multiple testing problem when variables are independent and the null hypotheses for all the tests are true. In which case, the probability of obtaining the correct result for each of the tests individually would be 95%. This, nonetheless, was not so for Question 4. The fact that Economics & Public Affairs, Mathematics and Integrated Science (i.e. 4a-4c) were the three participating subjects in the project signifies they were not independent from each other at all. Here is a description of what might happen in cases like this using Bonferroni Adjustment:

‘But if the variables were dependent on one another to some extent, then the probability of getting the right result for one test, given another was true would be more than 0.95. A Bonferroni correction applied in these circumstances would be highly conservative and miss real differences.’

(Quoted from ‘The Royal College of Surgeons of Edinburgh – Surgical Knowledge and Skills’

Source: [www.education.rcsed.ac.uk/statistics/the %20bonferroni%20correction.htm](http://www.education.rcsed.ac.uk/statistics/the%20bonferroni%20correction.htm))

Given that the p-value in item 4c in S1S2 was 0.029, which was somewhere between 0.05 and 0.0167 but closer to the latter, I believe one would be justified in being reserved over the acceptance of the null hypothesis using the Bonferroni Adjustment here. In other words, I would advocate for accepting the change of item 4c observed as significant.

The last question for analysis is Question 8. Here is the data:

Question 8: <i>Expectation</i>

8a	I hope I will be able to read and write well in Chinese Language
8b	I hope I will be able to read and write well in English Language
8c	I hope I will be able to speak well in English Language

S1S2

Forms and Questions	Wilcoxon Signed-Ranks test	p-value	p-value significant at 0.05 level	p-value significant at 0.0167 level (i.e. after Bonferroni Adjustment)
S18A VS S28A	Positive Rank > Negative Rank	0.733	No	No
S18B VS S28B	Positive Rank > Negative Rank	0.47	No	No
S18C VS S28C	Positive Rank > Negative Rank	0.174	No	No

S2S3

Forms and Questions	Wilcoxon Signed-Ranks test	p-value	p-value significant at 0.05 level	p-value significant at 0.0167 level (i.e. after Bonferroni Adjustment)
S28A VS S38A	Positive Rank > Negative Rank	0†	Yes	Yes
S28B VS S38B	Positive Rank > Negative Rank	0†	Yes	Yes
S28C VS S38C	Positive Rank > Negative Rank	0†	Yes	Yes

† *p-value <0.05*

While it is true that students from both S1S2 and S2S3 became more keen on mastering Chinese and English in Time 2, it remains a mystery why the p-value between the two groups differed so much, which made claims on statistical significance perfectly comfortable for one (S2S3) while impossible for the other (S1S2). It might be argued that, because they were a year senior, students in S2S3 were more mature than those of S1S2 and hence they displayed greater desire towards the need to master the languages well. But solid proof remains to be submitted.

It is now time to summarize what has been discussed so far in this section. This

section has ascertained the rationale of using Wilcoxon Signed-Ranks test to compute the p-value to test the statistical significance of the differences observed in two groups of students between the time prior to and after the project was run for 15 months. Given that the differences observed were mostly significant for Questions 3 and 4, the following claims are supported:

1. Students had a greater hope in the benefits of the project in raising their English skills as well as interests in subject where partial English MOI was adopted before the project than after the project.
2. Students showed a greater interest in seeing partial English MOI be continually adopted in the three participating subjects as well as some non-participating subjects after the project than before the project.

While statistical significance could only be ascertained for S2S3 group for Question 8, the fact that positive rank was larger than negative rank for all items there in both S1S2 and S2S3 groups does indicate students had a greater desire to master both Chinese and English well in the post-questionnaire than the pre-questionnaire. It is, however, unknown whether this is related to the implementation of the project, or simply due to age maturity.

Now I will move on to next section, 'Extent of change informed by descriptive statistics', where the extent of students' change of attitude towards partial English MOI will be seen and discussed more thoroughly.

6.2.2.2 Extent of change informed by descriptive statistics

The questions of focus in this section are Questions 3a-3d and 4a-4g. In addition,

Question 3e ‘Do you think bilingual teaching has been beneficial to you in vocabulary’, which was not analyzed in the previous section, will be discussed in this section for its significance to understand the change of students’ view. Question 8 ‘Expectation’ will not be analyzed in this section. This is so because their change in expectation in language achievement, strictly speaking, is not directly relevant to their success in maintaining progress in the project or willingness to accept the partial English MOI. As far as the school is concerned, having known that students displayed a higher expectation in language achievement in the post-questionnaire is already good enough.

I will start from Question 3 first, which is as follows:

3. Do you think partial English MOI has been beneficial to you in the followings:

Having raised your:

a) reading ability in English

b) writing ability in English

c) aural and oral ability in English

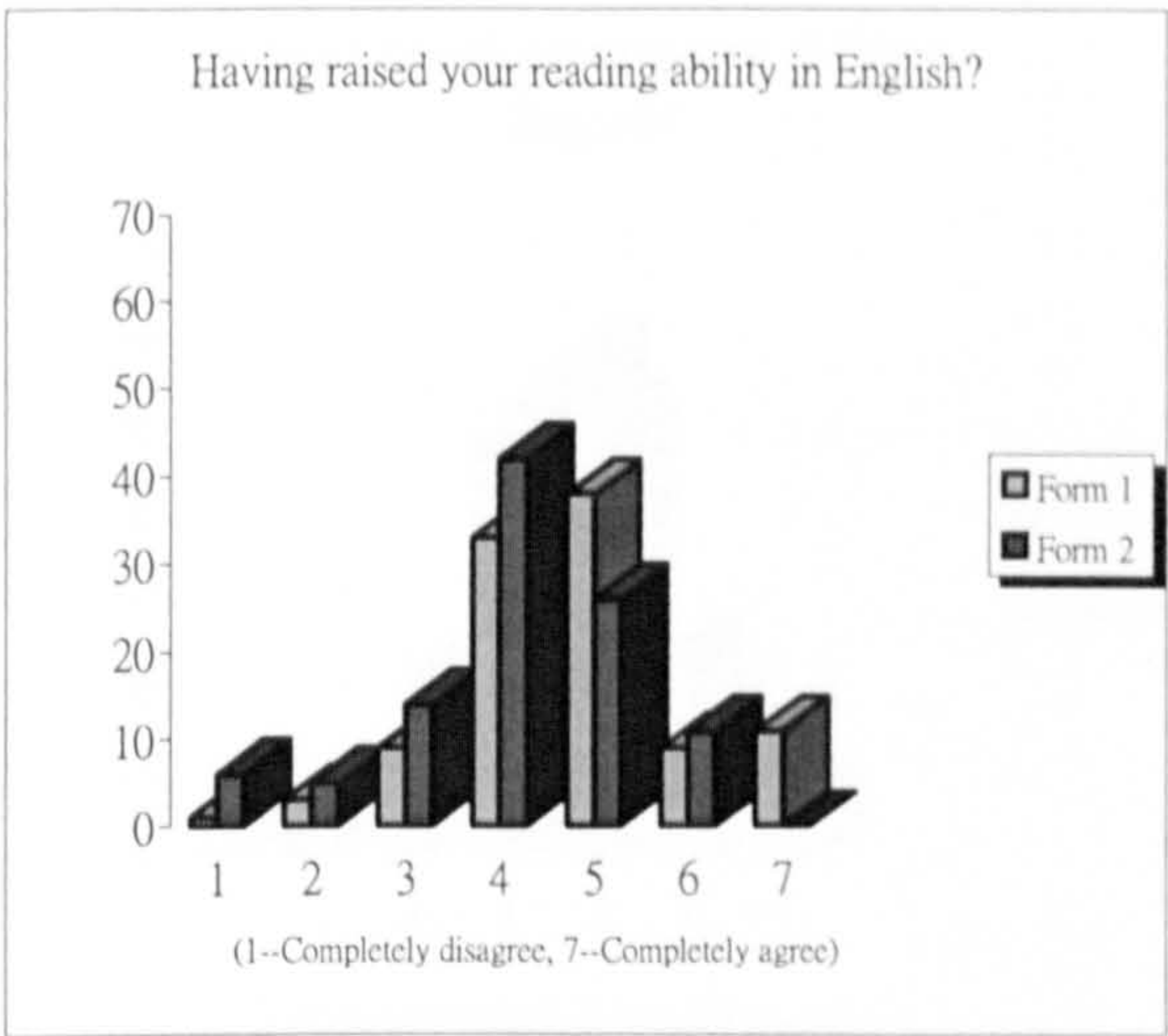
d) interest in the subjects taught

e) knowledge of vocabulary

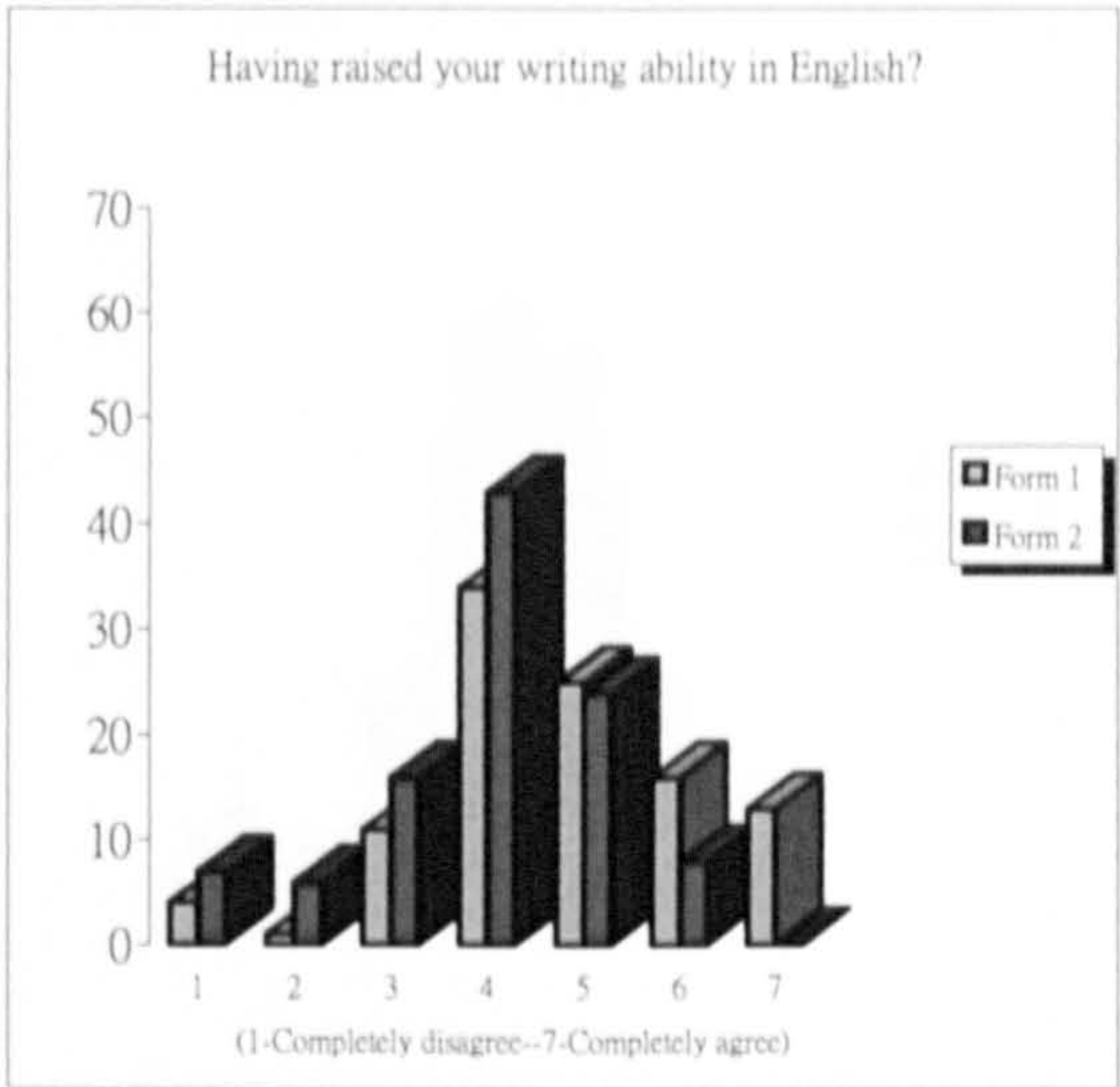
From the bar charts below, it is evident that there was a consistent change of students’ view towards the benefits of the project before and after the project was in place for 15 months. The change was that, in the post-questionnaire, fewer students made their choices in the upper end of the scale (i.e. 5 to 7). At the same time, more students opted choices in the lower end of the scale (i.e. 1-3).

S1S2

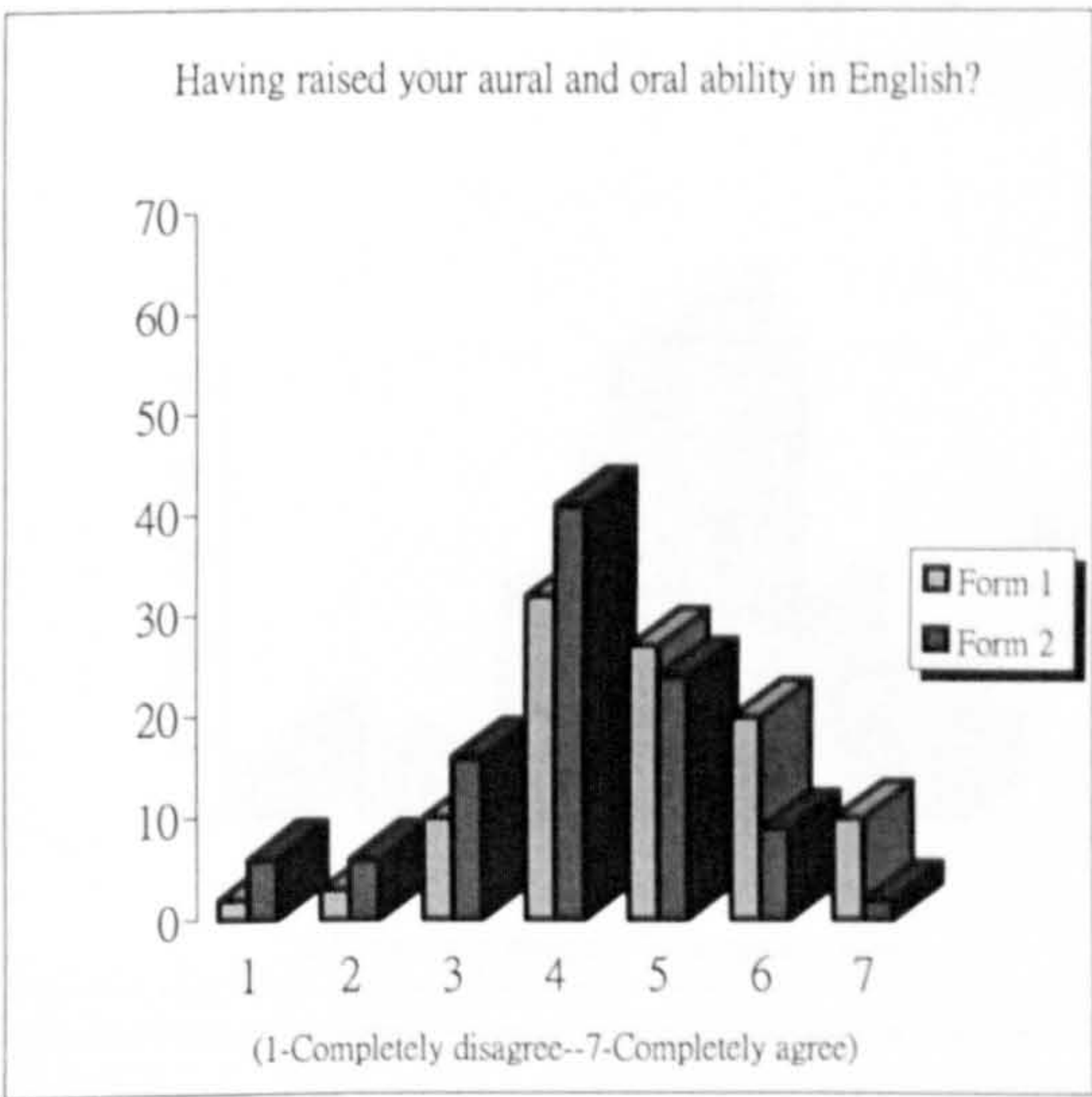
Question 3a



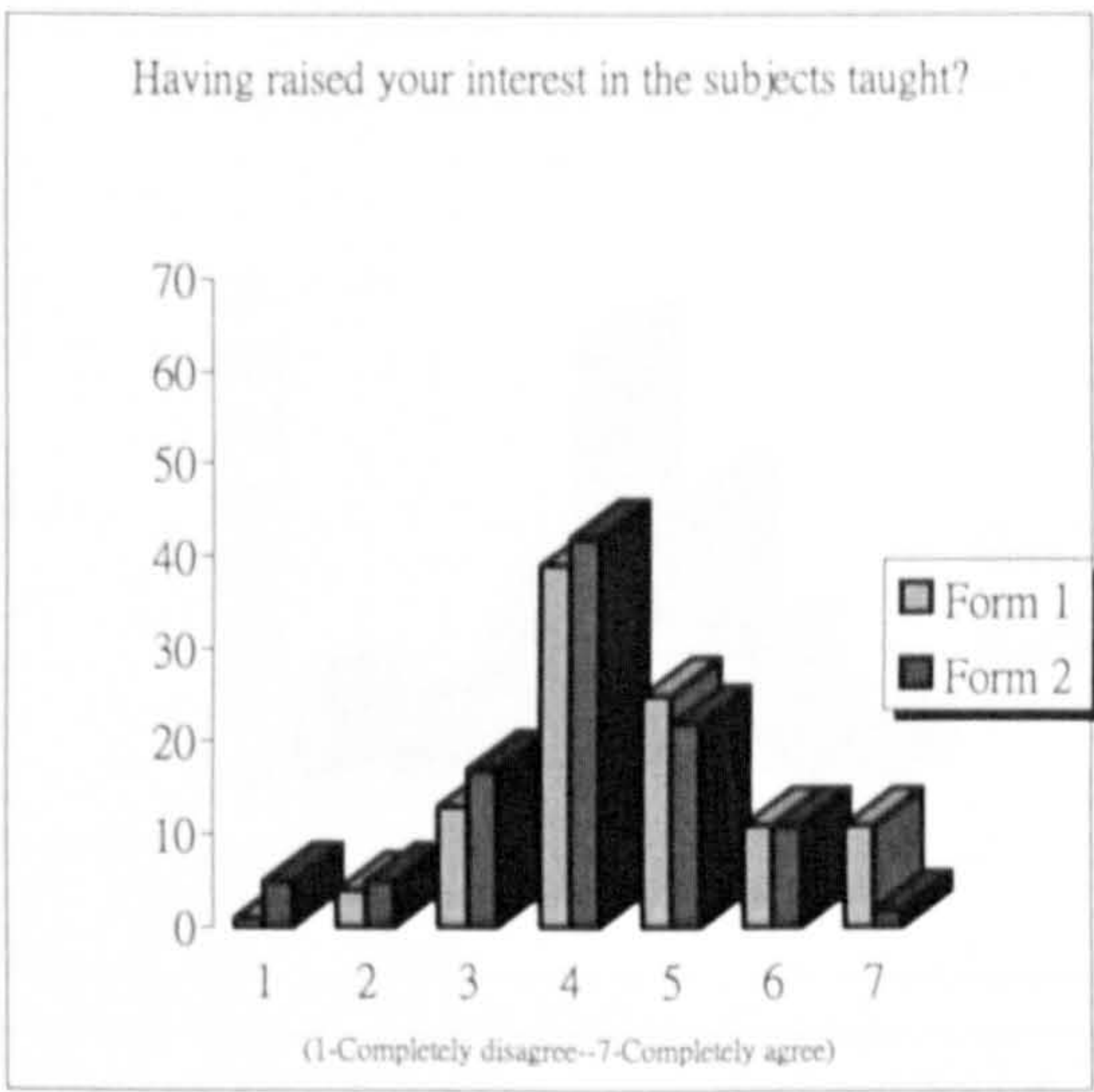
Question 3b



Question 3c

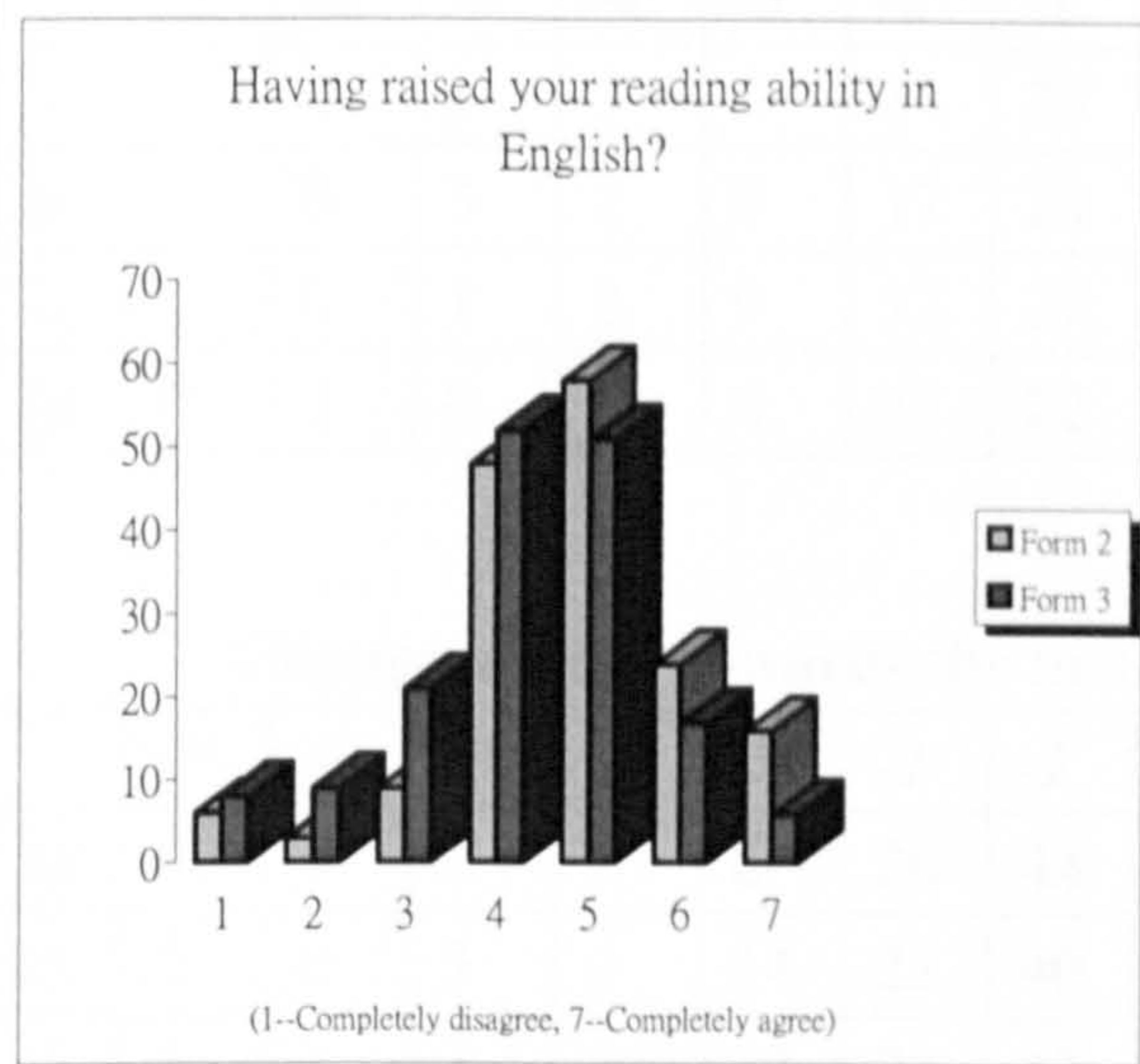


Question 3d

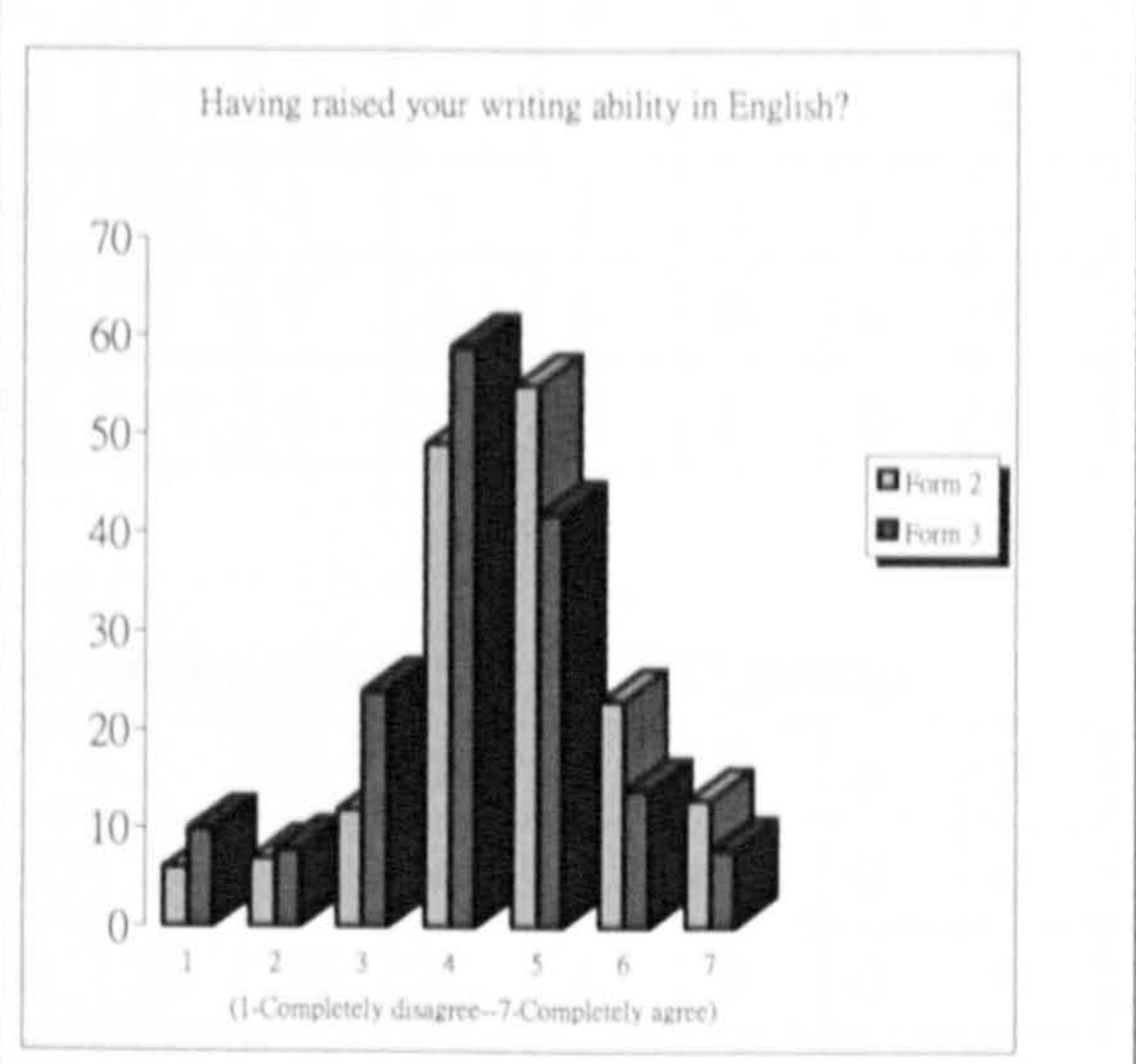


S2S3

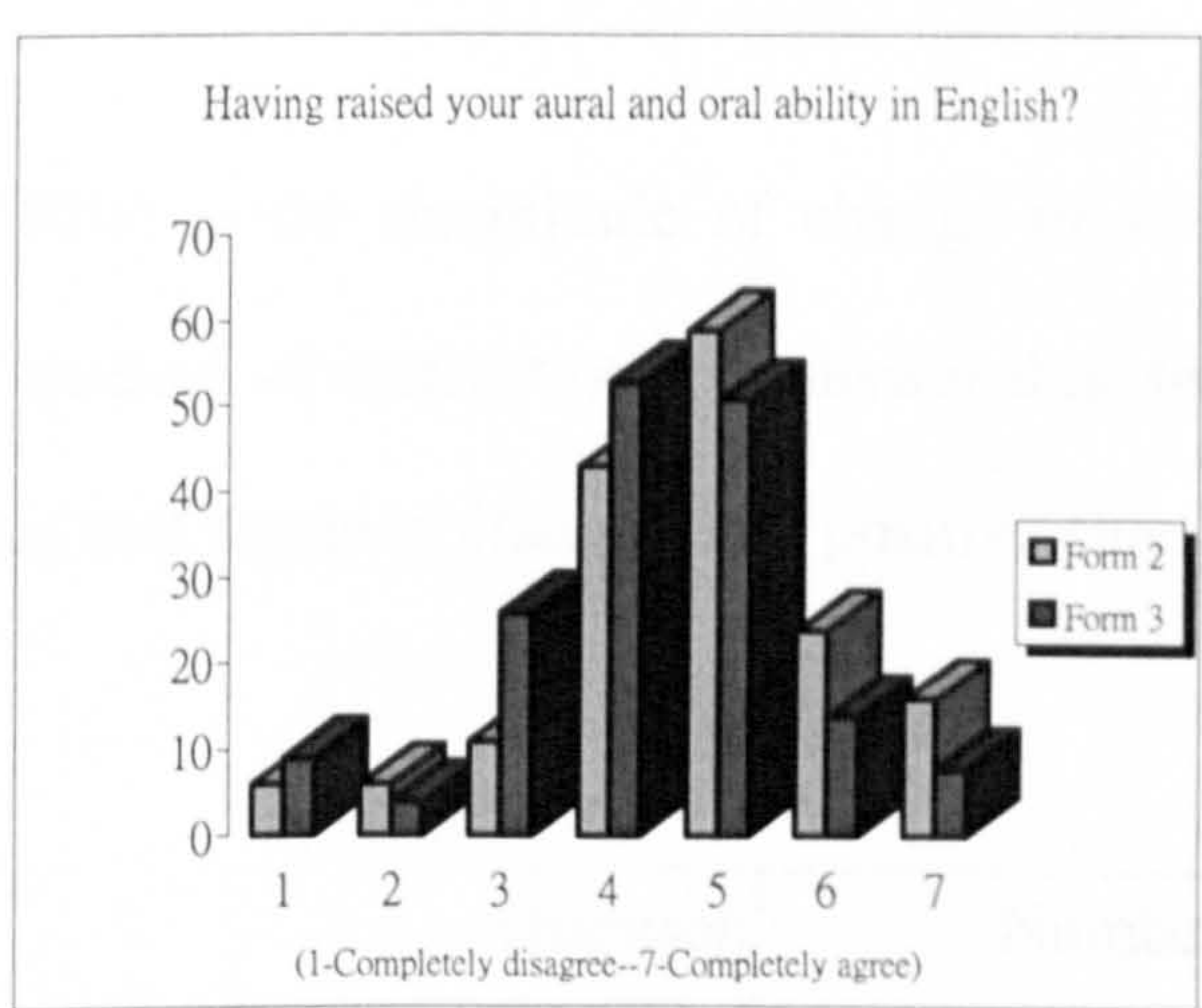
Question 3a



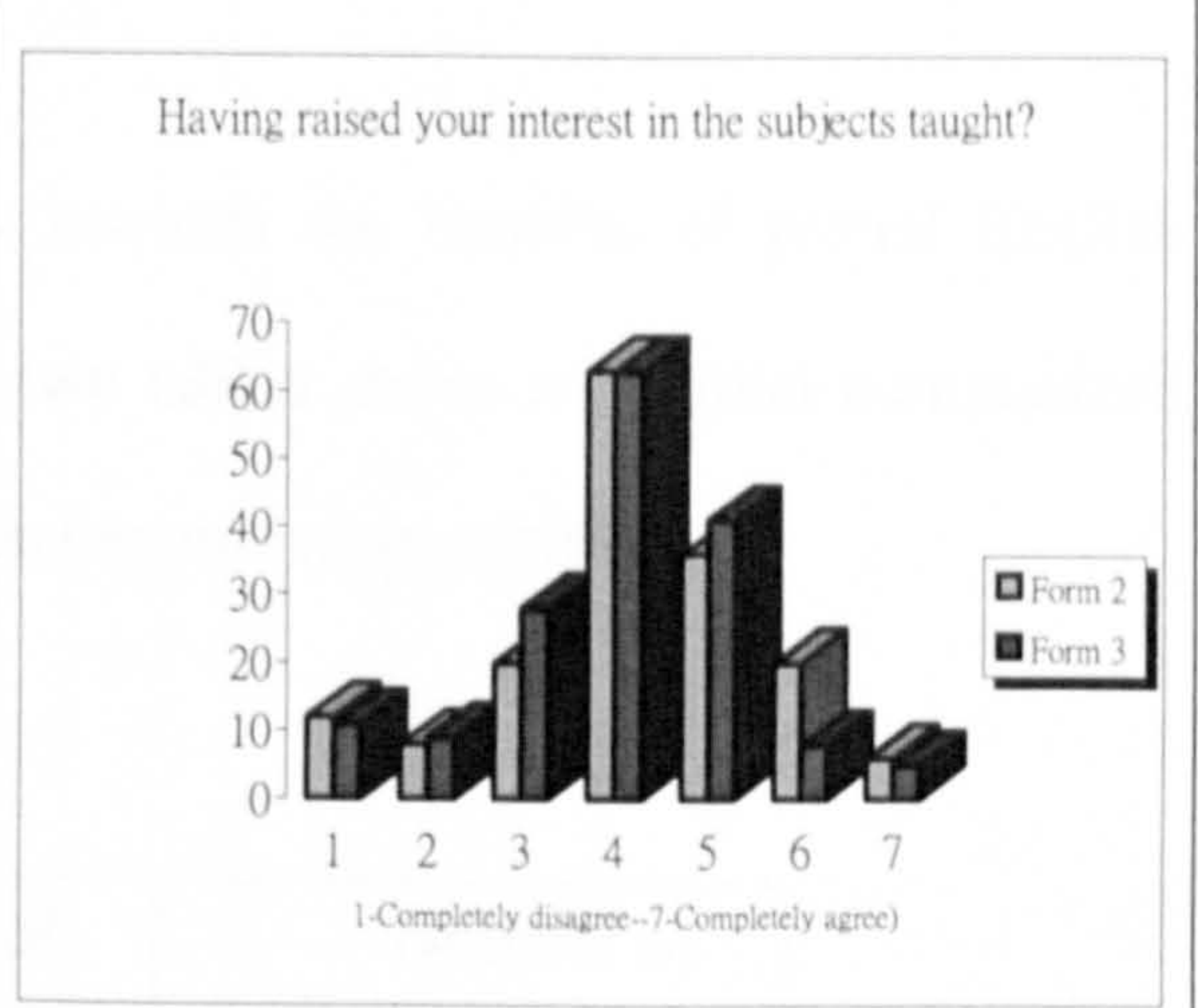
Question 3b



Question 3c



Question 3d



The said phenomenon, that the results were less favorable for Question 3 in the post-questionnaire, was true for both S1S2 and S2S3 groups. Thus, the phenomenon was quite consistent.

Another way to capture the changes could be done by recording the changes between the pre- and post- questionnaire of each student in each item. For example, if a student opted 5 in the pre-questionnaire and then 4 in the post-questionnaire, the change would be -1. Summarizing the changes of each student in each item in Question 3 yielded the following tables:

Change of view towards the benefits of the project for S1S2 group

	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
3a	0	0	3	3	5	15	29	26	15	43	1	0	0	0	0
3b	0	0	3	2	9	17	24	40	13	4	1	1	0	0	0
3c	0	0	1	2	9	17	27	32	7	7	1	1	0	0	0
3d	0	2	0	1	4	17	22	32	19	6	0	0	1	0	0

Change of view towards the benefits of the project for S2S3 group

	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
3a	0	1	2	2	8	26	44	42	24	9	4	1	1	0	0
3b	0	0	2	2	14	22	40	40	28	10	4	3	0	0	0
3c	0	1	1	3	12	21	42	44	22	12	5	1	0	1	0
3d	0	2	0	1	11	13	39	53	23	12	8	2	0	1	0

What is the magnitude of change of view towards the benefits of partial English medium of instruction? To answer this, the two tables above are further summarized so that negative changes and positive changes become more visible:

S1S2

Question	Number of students with negative change	Number of students with positive change
3a	55	59
3b	55	19
3c	56	16
3d	46	26

S2S3

Question	Number of students with negative change	Number of students with positive change
3a	73	39
3b	84	45

3c	80	41
3d	66	46

Except for Question 3a (i.e. raising reading ability in English) of S1S2 group where a slightly more positive change was observed, negative change of view was prevalent for the rest of the items in Question 3 for both S1S2 and S2S3. In the most extreme case, item 3c of S1S2, students’ negative change ran 2.5 times more than those with positive change. It is therefore clear that in students’ view, the project was not as effective as they had thought at the outset in raising their four skills in English and the interest in the subjects taught.

I would like to change the subject and talk about an item in Question 3 which was only added in the post-questionnaire – Question 3e ‘knowledge of vocabulary’. So doing was felt to be necessary as it became clearer that enhancement of vocabulary was possible through the project as revealed in the Student Diary as discussed in Section 6.2.1. Given the absence of the item in the pre-questionnaire, the analysis would be done slightly differently. First, the number of students who indicated in each of the grade on the Likert Scale (i.e. 1-7) was counted. In addition, the number of students who indicated ‘5’ or above in each of the item in Question 3 was calculated so that comparison of positive responses between each item was possible:

Q3a. Having raised your reading ability in English.

	1	2	3	4	5	6	7	≥5
S1S2	6	5	14	42	26	11	0	37
S2S3	8	9	21	52	51	17	6	74

Q3b. Having raised your writing ability in English.

	1	2	3	4	5	6	7	≥5
--	---	---	---	---	---	---	---	----

S1S2	7	6	16	43	24	8	0	32
S2S3	10	8	24	59	42	14	8	64

Q3c. Having raised your aural and oral ability in English.

	1	2	3	4	5	6	7	≥5
S1S2	6	6	16	41	24	9	2	34
S2S3	9	4	26	53	51	14	8	73

Q3d. Having raised your interest in the subject taught.

	1	2	3	4	5	6	7	≥5
S1S2	5	5	17	42	22	11	2	35
S2S3	11	9	28	63	41	8	5	54

Q3e. Having raised your knowledge of vocabulary

	1	2	3	4	5	6	7	≥5
S1S2	4	5	15	39	45	11	7	63
S2S3	8	9	13	35	70	27	12	106

As can be seen, the number of students who indicated ‘5’ or above in Question 3e was much greater than the rest of the items in the same question. In some cases, the difference was close to double (e.g. 32 (Q3b) Vs 63 (Q3e) for S1S2). It is therefore clear that students were much more affirmative in the project’s effectiveness in this regard than raising the four skills and the interest of studying.

This result, obtained 15 months after the project was initiated, was consistent with what was found in the student diary which was analyzed at the initial stage of the project. This showed the positive effect of the project in vocabulary enhancement was quite long lasting.

Having analyzed Question 3, I will now move on to talk about Questions 4a to 4f.

Part D: Willingness to accept partial English MOI

4. Partial English MOI will continue in the next academic year. How willing are you to see that happen in the following subjects?

a) Economics & Public Affairs

b) Mathematics

c) Integrated Science

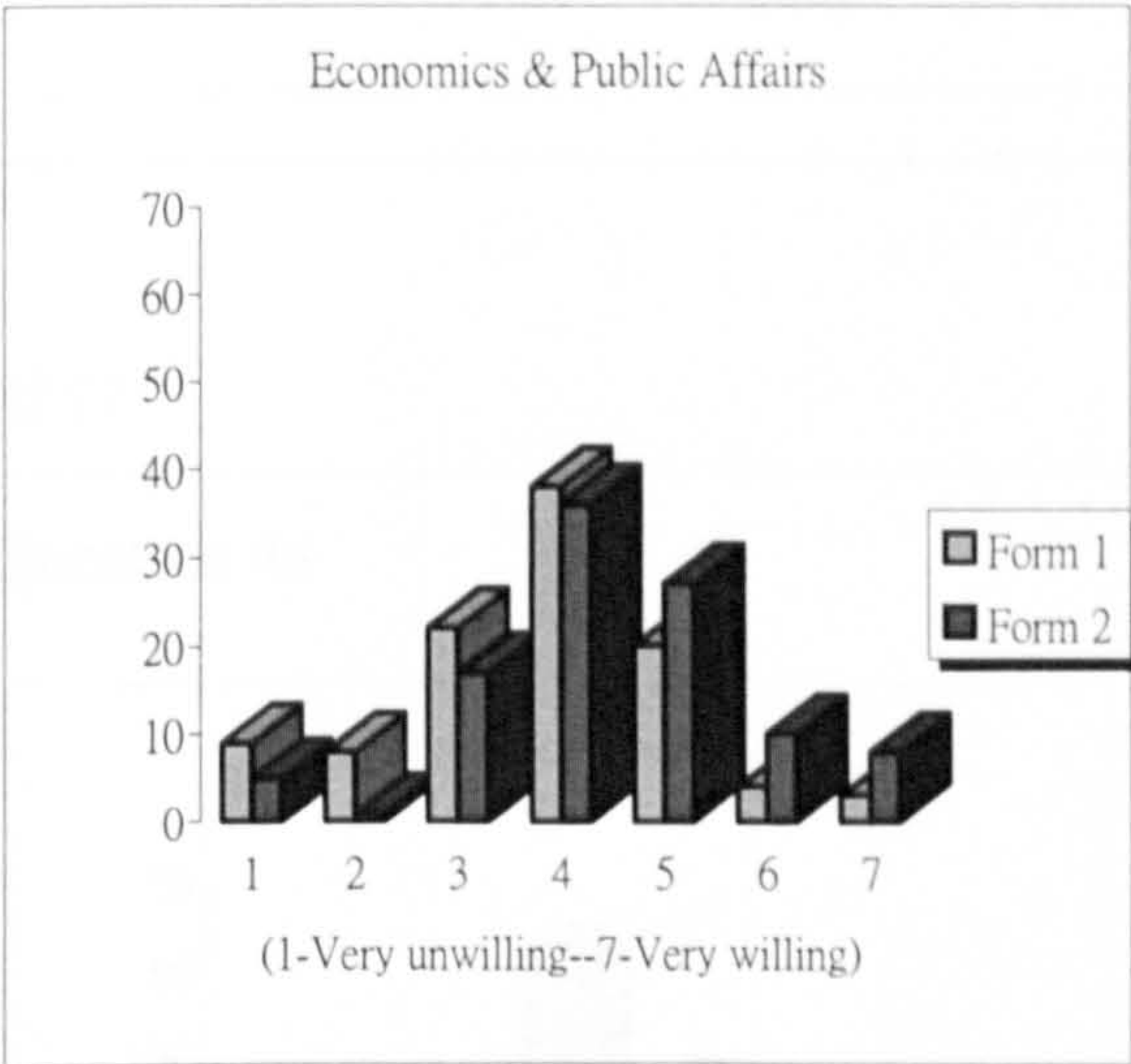
d) World History

e) Design & Technology

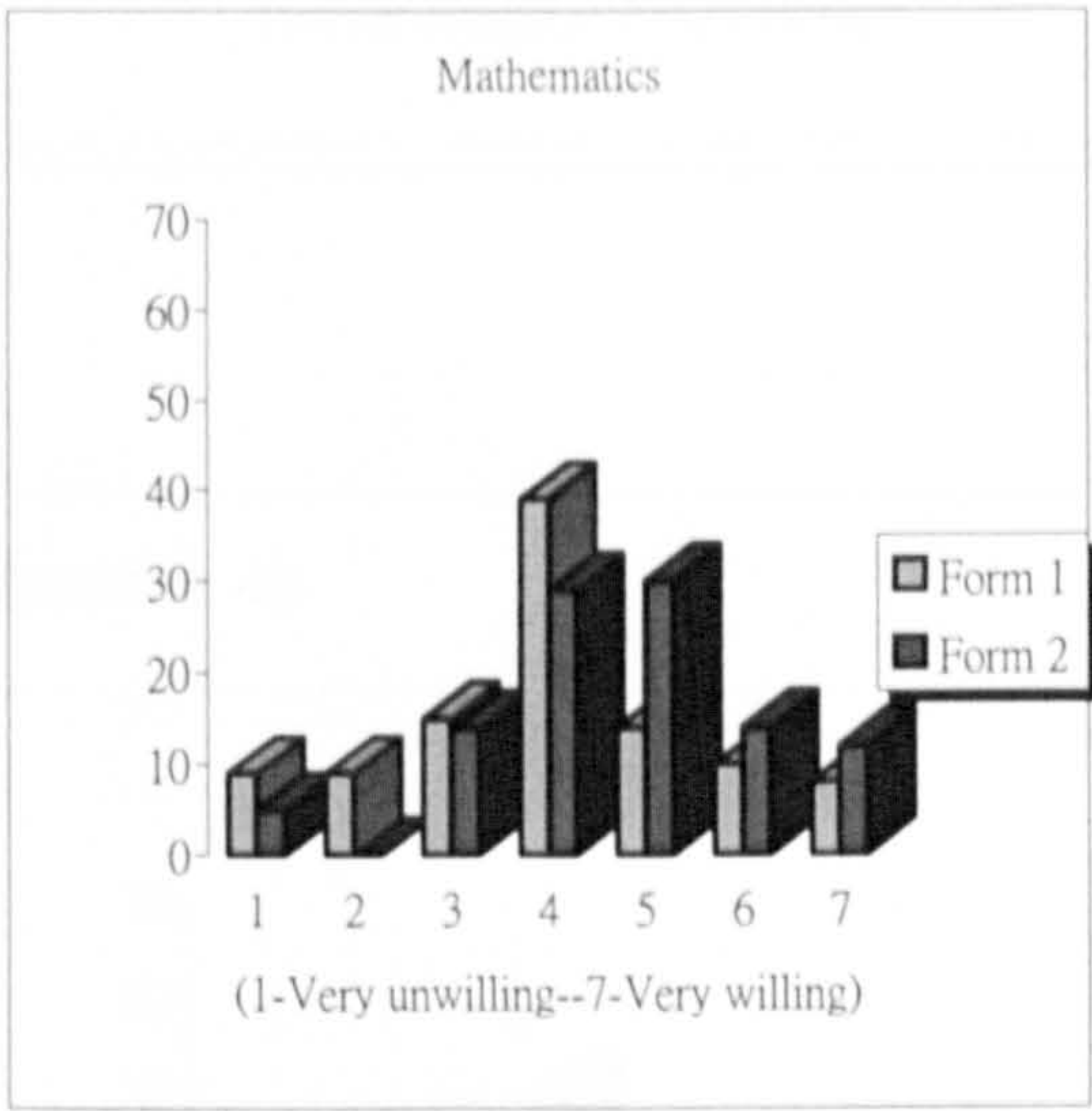
f) Home Economics

SIS2

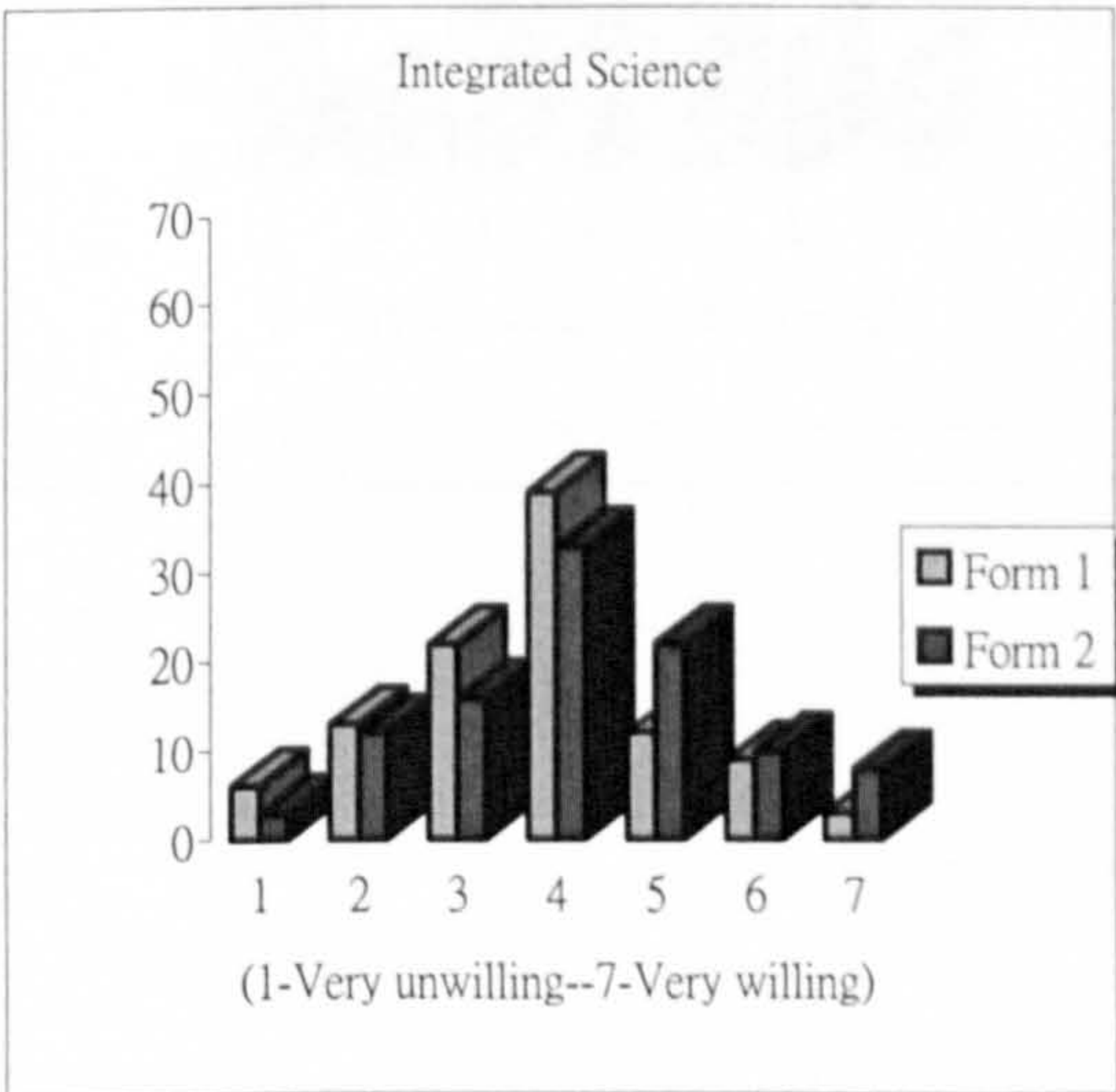
Question 4a



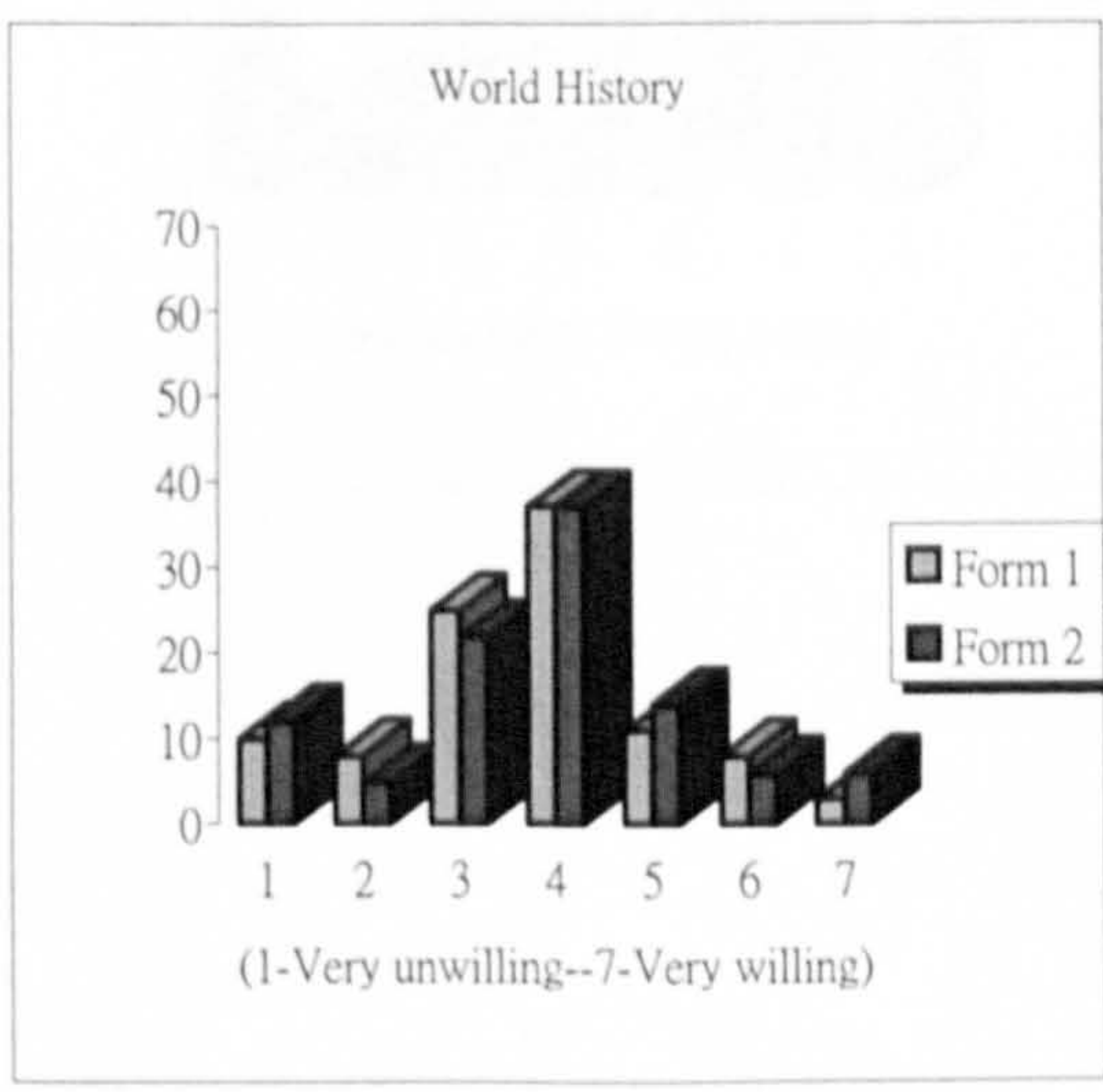
Question 4b



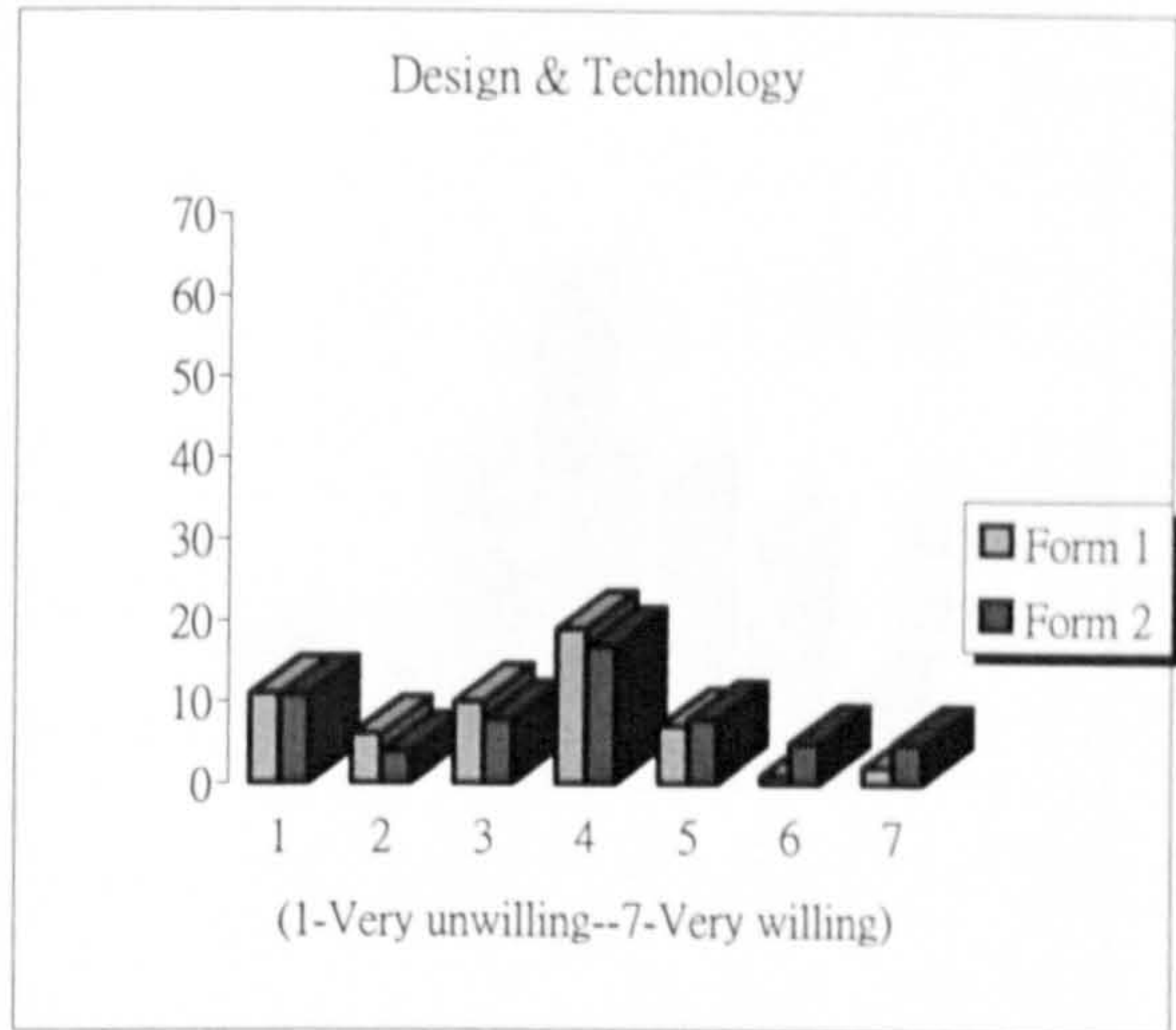
Question 4c



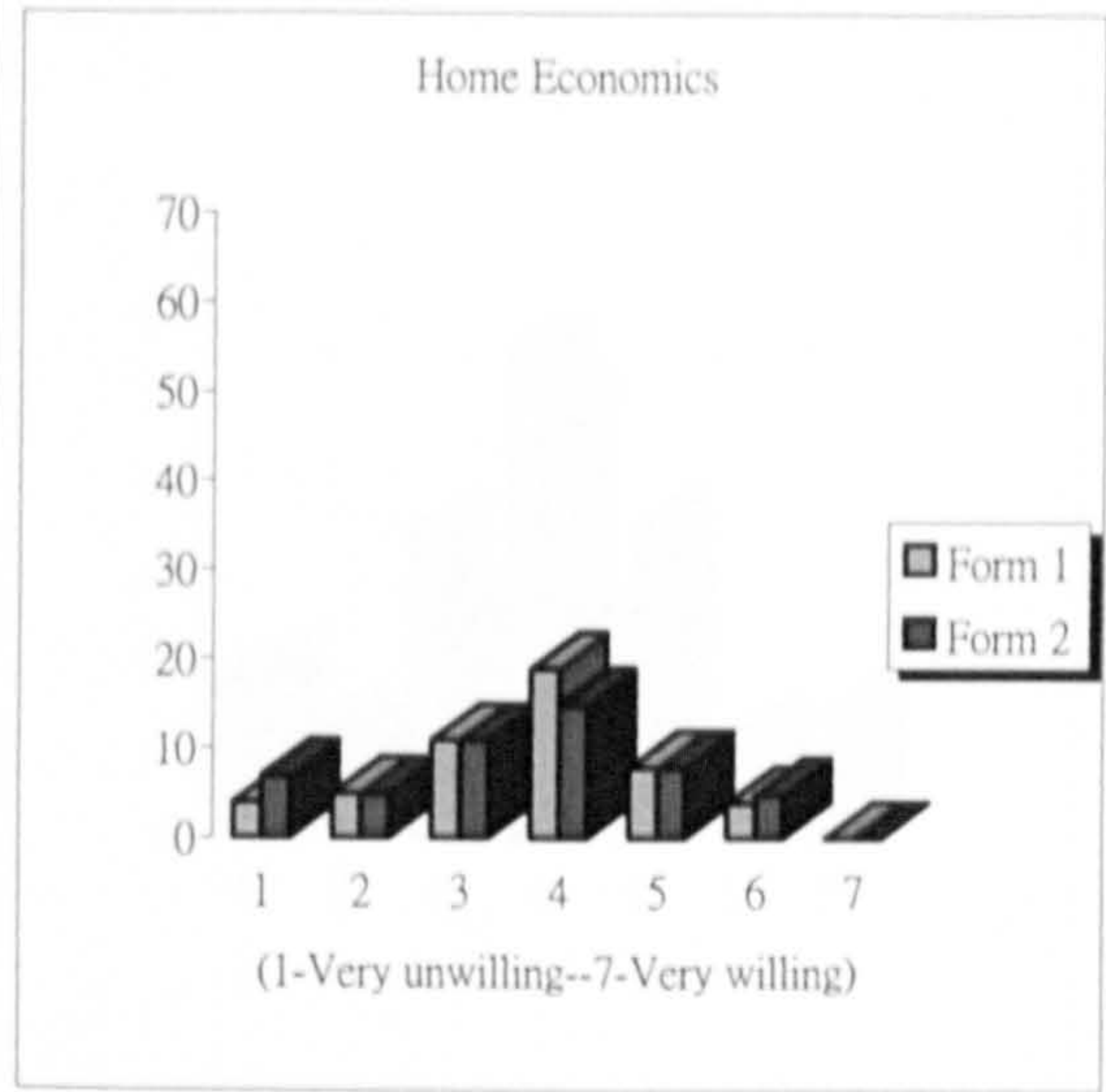
Question 4d



Question 4e

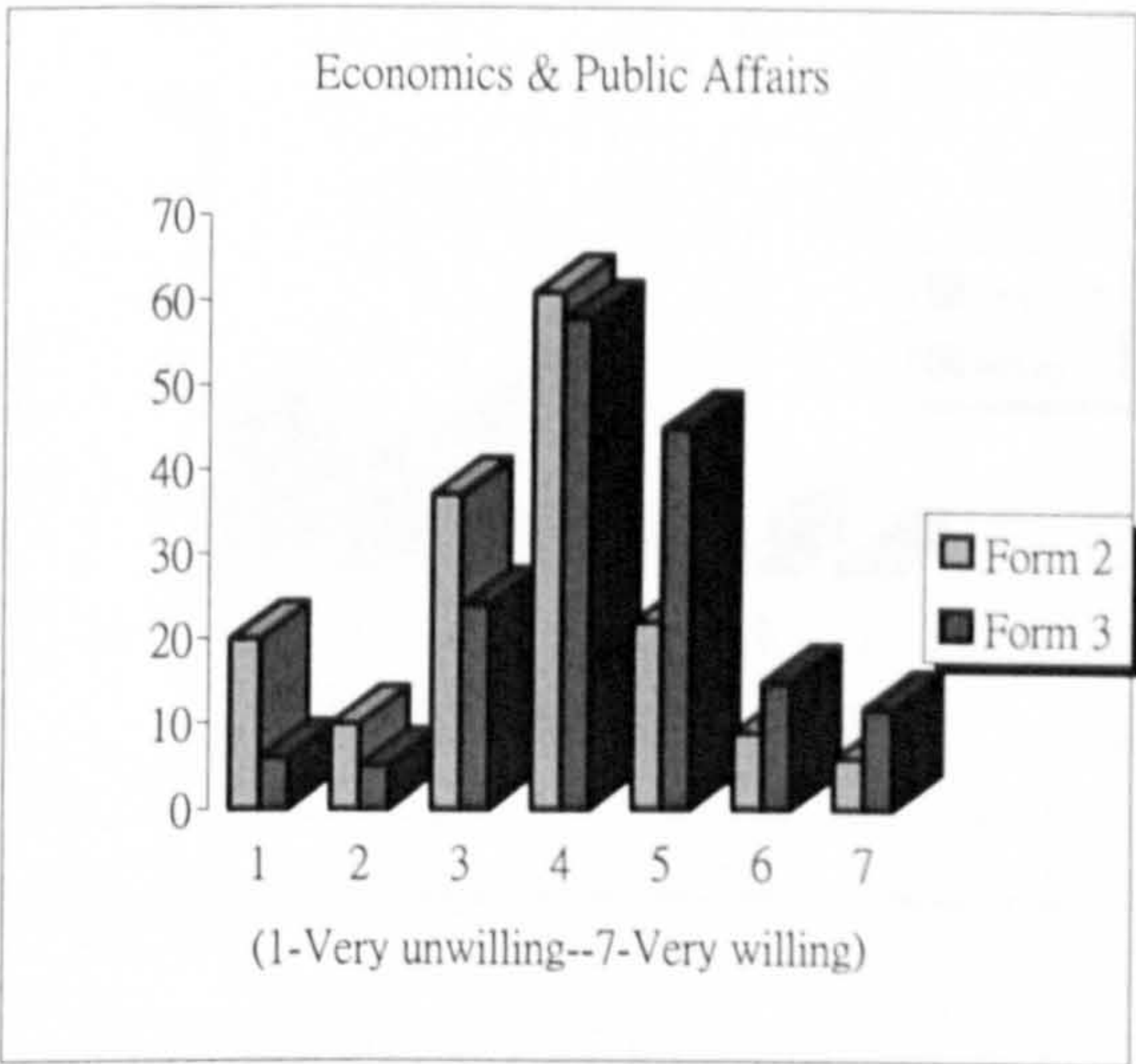


Question 4f

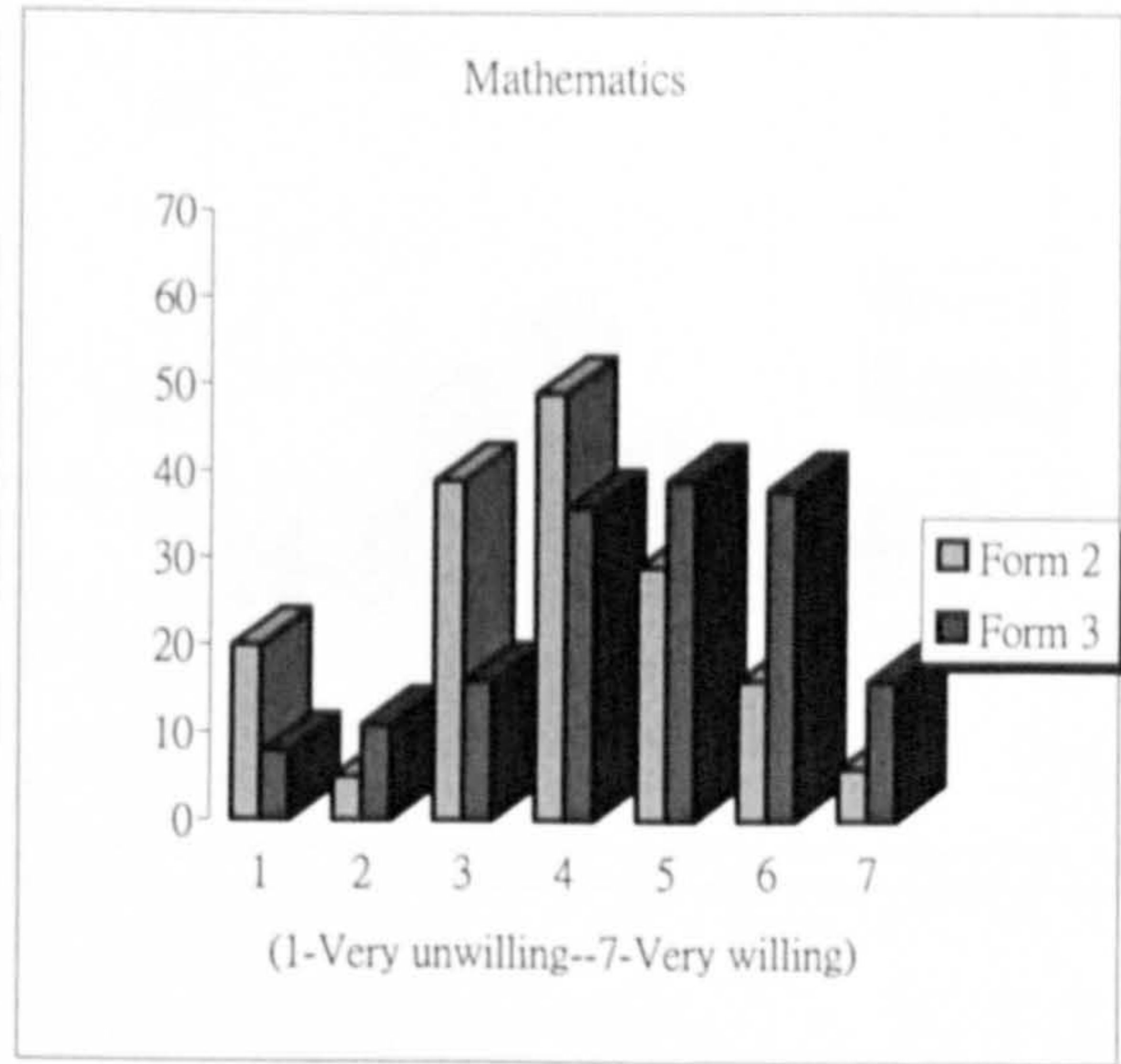


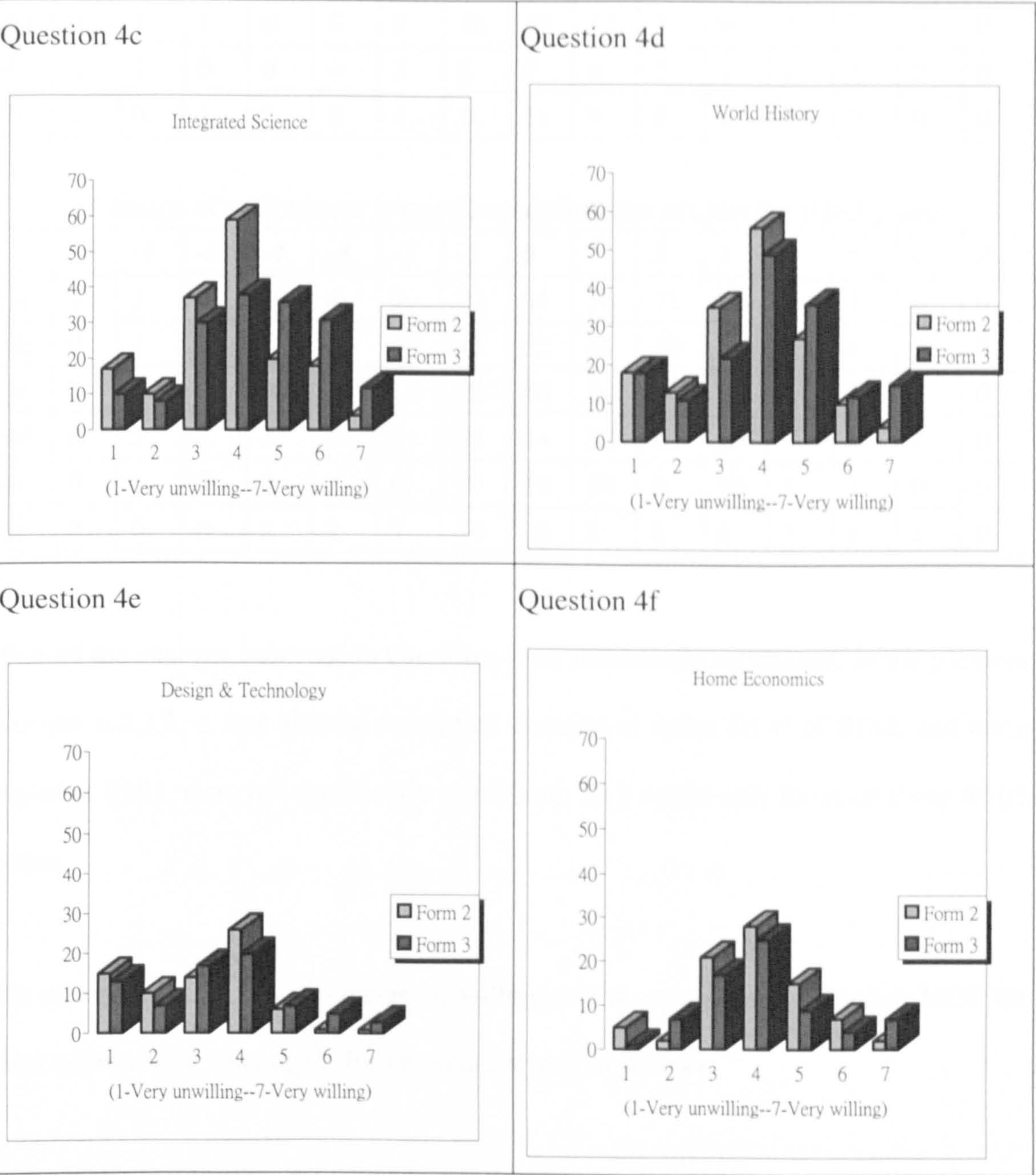
S2S3

Question 4a



Question 4b





Different from Question 3, more favorable responses were gathered in Question 4 in the post-questionnaire. Again this was true for both S1S2 and S2S3 groups. The tables summarizing the changes of willingness of each student in Question 4 are as follows:

Change of willingness towards accepting the project for S1S2 group															
	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
4a	0	0	0	2	2	6	22	16	25	13	10	8	0	0	0
4b	0	0	1	2	2	9	12	23	23	14	9	8	0	1	0
4c	0	0	0	1	5	11	11	30	17	14	10	4	1	0	0

4d	0	1	1	0	8	9	16	29	17	7	9	3	2	0	0
4e	0	1	0	0	4	3	8	9	8	2	7	3	2	0	0
4f	0	0	1	3	2	4	11	11	9	5	4	1	0	0	0

Change of willingness towards accepting the project for S2S3 group

	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
4a	0	1	0	1	4	9	22	41	38	21	16	8	4	0	0
4b	0	1	1	1	4	13	15	32	41	28	18	4	4	2	0
4c	0	1	0	0	5	12	23	40	34	25	16	5	3	0	0
4d	0	1	1	3	6	9	24	44	38	15	15	3	4	1	0
4e	0	1	0	2	2	6	10	19	14	5	10	1	2	0	0
4f	0	0	0	2	2	7	14	26	8	6	0	3	1	1	0

Not all the changes observed in Question 4 are statistically significant. In the previous section 6.2.2.1, it was already stated that changes of items 4d-4f of S1S2, and items 4e-4f of S2S3, were not statistically significant. So I would only focus on those which were.

To ascertain the extent of change of willingness to accept partial English MOI, the two tables above were again further summarized as follows:

S1S2

Question	Number of students with negative change	Number of students with positive change	Rank
4a	32	56	2
4b	26	55	1
4c	28	46	3

S2S3

Question	Number of students with negative change	Number of students with positive change	Rank
4a	37	87	2
4b	35	97	1

4c	41	83	3
4d	44	75	4

Students with the positive change in their willingness to accept partial English MOI consistently outnumbered those with negative change in the items analyzed. What is more, many of the positive changes observed were more than double, which meant the number of students who became more willing to accept partial English medium of instruction after the project was run for 15 months were more than double than those thinking otherwise.

As for the subjects which were more preferred to be taught in partial English medium of instruction, opinions between S1S2 group and S2S3 groups were essentially the same. They both preferred Mathematics (4b) the best, followed by Economics and Public Affairs (4a) and Integrated Science (4c). This was not entirely within my expectation. It was expected that as consistent with arguments about the nature of subjects in Section 2.1.3, Economics and Public Affairs would have come last for its rich and demanding content. However, it fared better and came second. What was within my expectation was Mathematics, which came first in both groups for the obvious reason that it was linguistically less demanding.

Almost all significant changes were observed in the subjects which participated in the project. The reverse was true for the subjects which did not participate except for History of S2S3 group. What could that imply? One possible implication may be that students had a higher willingness for the participating subjects to be continually taught using partial English MOI than the non-participating subjects. In plain language, it may be like this: The choice and the number of the subjects included in

the project were already fair enough. Amendment was not felt to be needed regarding these two concerns.

While the message was positive in Question 4, overall interpretation of the effectiveness of the project has still become puzzling when the result of Question 3 discussed before is recalled - that students were actually becoming more conservative about the effectiveness of the project in raising their overall English proficiency in the post-questionnaire. How do we reconcile the two pieces of data which are apparently contradictory to each other?

Taking a more constructive view, a possible explanation may be like this. While not as effective as hoped, students found partial English MOI not as difficult to handle as they had thought. Furthermore, the project was felt to have carried certain benefits (e.g. greater vocabulary knowledge) which was strong enough to warrant it to continue.

Summarizing from the results of the student diary and student questionnaire, an interesting trend of the change of attitude is observed. As stated in the analysis of the pre-student questionnaire, students' view towards the effectiveness of the partial English MOI are best described as more positive and their willingness to accept the project less so. Once the project was introduced, many of them experienced great setbacks, making them seeing the project with a more negative view. Nevertheless, it did not take much time as revealed in the student diaries sampled, that students felt they were able to gain the ground again and eventually became more positive towards it. Finally, when their attitude towards the project was solicited again after 15 months, the results reversed. They were not as positive about the effectiveness of the project,

but were much more willing to be taught in partial English medium of instruction. Different media of instruction did not have any impact on students' aspiration of language achievement. Whether they were educated in CMI or partial English medium of instruction, they showed a greater desire to use English and Chinese well.

A simple answer to the research question, whether there is a change of attitude, may be that there were indeed changes of views towards the effectiveness and acceptance of the partial English MOI. A more detailed description of the process of the change would be that the students had actually gone through a great change of their attitude towards the project in between as revealed in their diaries – negative feelings surmounted in the first few weeks followed by a great recovery of confidence after being able to adapt to and improve in the project shortly after. Time, therefore, is an important reference for comprehending students' change of attitude.

Having discussed extensively the extent of students' change of views towards the project, I would like to change the subject and investigate the next concern in the project – whether there is evidence of the benefits of action research gained.

6.3 Whether there is evidence of the benefits of action research from the Minutes of the Meetings and Research Diary

During the period from January 2002 to July 2003 where the evidence of action research was gathered, there were altogether three research diaries written and five formal meetings held. The research diaries were written on a quarterly basis since September 2002. As for the meetings, both agendas and minutes were produced except for the first meeting where only the agenda was written. This is so because of

the time constraint in the beginning of the project. Both the minutes and the research diaries show some evidence of the benefits of action research.

Let's briefly recall what action research is. Action research is a cyclical process involving 'planning, action and fact-finding about the research of the action' (Lewin: 1948:206) to a problem. It typically sees active participation and frequent modification by the researcher and the stakeholders throughout the process. As such, there is always the presence of continuous improvement.

The presence of a number of quantitative and qualitative evaluations, such as students' mean marks and students' diaries, is already testimonial to the presence of 'fact-finding about the research of the action' in the project. The more substantial evidence about whether continuous improvement is present in the project may lie in the minutes and research diary.

6.3.1 Findings of Minutes

It is time to examine the evidence of action research in the project from the minutes of the meetings held for the project. I would like to say a few words on anonymity first. Like the analysis of student diary in Section 6.2.1, teachers' real names were replaced by abbreviations T1, T2, T3 and so on in the minutes, though there is no correspondence at all between the two sets of numbers. Cohen & Manion (1994) are quite right in saying that absolute guarantee of total anonymity will never be present as far as life studies are concerned, as it is clear from the excerpts that T1 refers to the coordinator (i.e. myself). Using abbreviations, however, does help to prevent the identity of the majority participants from being exposed.

Let me begin the examination of the benefits of action research now. 'Problems', which are the starting point of action research, are plentifully present in the minutes. Here are some of them:

EXAMPLE 1

T1 reported that since the formal adoption of partial English medium of instruction in content subjects in April, 2002, students' inability to follow up became apparent. Subject teachers also revealed that much longer time was needed to cover the syllabus, resulting in the strain to meet the teaching targets.

(p.1, Second meeting 01-02)

EXAMPLE 2

T1 also reported that there was difficulty getting the revision exercise printed in time before the examination. This happened because the deadline for printing handouts typically fell around two weeks before the examination, where the coordinator might not have finalized the test area with the subject teachers yet.

(p.4, Third meeting 01-02)

EXAMPLE 3

The coordinator reported that there were few cases of missing of teaching the English notes in some subjects at the beginning of the term.

T2 commented due to heavy workload and change of coordinator in different subjects in different forms, this could happen easily.

(p.4, First meeting 02-03)

Corresponding planning and action, two elements essential for action research, are found in different minutes:

EXAMPLE 4: On students' inability to follow up in Example 1

T1 suggested revision exercises focusing on pronunciation and vocabulary in the content subjects be created and done.... In view of the already strained timetable in content subjects, it was arranged the exercises be done in the oral examination periods, where students had already got used to doing English revision exercises. This

arrangement would also utilize the expertise of the English teachers for helping students to learn better in English in their spare time in the oral examination periods.’
(p.1, Second meeting 01-02)

EXAMPLE 5: On strain to meet the teaching targets in Example 1

(follow-up in the third meeting 01-02) ‘The members are asked to remind the subject coordinators to put down the dates for teaching the partial English medium materials in their Annual Schedule in the following year, taking into the account of the longer time needed for teaching those materials.’
(p.4, Third meeting 01-02)

EXAMPLE 6: On difficulty in getting the revision exercise printed in time before the examination in Example 2

T1 raised the possibility of treating the revision exercise by the committee as administrative papers so as to be free from the rigid deadline....While authorizing T1’s suggestion, T3 reminded T1 and T4 that such special authority should only be used when desperately necessary.
(pp.4-5, Third meeting 01-02)

EXAMPLE 7: On missing of teaching the English notes at the beginning in Example 3

It was agreed a meeting be held in mid September every year, where coordinators of each subject concerned would submit the followings:

- a) the hard copy and the soft copy of the Annual Schedule detailing when to teach what in English,
- b) the hard copy and the soft copy of the vocabulary list for that year for the production of a vocabulary booklet (See item 4 for details), and
- c) a decision as to who would be responsible for communication on matters of cross-curriculum English Unit tests with the Committee Coordinator.

(pp.4-5, First meeting 02-03)

While quite often actions were initiated primarily towards solving a particular problem, they could be initiated just for the improvement’s sake. No matter which kind the actions belong to, they make continuous improvement possible:

EXAMPLE 8: On continuation and development of the project

'T5 also asked whether the current scheme would continue in the next academic year. T1 confirmed it and added Geography would join the scheme. T1 thanked T6 and T7 for their enthusiasm in enhancing students' ability in learning through English.'

(p.2, Minutes of the Second Meeting 01-02)

EXAMPLE 9: On cross-curriculum initiative: content subject vocabulary to be tested in English Unit Test

T1 expressed the possibility of coming up with another cross-curriculum initiative regarding the project, which was that the vocabulary taught in the content subjects would form part of the test items in the English Unit Tests starting next year. This responded to the primary purpose of the committee as outlined in its Program Plan 2003-04, to 'formulate strategies which improve the quality of teaching and learning by better utilizing the resources within the curriculum'. It was passed without further amendment.'

(p.5, Minutes of the First Meeting 02-03)

EXAMPLE 10: On CD-rom of pronunciation of vocabulary

While agreeing with the idea, T8 further suggested if creating a CD-rom version as well which included the pronunciation of the vocabulary would be useful. T9 also expressed the students had warmly welcome a similar practice he had done some years ago. It was agreed that the initiative would have a go and T8 and T1 would work together in September for the production of the hard copy and the CD- rom version of the vocabulary notebook.'

(p.6, Minutes of the First Meeting 02-03)

The thing which is apparent from the examples above is evidence of participation by the colleagues involved, another essential characteristic of action research. However, speaking from my personal experience, it is important to stress that the participation can only be called moderate instead of active, as is supposed to be in action research. In fact, certain traits of domination by the researcher can actually be traced in the Minutes. To illustrate the point, a simple count of turn initiations in the minutes may be useful.

Count of Turn Initiations in the Minutes

Meetings	Number of turns and/or actions initiated by the researcher	Number of turns and/or actions initiated by other members	Total number of turns and/or actions initiated
1. 2 nd Meeting (01-02)	6	10	16
2. 3 rd Meeting (01-02)	5*	3	8
3. 1 st Meeting (02-03)	11*	7	18
4. 2 nd Meeting (02-03)	6	8	14

* Presentation of findings is not counted because it cannot be considered as ‘a turn and/or an action initiated by the researcher’.

On the surface the domination may not look so conspicuous. But there are two things to bear in mind. First, the number of colleagues participating in the meetings ranged from 4 to 12 excluding the researcher, making it less than a turn per colleague on average in the majority cases. In fact, some colleagues present in the meetings did not say a word during the meetings as I recollected. Second, the minutes had already been written in a way to avoid domination. As the research diary writes (April-July, 2002), ‘Being too dominated doesn’t give a good feeling to anyone reading the minutes.’ It is quite true that the meetings were fairly dominated by the researcher especially during matters related to action, which is only remotely congruent to action research.

A brief conclusion may be that, there is evidence of the benefits of action research in the project from the minutes. Nevertheless, the extent of active participation is not as active as it should be. The research diaries do give hints as to why.

6.3.2 Findings of Research Diary

I would like to pick up where I left in the previous section first, the reason why the researcher was being rather dominant. After that, I would come back to discuss the findings in the earlier part in the last chapter.

The records of the research diaries perhaps could give some clues to explain why:

RECORD 1: On more freedom for teaching after my initial intensive involvement

[I] told the colleagues concerned that after my intensive involvement ended ...I would assume a more advisory role this year... [This is because] I assumed that teachers are all professionals and as they had been through the partial medium of instruction last academic year, they should be free to handle matters themselves.

(Research Diary Sept-Dec 02)

RECORD 2: On the missing of teaching the notes produced

[I] discovered that the teaching of bilingual notes was not done in S1 Maths and S2 EPA as scheduled in early October. I talked to the coordinators concerned and discovered that the notes were lost for S1 Maths. As for S2, the panel chairperson didn't remind the new S2 EPA coordinator for the arrangement. Hence the miss of teaching. While I'd been promised a better delivery next year, I feel closer monitoring, though sounding bossy, may be truly necessary.

(Research Diary Sept-Dec 02)

RECORD 3: On failing to administer the post-student questionnaire successfully

The assistant principal confided to me that whenever extra work had to be done by some, they needed to be briefed face-to-face. They alone couldn't be relied upon. No monitoring, things fall apart. Confirmed with my previous experience with colleagues who lost the notes produced and/or forgot to teach the units using notes produced.

(Research Diary April-July 03)

Assuming the central role to change and being rather dominant over the discussion in

the meetings is perhaps the result of repeated failures to work with the colleagues on the more solidaritary and egalitarian basis before. This experience, in retrospect however, should not be more surprising than it is. I think it is useful to recall here one of the doubts made regarding action research (see Hitchcock and Hughes, 1995) - whether the organizational culture at school is conducive to action research. Speaking from the experience of the project, I do confess there is weight of this argument.

Earlier I said there is evidence of action research in the project from the minutes as well as the research diaries. After reading the research diaries, it is noteworthy to point out that truly active participation by all the stakeholders (noticeably colleagues in the project) may be difficult in school situation due to the incongruence between which and the organizational culture at school. While no generalizability is attempted, that is at least felt to be true at the school in which I have been working.

6.4 Conclusion of Findings

Having discussed the significance of data obtained from various evaluation tools in the program in relation to my research questions, I would like to briefly summarize the findings and talk about their limitations.

6.4.1 Summary of Findings

This chapter concentrates on finding the answers to the research questions posed in Chapter 2. In the pursuit, a number of qualitative and quantitative tools have been used, namely, students test scores, student questionnaire, student diary, minutes of the meetings and research diary. Here are the major findings:

Major Findings:

1. There is evidence showing that students generally have been able to maintain their progress in the project according to the standard set by local schools. The degree of maintenance, however, varies with subjects and student eliteness. These two elements will be discussed in greater details in the section of 'Other Findings' below.
2. There is evidence showing that there is a change of attitude towards the partial English medium of instruction after the project. Compared to the time prior to the implementation of the project, students opted less favorably towards the effectiveness of the project in raising their L2 competence and interest of studying after 15 months the project was run. Nonetheless, they became much more willing to take the challenge of studying in partial English MOI. Additionally, vigorous change from being quite negative to becoming more positive was observed during the first few weeks of the project as revealed from the student diaries.

Another major concern of this project, whether there are benefits of action research gained by this project, is also shown to be present. The benefits include evidence of 'fact-finding about the research of the action' and continuous improvement throughout the project. There is also evidence of participation by the colleagues involved, though to a lesser extent than anticipated.

In addition to the affirmation of the research questions, there are four other findings emerging from the results obtained. As briefly said before, some of them are related to the extent the affirmation is made to the research questions. What is interesting, however, is that these findings look almost common sense now, but in retrospect they

did not the time before the project was implemented. It takes data obtained from the different evaluation tools in the project to confirm their rationality:

Other Findings:

1. Performances of the elite and non-elite students are unequal. Elite students perform much better in partial English medium of instruction than the non-elite students do.
2. Generally speaking, the less linguistic content is involved, the better the performances the students have. Following this logic, the level of difficulty of the subjects in the project is, in ascending order, Mathematics, Integrated Science and EPA.
3. Vocabulary, pronunciation, quizzes and teacher's methodology, which have not been much mentioned in the literature, are shown to be important elements in students' mastery in the project.
4. Time is an important factor for students' adjustment and acceptance of the project. Students' feelings towards the project are shown to be fluctuating considerably in its beginning. If the evaluation of this project had not taken this point into consideration, the conclusions made would have been different and erroneous.

From these findings, it is possible to improve similar projects on partial English medium of instruction in the future. More will be said in the next chapter where the implications and recommendations are discussed.

6.4.2 Limitations of the Findings

As with any research, there are limitations of the findings gathered. Mine is not the exception and the limitations are largely due to its action research nature.

The first limitation is generalizability. Being an action research, the project's generalizability suffers. This limitation has already been exemplified in Section 6.1, where comparisons are made between the findings of this project and Hau et al's (2000). Theirs is done with highly standardized assessments on a large scale, resuming the typical conventional scientific research as discussed in Chapter 3. Mine, being small and situated, compares to theirs unfavourably in terms of generalisability.

The second limitation is lack of data showing the project's quantitative effect on students' English achievement. The whole project works on the assumption that greater exposure through using English as the MOI at the print level will raise students' L2 competence. While that makes common sense and is in fact supported by large scale empirical studies in Canada and the U.K. as presented in Section 1.4.1, no quantitative measure has been taken to gauge the actual effect on students' L2 literacy with the project. True that qualitatively speaking, students' comment is favourable on their improved vocabulary knowledge and is largely neutral to the project's effect on their L2 literacy competence as revealed in the student questionnaire. But students' opinion itself may not be scientific enough to lay claim on any effect on their actual L2 achievement due to the project.

Let's discuss the remedies to the problems. They, in fact, also shed light on the future direction of the research in the study of medium of instruction and bilingual education.

First, as pointed out in Section 3.1.3 by Hitchcock and Hughes (1995), it is possible that the generalizability and internal validity of action research can be raised. The way to achieve this would be to initiate similar projects in different schools and compare the results. Gillham's (2000:10) comment as presented in Section 3.2, though made regarding the multi-method approach, is just as applicable to the need of the initiation of more similar projects:

'...one approach is rarely adequate; and if the results of different methods converge (agree, or fit together) then we can have greater confidence in the findings.'

Future research in the area would also benefit greatly by including a quantitative evaluation on students' achievement in L2 literacy with the Partial English MOI project. A standardized reading test may be set on evaluating students' achievement in ordinary and scientific texts in English. Students from different schools can be invited to sit for the test so that comparison can be made between participants and non-participants to investigate the project's effect on reading. A test on writing may similarly be administered, where students may be given some relevant inputs and asked to continue the task of a scientific and non-scientific paragraph. The criteria to be used for assessing students' writing ability may include fluency, accuracy, and/or the richness of content, facilitated by, for example, the use of words which are scientifically oriented. These suggestions made are, understandably, indicative rather than exhaustive.

Despite the limitations mentioned, I believe the findings still bear implications for the MOI policy makers in Hong Kong and the researchers on the subject of medium of instruction and bilingual education around the world. I would now like to come to the

final chapter of this thesis: 'Implications and Recommendations'.

Chapter 7: Implications and Recommendations

Let me begin this final chapter by summarizing what has been discussed so far. This thesis starts with a critique of the official medium of instruction policy in Hong Kong since the issue of 'Firm Guidance' in 1997. The critique maintains that 'Firm Guidance' does not address the economic, social and political needs of Hong Kong students and the society at large. Grave reservation is also expressed about its proclaimed benefits, said to be that teaching and learning would be conducted more effectively, and more time would be set for English teaching leading to higher achievement in students' second language.

Dissatisfied with the policy, the thesis proposes a 'bilingual exit' based on the literature review in the methodology of the medium of instruction at the end of Chapter 2. Named 'Partial English Medium of Instruction', the project is carried out for a group of junior form students in a local secondary school since March 2001. Evaluation of the project, detailed in Chapters 4 and 5, is done between March 2001 and July 2002, although the project continues after that for its action research nature. Both quantitative and qualitative tools are used for so doing gives 'greater confidence in the findings' (Gillham, 2000) as explained in Chapter 3.

Findings presented in Chapter 6 show confirmations of the research questions asked in the thesis. First, students are generally able to maintain their progress in the project according to the standard set by local schools. Second, there is a change of attitude among the participating students towards the project. A non-linear change is observed from being slightly positive before the project starts in April 2002, to rather negative

in the first few weeks of the project, and back to slightly positive again since then till June 2003. Documents present also show the existence of 'continuous improvement' throughout the project, testifying there are benefits gained from the action research adopted.

The project, being an action research, has an 'in-born' disadvantage in terms of generalizability. Because of its uniqueness, one would be mistaken to take the findings as highly significant to the MOI policy of other secondary schools in Hong Kong and/or bilingual programs around the world. The only way to increase its generalizability is through further research: Implementing the project partial English MOI in other Hong Kong secondary schools of different academic and/or socio-economic backgrounds. Given its initial success, the project shall also be considerable for trials to other places around the world which aspires for greater bilingualism and higher bilingual competence in literacy among their students.

Amid its humble start, this small and situated action research documents systematically how might a project, related but not limited to medium of instruction, be effectively carried out by front-line teachers in Hong Kong. Therefore, there are insights to be shared with, and recommendations to be made for, the MOI policy makers in Hong Kong. The following sections aim to discuss the implications and give recommendations based on the findings presented in Section 6.4.

7.1 On the better performance of the elite students in the project

It has been proved that elite students, even meant to be educated in Chinese MOI, can do comparably well or even better in the English part than the Chinese part on the

examinations. An MOI policy which does not address to this capability, like the 'one-and-for-all' MOI policy being currently run in Hong Kong, may be a waste of talent.

Implications and Recommendations:

There is a great possibility and necessity to fine-tune the extent of English and Chinese used in the 'bilingual exit' I propose. More able students shall be allocated to classes where English MOI is used for major subjects. Less able ones, accordingly, shall be allocated to classes where Chinese MOI is more frequently used.

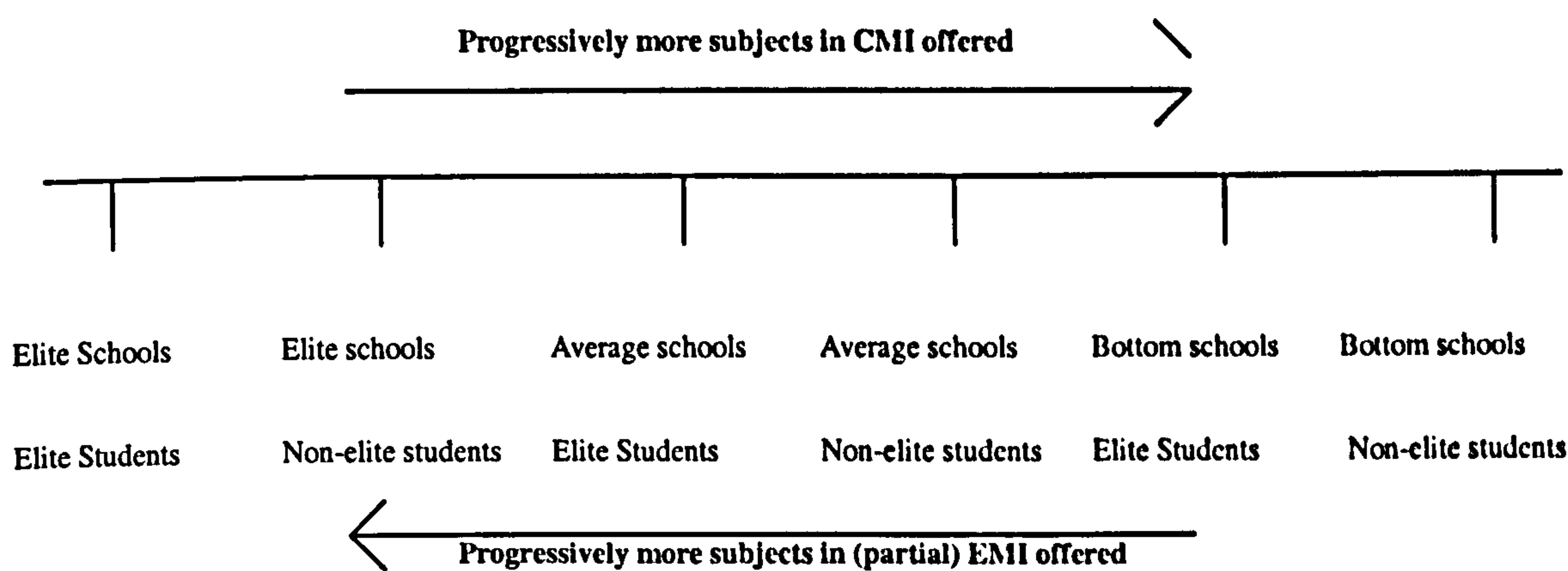
The immediate question arising from this suggestion would be 'how to judge how able a student is'. Another question is whether students considered able or less able will change to different streams as their abilities are proved to have changed later on. Decisions like these are typically determined by the school to which the student goes – if a student can go to an elite, EMI school, then (s)he is said to be an 'able' student capable of learning in English medium instruction throughout his/her entire secondary school life. Otherwise, complete Chinese medium of instruction must be offered. As reflected from the test results, there can be huge difference in achievement between the better and the less capable students even within the same school. This would also easily make one wonder if individual students' abilities could change with time - The 'one-and-for-all' MOI policy for EMI/CMI schools, while appealing administratively, denies individual needs and abilities.

A better system would be like this. Instead of attaching a label of 'EMI' or 'CMI' to the secondary schools, perhaps the label could be attached to the subjects. In any secondary school, subjects can be taught either in (partial) EMI or CMI based on two

considerations: 1) the ‘eliteness’ of the school, and 2) the ‘eliteness’ of the students.

The system may be understood with a continuum as follows:

**A Continuum of the Extent of (partial) EMI or CMI Subjects Offered Based on
School and Student Eliteness**



On the first glance, this continuum looks a bit like Met’s continuum on content-based language teaching as discussed in Section 2.1.3. A closer inspection may reveal they are actually two different things. Let’s talk about the present continuum. At one end, a school which is considered as elite can offer (partial) EMI in most or all subjects to all students. Notice the term ‘(partial) EMI’ is used, signifying schools have freedom to offer either EMI or only partial EMI in their chosen subjects. At the other, a bottom school may offer CMI in most or all subjects to all students. Average schools, which are the majority, will offer a ratio of EMI and CMI subjects based on students’ ability.

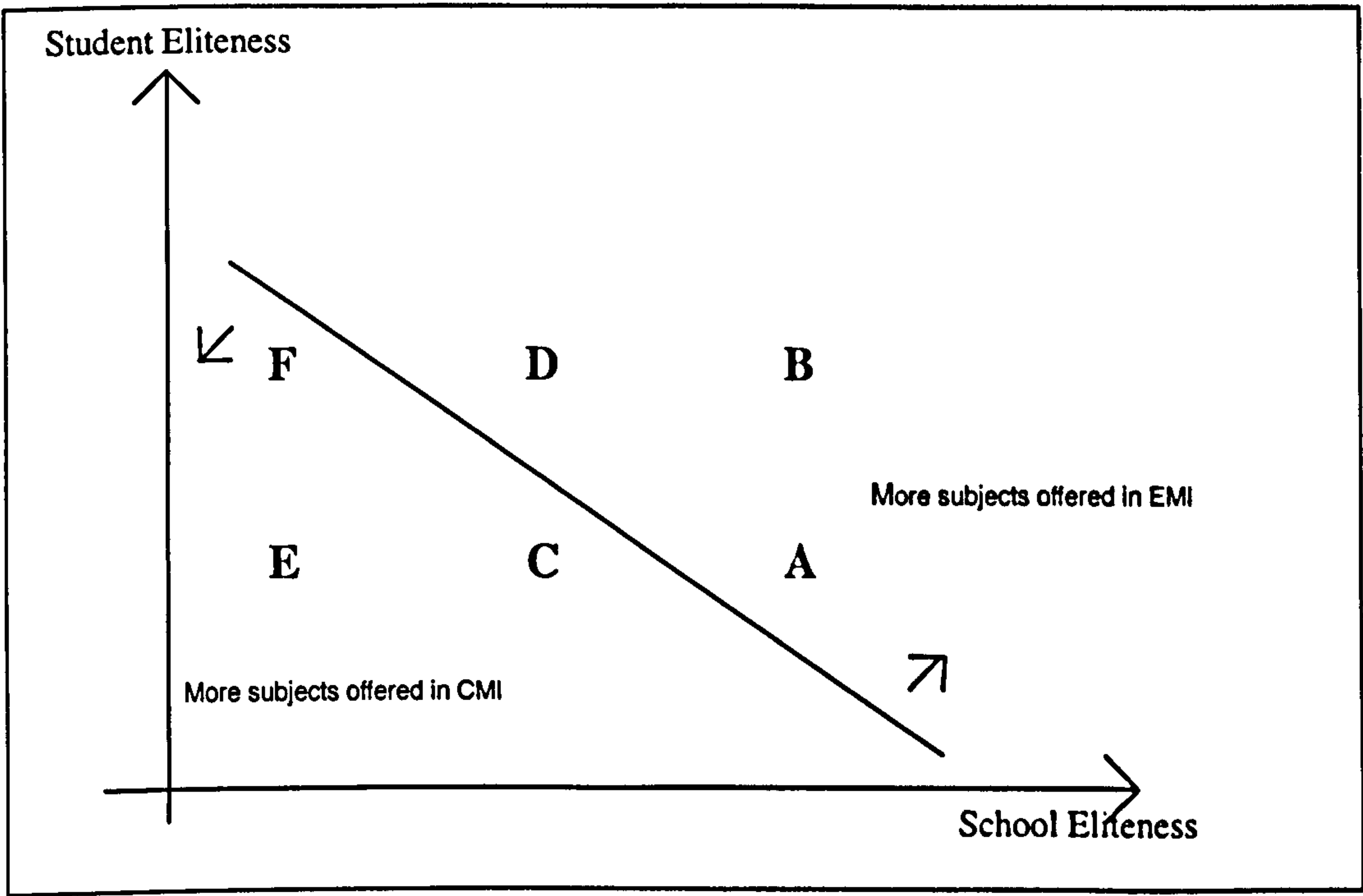
The concept of student eliteness needs clarification. Recalling that S2 and S3 students typically fare better in partial EMI than S1 students do, the extent to which the students are elite depends on the year in which they are as well. That means, an S3

student should study more subjects conducted in partial EMI than an S1 student do in the same school though they both may be studying in non-elite classes

This continuum pictures roughly the direction to which the extent of (partial) EMI and CMI subjects to be offered may go. It is understood that while in the continuum different banding schools seem to be fixed discretely, they need not be in practice.

The following diagram illustrates the new system from another angle which is another way to capture the nuance. Six cases, A, B, C, D, E and F are labeled on the diagram for ease of discussion.

A Diagram of the Extent of EMI/CMI Subjects Offered Based on School and Student Eliteness



Suppose A-E are six students. A and B come from School 1, C and D School 2, and E and F School 3. From the diagram, it is not difficult to figure out the eliteness of these

three schools. A & B, found on right of the diagram, come from an elite school; F & E, on the far left, come from a bottom school; D & C from an average school. The different positions plotted in this diagram are not fixed ones. In practice, there is, understandably, some degree of freedom as to which point a certain student belongs.

The slope in the diagram roughly signifies the watershed of the ratio between the number of subjects offered in EMI and CMI. Direction heading top right means increasingly more subjects to be offered in EMI, and direction heading bottom left, more so in CMI.

Given their more favourable start, A and B would be educated with more subjects in EMI. B, however, is more elite than A as shown by his/her position above A in the diagram. It can be that (s)he is a student from the elite class while A is not, or (s)he is in a more senior form than A. It can also be both. As a result, for his/her eliteness, B should be allowed to take even more subjects conducted in English than A should.

E and F are essentially the same story as A and B, except that they are from a bottom school. Notice the position where F is, which is deliberately put near the watershed. This is done to show the possibility for a student to 'pass' the watershed even studying in a bottom school when his ability allows.

C and D would be students coming from an average school. Let's compare them. D represents the typical path for the majority of students in Hong Kong. As (s)he is in studying in a higher form, and/or in an elite class, (s)he would be taking higher number of subjects in (partial) English MOI than C, who is in a lower form, or in a non- elite class, or both.

What is the major philosophical difference between the proposed system and the current 'one-and-for-all' MOI policy? It probably lies in their different views towards the nature of ability. The current MOI policy assumes the ability of students, be it elite or not, is largely fixed and change of streams is accordingly unnecessary²⁴. The proposed system sees there are, as time goes by, constant changes of the ability of students as measured by regular tests and examinations, and addresses them by providing different MOI to the students concerned.

Having explained how the diagram of the proposed system works, I would like to recount the nature of the proposed system. It is a 'bilingual exit' based on 1) the needs of the Hong Kong society, and 2) the abilities of individual students. One may be mistaken that the suggested practice of providing increasingly more subjects taught in English MOI in the curriculum symbolizes the superiority of English over Chinese. The number of subjects offered in (partial) English MOI is likely to be more or less the same as the ones in Chinese MOI for the majority secondary schools in Hong Kong. The major aim of the proposed system is to regulate the ratio of the EMI/CMI subjects offered in different schools based on students' capacity. If the L2 is not allowed to catch up with the L1 in the curriculum when circumstances permit, then monolingualism instead of bilingualism would be emphasized. As discussed in Chapter 2, it is bilingualism that should be emphasized in Hong Kong, for its better economic, political, social and educational effects on our students and the society.

²⁴ The nature of intellectual abilities, or more generally intelligence, has been a subject of great debate for many years. While not intending to go into depth, it is perhaps useful to know that the view that intelligence is innate and fixed is no longer common. According to 'The Columbia Electronic Encyclopedia', it is generally agreed, based on numerous studies, that intelligence is related to both heredity and environment. See the link below for details:
<http://reference.allrefer.com/encyclopedia/I/intellig.html>

7.2 On subjects’ linguistic content and other significant concerns

From the research findings, it is apparent that there exists a principle showing how difficult a subject may become to the students in the partial English MOI – the more linguistic content that is involved in the subject the more difficult it will be, and vice versa. Also, it has been shown that satisfactory progress under the project depends on considerations being paid to vocabulary, pronunciation, quizzes and teacher’s methodology. The implications of these two findings and the corresponding recommendations are discussed as follows.

Implications and Recommendations:

The implications to be drawn are like this. For teachers and local MOI policy makers who may be interested in initiating a similar project in another secondary school, the key is order – an order of introducing which subjects to be taught in partial English MOI according to their linguistic demand. For example, Mathematics can start on the very first day of secondary school, provided there is an appropriate level of student and school eliteness – the concept discussed in Section 7.1. Although comparatively more students opted for EPA than Integrated Science for the partial English MOI based on the post- student questionnaire results in Section 6.2.2.2, Integrated Science is felt better taken as the next. Only when the students become more capable then social science subjects such as EPA and Geography can be introduced. For reference, a summary of the common subjects offered in junior form secondary school is given, with a recommendation of order of introduction in a partial English MOI project:

Subjects	Order of Introduction to the Partial English MOI program
Mathematics	1
Integrated Science	2

Design and Technology	2
Home Economics	2
Computer Literacy	2
Economics and Public Affairs (EPA)	3
History	3
Geography	3

Based on this recommended order, a school may adopt partial English MOI in Mathematics in the first term of S1. Depending on students' performance in the test and/or examination, it may choose to stay at the same level, or offer new subjects in the next level where a number of options such as Integrated Science and Computer Literacy are available in the second term of S1. Upon promotion to S2, students may be offered partial English MOI in the social science subjects like EPA depending on their 'eliteness'. This time frame is indicative instead of exhaustive. Schools shall be free to design a time frame which follows the recommended order to suit their needs.

Generally, there should be an increase in number and a continuity of choice of the subjects to be offered in partial English MOI. The concept of building up new knowledge from existing knowledge is essential in education. Therefore, it makes more sense to keep teaching in partial English MOI for subjects which have already been doing so despite the adding of new subjects in the new term/year. So doing, however, may need to take an additional consideration of whether there is a limit of the number of subjects in partial English MOI the students could handle. Consideration as such shall then be made again according to the concept of school and student eliteness mentioned in Section 7.1.

There is an implication of this recommended order for researchers as well. Since the

order mainly derives from the findings of an action research project, there is a need to initiate more research of the similar kind so that the body of research in medium of instruction and bilingual education may benefit from the increased generalizability.

What is the implication from the other significant concerns which surface from the findings? In Section 6.2.1.2.1 I have talked about the rarity of academic literature on the importance of vocabulary and pronunciation in English MOI. This would make one wonder if there is a need for the experts in the field to update the research literature in the field of content-based instruction and/or medium of instruction. With a greater awareness of the intricacy of vocabulary and pronunciation, the progress of L2 speakers in the partial English MOI project may be faster. This advice is also true for the administrators who want to organize the similar projects in their schools – the message that vocabulary and pronunciation must assume a major focus for teachers who conduct their lessons in partial English MOI.

The other two significant concerns, quizzes and the methodology utilizing explanation and examples, are also highly relevant issues to front-line teachers conducting the partial English MOI in their places. To reiterate from Section 6.2.1.2.2, the informal nature of quizzes promotes frequent revisions on key vocabulary items which have already been put as important. On the other hand, no trouble should be spared giving explanations and examples even though it may take more effort and slower the progress. Successful implementation of partial English MOI, therefore, implies that more time should be allocated to the related content matters in the Annual Schedule of each subject. While so doing means less content area can be covered, the positive feelings revealed in the student diary justify it.

7.3 On more effective evaluation and the benefits of action research

Two findings which are not directly related to the medium of instruction per se but are nevertheless important are the intricacy of time for program evaluation and the benefits of action research.

Implications and Recommendations

There are two major implications here for the researchers and front-line teachers in program evaluation. For effective and fair evaluation, first, reasonable time for adjustment of the subjects to which a treatment is given must be set. What is even more important, nevertheless, are the qualities that program administrators and teachers directly involved must have - patience and insistence. Let's recall the findings of the research diary. Despite some supporting voices, criticisms were heard frequently prior to and in the beginning of the project, where faults could be easily found and accusations of weaknesses made. It is not my intention to deny the validity of all the criticisms made – part of them have actually been taken and remedies were made. What the program administrators must be aware of, however, is that some criticisms made, which could be valid the time they were made, may well become invalid after the time of adjustment. Had I, in the beginning of the project, listened to some colleagues' complaints and taken the students' initial negative feelings as evidence, I would have terminated the project before more favorable feedbacks emerged. This is indeed reminiscent of a conclusion drawn by Cummins and Swain (1986) presented earlier in Section 4.2, where evaluations of bilingual programs in particular should be done on a long-term basis to let students overcome their typically initial lags in achievement. In view of time for adjustment, patience and insistence can save a good program from being called off on false grounds.

Let's change the subject and talk about the difficulty of achieving informed, objective practice in education. Not being a hard-core science subject, education is commonly perceived as unscientific. There is of course some educational research done which can be categorized as conventional scientific research (the frequently quoted 'Hau et al, 2000' in this thesis is an example). But much of the findings of the research are only remotely relevant to the actual daily practice of front-line teachers in different schools (Again 'Hau et al' is an example). And whether teachers, given their well-famed busy schedules, have time to search for and read research papers is another practical issue to consider. This explains the phenomenon that different teachers in different schools adopt considerably different practices in their teaching, without much support from objective evidence.

This is where the benefits of action research come from. Essentially, action research is about following a few simple steps, namely, 'planning, action and fact-finding about the result of the action' (Lewin, 1948) as presented in Section 3.1.2. Simple as it may be, it can make teaching practices done more objectively and continuous improvement possible for the presence of documentation and reflection throughout.

One of the major criticisms against action research is its simplicity – 'organized common sense' (Gibbs, 1995) and 'merely following the cyclical process' (Smith, 2001) are typical ones as presented in Section 3.1.3. My personal experience as an action researcher in this project shows that action research is much more than those criticisms - following it through takes great dedication (e.g. detailed record keeping) and rigorous reflection (e.g. analyzing and contemplating solutions of problems). The steps may be simple, but the time and effort to be put into an action research is not so. Its usefulness, however, justifies it.

I wish to draw a comparison between action research and a knife. I have heard little criticism about the invention and use of a knife for its simplicity; everybody knows it is simple but useful. Why, then, should people criticize the invention and use of action research in education just because it is simple? Did they not know action research is also ‘simple but useful’?

From the previous discussion, school administrators shall be able to see good potential for action research in educational practice, which is often highly situated. Therefore, they may run workshops and encourage teachers to use it in their daily practice for their benefits. It is true that people may become defensive when knowing following a few ‘simple steps’ can be called doing research – action research. Instead of wrestling with one and another about the definition of research, the term ‘research’ can be dropped and pragmatically replaced by words like ‘technique’, ‘method’, etc, so long as the practitioners are following the same steps, being true in their findings, and able to reap the benefits from it.

Here I turn to the last section of the thesis, which is the summary of the recommendations made.

7.4 A Summary of Recommendations

As the thesis is drawing to an end, let me summarize the recommendations made based on research findings and the implications they bear. These recommendations, I believe, would be relevant to researchers, MOI policy makers, school administrators, and front-line teachers:

Recommendations for Researchers:

1. Researchers need to update the research in the field of content based instruction and/or medium of instruction as vocabulary and pronunciation, central to the success of this partial English MOI project, are rarely mentioned in the literature.
2. For increased generalizability, there is a need to initiate more projects like the present project to confirm the findings of this project which is an action research.

Recommendations for MOI Policy Makers and School Administrators:

1. A 'bilingual exit', which is termed 'Partial English Medium of Instruction' in this thesis, shall be adopted for all secondary schools in Hong Kong. This exit is based on the needs of the Hong Kong society and the abilities of individual students. In this exit, more able students shall be allocated to classes where English MOI or partial English MOI is used for the majority subjects; less able ones may study subjects where Chinese MOI is more frequently used.
2. In order that the exit works, the label '(partial) EMI'/'CMI' shall be attached to different subjects like Mathematics instead of simply attaching it to different schools. Schools wishing to conduct (partial) EMI in any subjects may base their considerations on the 'eliteness' of their schools and students. 'Eliteness' refers to school's reputation, forms of students and whether students are studying in elite or non-elite classes.
3. There is a recommended order of which subject to offer (partial) EMI first and

which next based on subjects' linguistic demand. Mathematics, which has least linguistic demand, shall be offered first in the curriculum followed by, for example, Integrated Science and Computer Literacy. When students are sufficiently 'elite' enough, linguistically more demanding social science subjects such as EPA and Geography may be offered to them.

4. It is desirable that there is a continuity of choice and an increase in number of the subjects to be offered in (partial) EMI. For instance, if Mathematics was offered in S1, it is desirable to keep offering it in S2 and S3, despite the adding of new subjects in the curriculum as the students become more 'elite'.

For School Administrators and Front-line Teachers:

1. Vocabulary and pronunciation, as aforementioned in the section of 'For Researchers', must be given prime focus by the teachers who conduct their lessons in (partial) EMI.
2. Quizzes are recommended in the (partial) EMI project as they make repeated attempts on key vocabulary items possible. This is especially helpful for less able students.
3. Explanation and examples are much needed for teaching in (partial) EMI. More teaching time, preferably detailed in the Annual Schedule of each selected subject, will have to be given for the parts conducted in (partial) EMI. The additional time can be obtained by, for instance, reducing the amount of teaching content in the participating subjects and/or other subjects. Students spending more time at school is another possibility.

4. For the favorable benefits to be gained, school administrators may run more workshops on action research so that teachers may become more willing to use it in their daily practice.
5. To minimize possible defensiveness, the term 'action research' can be changed to 'action technique', 'action method', etc, in its promotion so long as practitioners concerned are truthfully following the steps of, and being able to obtain benefits from, the action research.

For Researchers, MOI Policy Makers, School Administrators, and Front-line Teachers:

1. For effective program evaluation, reasonable time for adjustment of the subjects to which a treatment is given shall be set, otherwise erroneous data may be obtained.
2. Related to the first point made, there are two important qualities which are essential for researchers, MOI policy makers, school administrators, and/or front-line teachers directly related to any program being initiated. They are patience and insistence. This is true especially when facing criticisms made before reasonable time for adjustment of the subjects is given.

Appendix 1: A sample of the notes produced (S1 EPA: Identity)

1 The importance of an identity



Proper terms to know:

1. Citizens and Residents:

- ✧ Citizens (公民)
- ✧ Permanent residents (永久性居民)
- ✧ Non-permanent residents (非永久性居民)

2. Departments and Laws:

- ✧ Immigration Department (入境事務處)
- ✧ Nationality Law of the People's Republic of China (中華人民共和國國籍法)



The meaning of identity

Everybody has an identity(身份). It shows who you are. You may have different identities. For example, you have the rights to use natural resources. At the same time, you also have the duties to protect the environment.



How do we identify a person?

Every person is unique. That is because we have different appearances, personalities and voices etc. Then how do we identify a person?

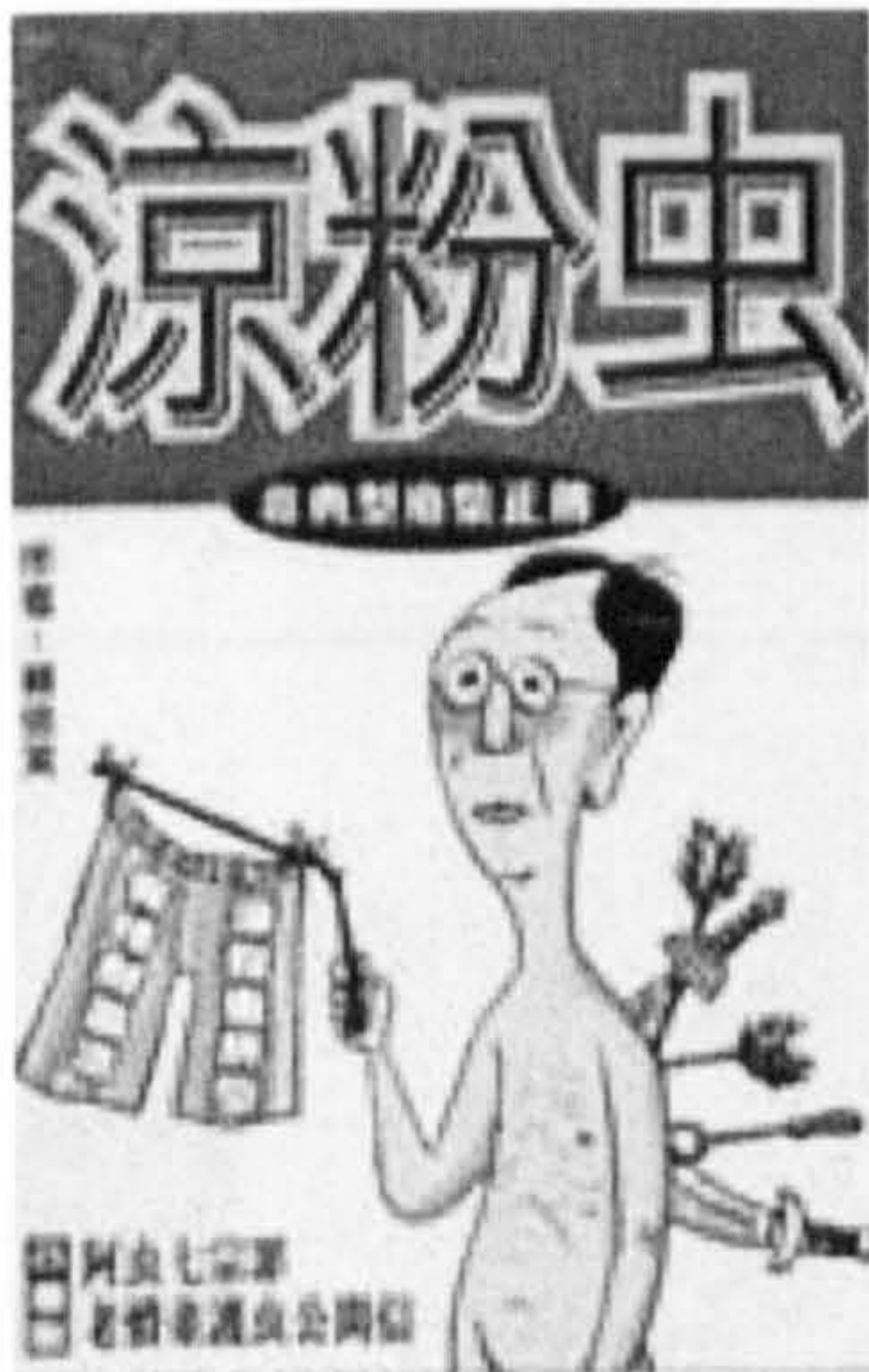
Appearance

This is the most simple and direct way to identify a person. But some people are twins having the same appearance and voice. So identifying a person by appearance is not reliable.



Let's do it!!!

Look at the following photos. Can you identify who is Tung Chee Wah, Regina Yip and Anthony Leung?



1. _____ 2. _____ 3. _____

Name

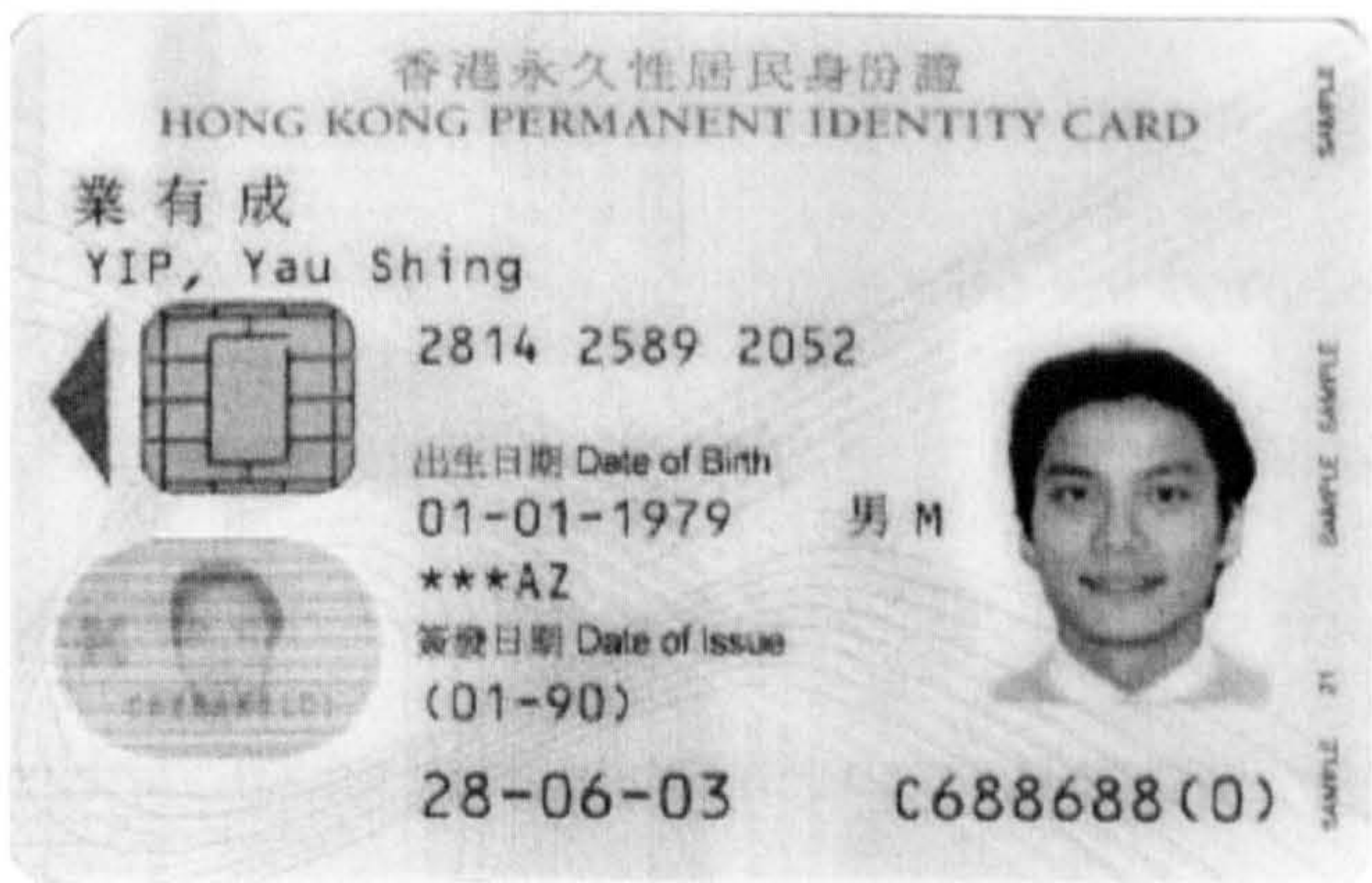
Another common way to identify a person is by his name. e.g. Chan Tai Man. There can be so many people called Chan Tai Man in the society at the same time. So identifying a person by his or her name is not the best method.

Scientific Method

Although people may have the same appearance and names, they have different fingerprints and DNA. So we can use scientific methods such as fingerprints and DNA to identify a person. This can help us correctly identify a person.

Identity Certificate

Apart from the scientific methods, another way to identify a person correctly is by certificates. In Hong Kong, we can identify a person by Birth Certificates (出生證明書), Identity Cards (身份證) and passports (護照). These certificates are all important.



New Smart Identity Card



BNO Passport



“Citizen” and “Resident”

Citizens and residents have different meanings. The following table shows the main differences.

Citizens	Residents
1) They have the nationality (國籍) of a country.	1) They have the right of abode in a place, having satisfied the conditions of the relevant laws.
2) They have rights and duties under the laws of the country.	



Time to think!!!

Are all of your family members Hong Kong citizens? Do you know anyone who live in Hong Kong but not a Hong Kong citizen?



The identity as a Chinese citizen

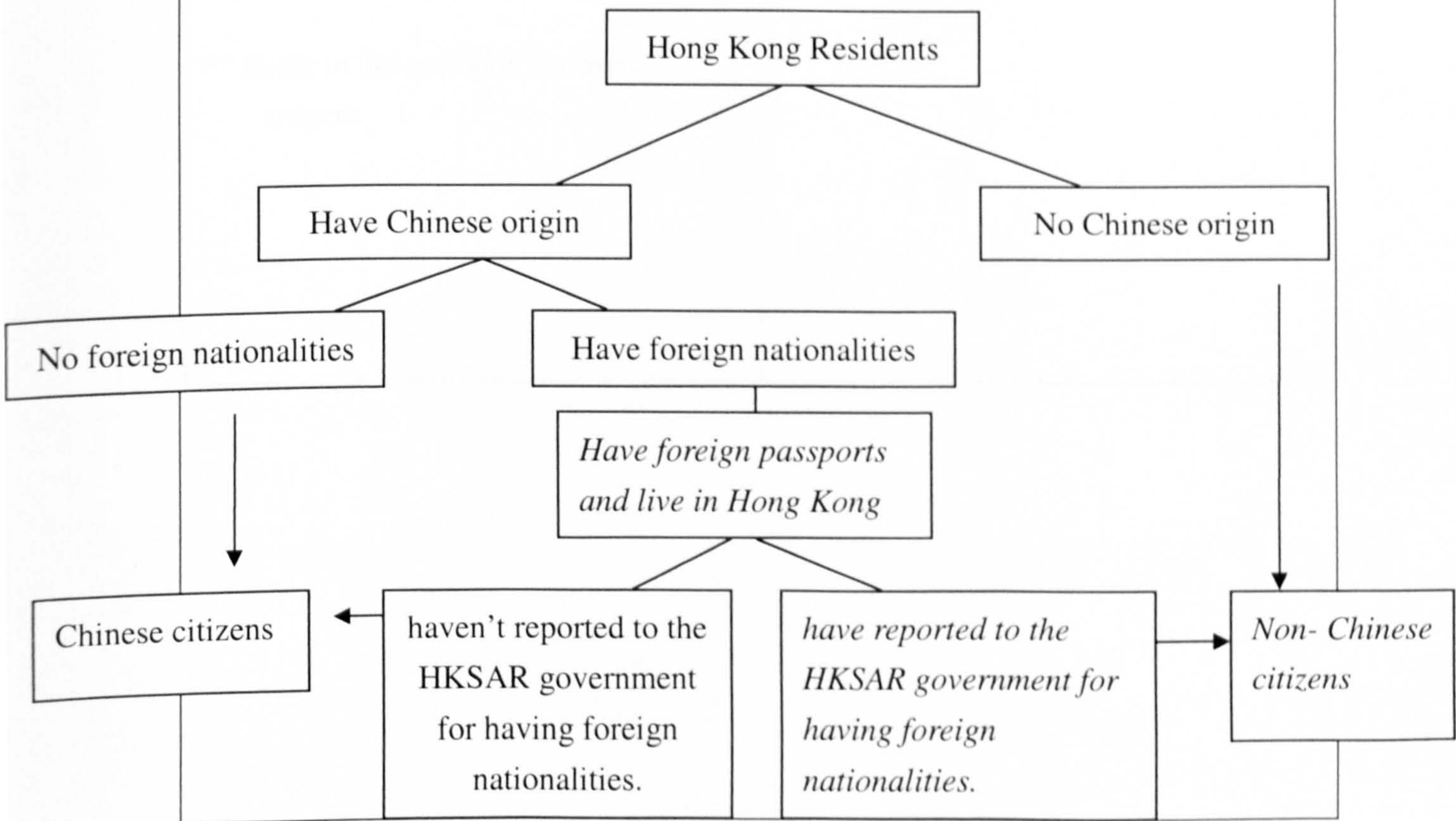
Chinese citizens are those who are born in China including Hong Kong and are of Chinese origin. Also, they have Chinese nationality under the Nationality’s Law of the People’s Republic of China (中華人民共和國國籍法). Chinese citizens may not be Hong Kong permanent residents if they:

- 1) have not lived in Hong Kong continuously for 7 years, and/or
- 2) were not born in Hong Kong.



Residents of the HKSAR

There are two types of residents. They are the permanent residents (永久性居民) and non-permanent residents (非永久性居民). Permanent residents have the right of abode (居留權) in the HKSAR while the non-permanent residents do not. The following chart shows the differences between permanent residents and Chinese citizens.



There are some criteria (準則) to check who are permanent residents and non-permanent residents. Do you have some friends who are non-permanent residents? Check the following criteria in the table below.

<i>Who are Permanent Residents?</i>	<i>Who are Non-permanent Residents?</i>
<i>You are a permanent resident if you meet any of the following requirements**</i> 1. You are a Chinese citizen born in Hong Kong or have lived in Hong Kong continuously for at least 7 years. 2. You are a son and daughter of permanent residents. 3. You are a non-Chinese citizen who has lived in Hong Kong continuously for at least 7 years. ** Refer to the textbook for more criteria.	<i>You are a non-permanent resident if:</i> 1. You are foreigners who have the identity card but have not lived in Hong Kong continuously for 7 years. 2. You are tourists in Hong Kong or work in Hong Kong.



Time to think!!!

Are you a permanent or a non-permanent resident? Which criteria did you meet above??



Let's do it!!!

Finish the chart below which summarizes the concepts of residents and citizens. You can use the following words more than once.

Permanent residents	Non-Chinese citizens
Chinese citizens	Non-permanent residents

Residents of the HKSAR

1. _____
- has the right of abode.

2. _____
- don't have the right of abode.

3. _____
- Emigrants return to Hong Kong and report to the HKSAR government that he or she has foreign nationality.

4. _____
- Emigrants return to Hong Kong but they do not report to the HKSAR government that he or she has foreign nationality.

5. _____
- has the nationality of China.

6. _____
- don't have the nationality of China.

Appendix 2: A Sample of the test paper: S1 Integrated Science

G1(



Tung Wah Group of Hospitals S. C. Gaw Memorial College

東華三院吳祥川紀念中學

第一次統一測驗(2004-2005)

中一級

科學科

姓名: _____

日期 : 01/11/2004

班級: _____ ()

時間 : 10:00 – 10:45 a.m.

總頁數 : 5

考生注意事項：

1. 本試卷共分中、英文問題兩部份，總分爲一百分。

英文問題部份必須用英文作答

中文問題部份必須用中文作答

2. 中、英文問題兩部份均包括以下項目：

甲、選擇題

Section A : Multiple Choices

乙、填充題

Section B : Fill-in-blanks

丙、問答題

Section C : Short Questions

丁、圖表題

Section D : Diagrams

3. 本試卷全部試題均須作答，並將答案填寫於答題紙上。
4. 繪圖部份必須使用鉛筆。
5. 答案必須爲書面語。

第一部份 — 中文部份 (70%)

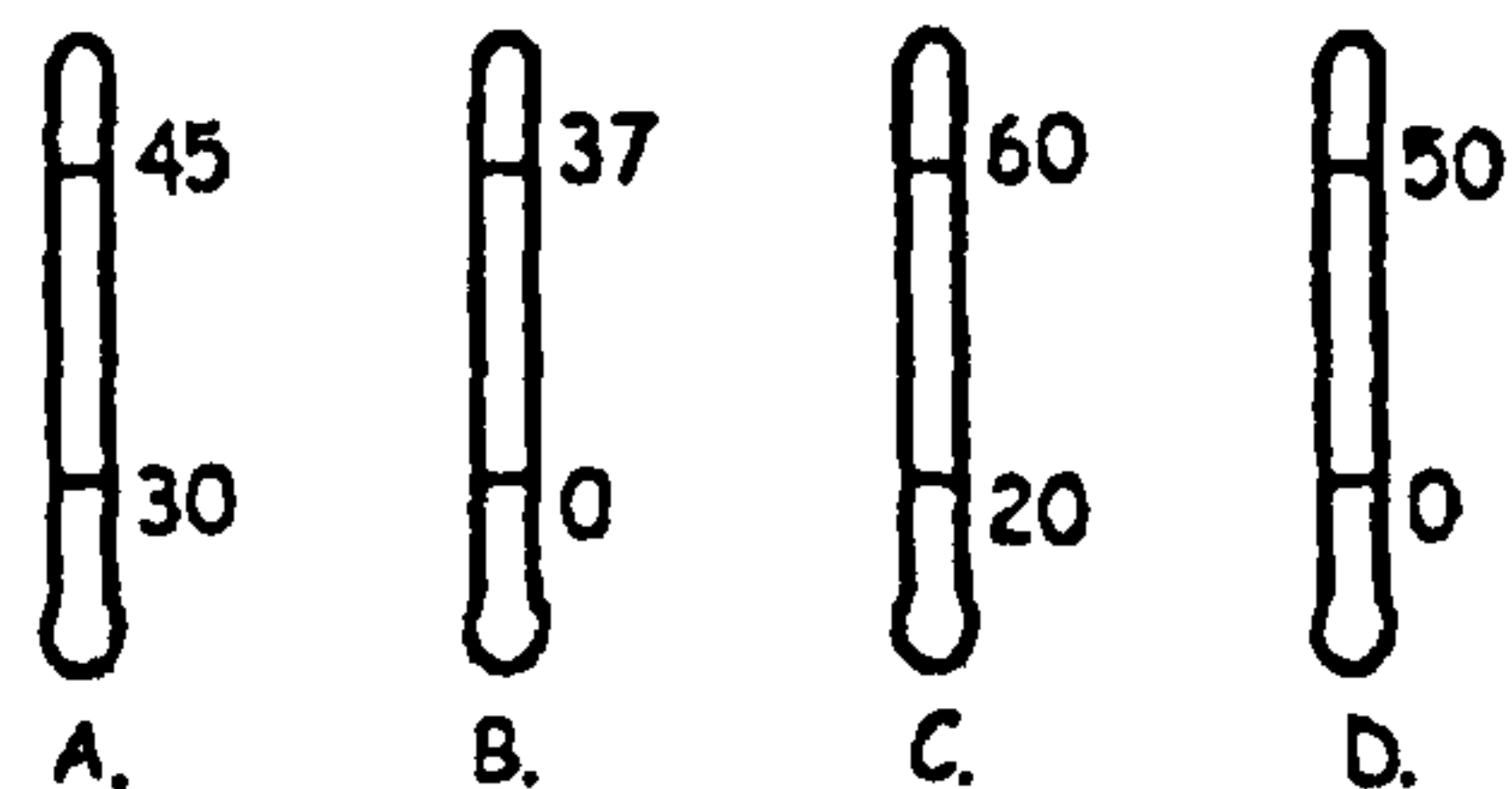
甲、選擇題 (10 分)

1. 若被熱油燙傷，我們應怎樣處理？

- i. 在傷口上塗上紅汞水。
- ii. 以清水沖洗傷口。
- iii. 在傷口上塗上醬油。
- iv. 立即通知老師。

- A. 只有 i 和 iv
- B. 只有 ii 和 iv
- C. 只有 iii 和 iv
- D. 只有 i、ii 和 iv

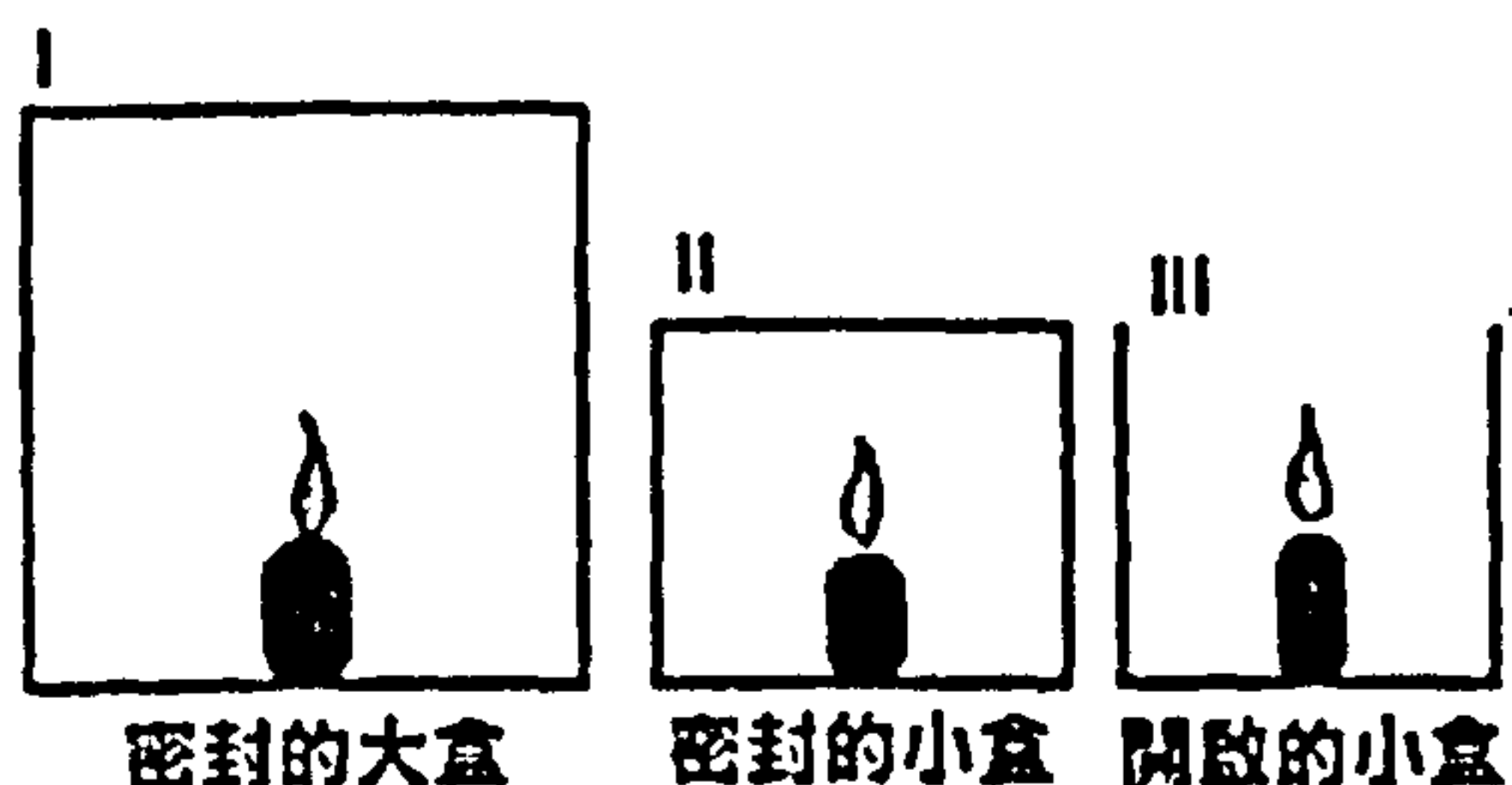
2. 下圖是四種溫度計。人體正常的溫度計是攝氏 37 度，但患病時體溫常在攝氏 36 度至 42 度之間變化。明白了這些情況，你會選擇下面哪一種刻度的溫度計來量度人的體溫呢？



3. 下列哪一個警告標籤是表示該化學藥品會傷害皮膚？

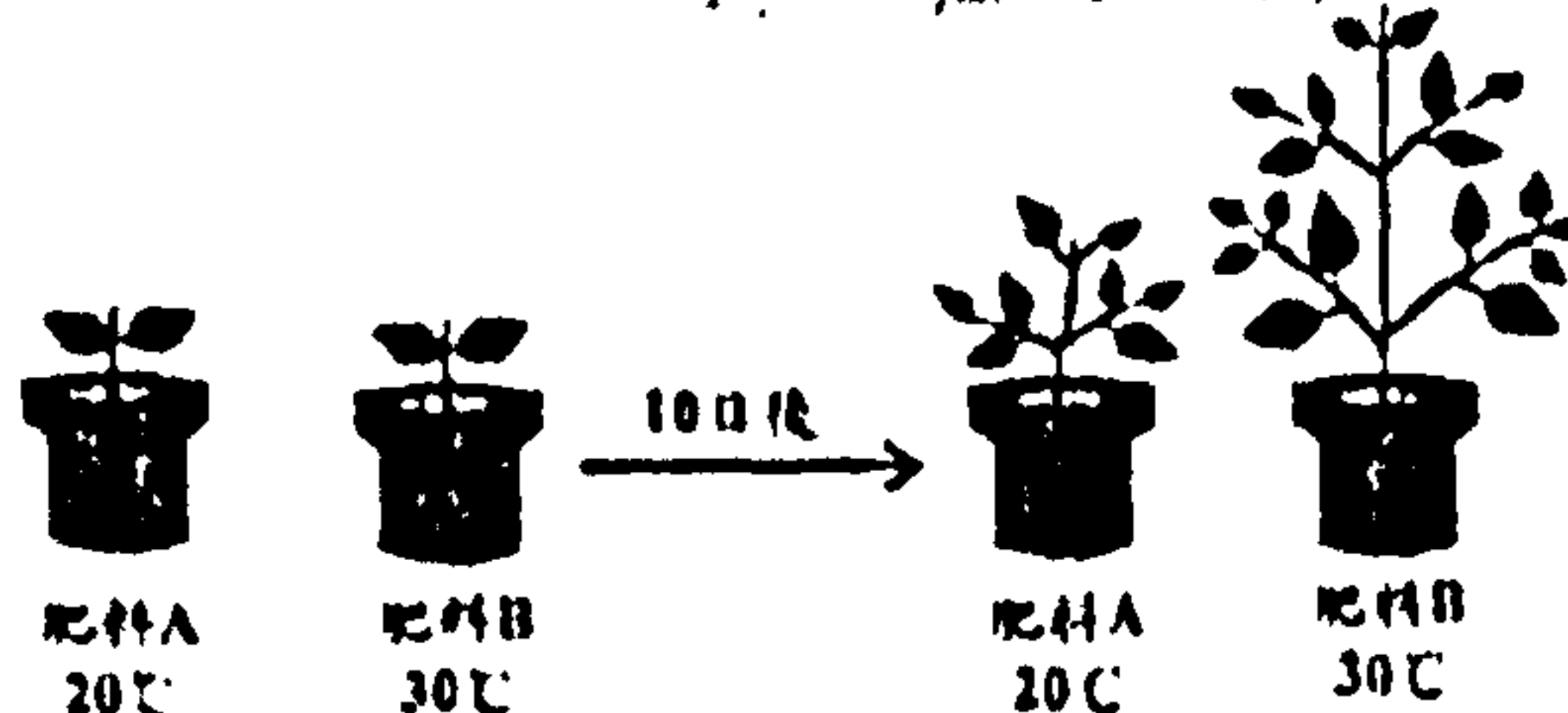


4. 三支完全相同的蠟燭現置於圖中三不同的盒中，且於同一時間燃點。該三支蠟燭熄滅之先後次序應該是：



- A. I II III
- B. III II I
- C. III I II

5. 一位農夫想知道哪種肥料 (A 或 B) 能夠使他的農作物生長得快些，所以他進行以下實驗。實驗開始時，所用植物的大小是一樣的。這實驗的結論是



- A. 施用肥料 A 的植物生長得快些。
- B. 施用肥料 B 的植物生長得快些。
- C. 兩種植物以同樣的速率生長。
- D. 得不出任何結論。

6. 家明想量度書中其中一張紙的厚度，這本書共有 500 張紙，整本書的厚度為 5 cm，那麼每一張紙的厚度是多少？

- A. 0.001 cm
- B. 0.005 cm
- C. 0.01 cm
- D. 0.05 cm

7. 下列哪一項最重？

- A. 500 g 木塊
- B. 500 g 鐵塊
- C. 500 g 棉花
- D. 以上三項的重量均一樣

8. 250 cm³ 不相等於

- A. 2.5 c.c.
- B. 0.25 L
- C. 0.0025 m³
- D. 250 mL

9. 一位學生量得他在 20 秒內的脈搏跳動 24 次，則他的脈搏率是

- A. 12 次/分
- B. 24 次/分
- C. 48 次/分
- D. 72 次/分

10. 量筒中盛有清水 43 cm³，將 7 粒體積相等的鋼珠放入量筒中時，讀數升至 71 cm³，那麼每粒鋼珠的體積為多少？

- A. 1 cm³
- B. 2 cm³
- C. 3 cm³
- D. 4 cm³

乙、填充題 (20 分)

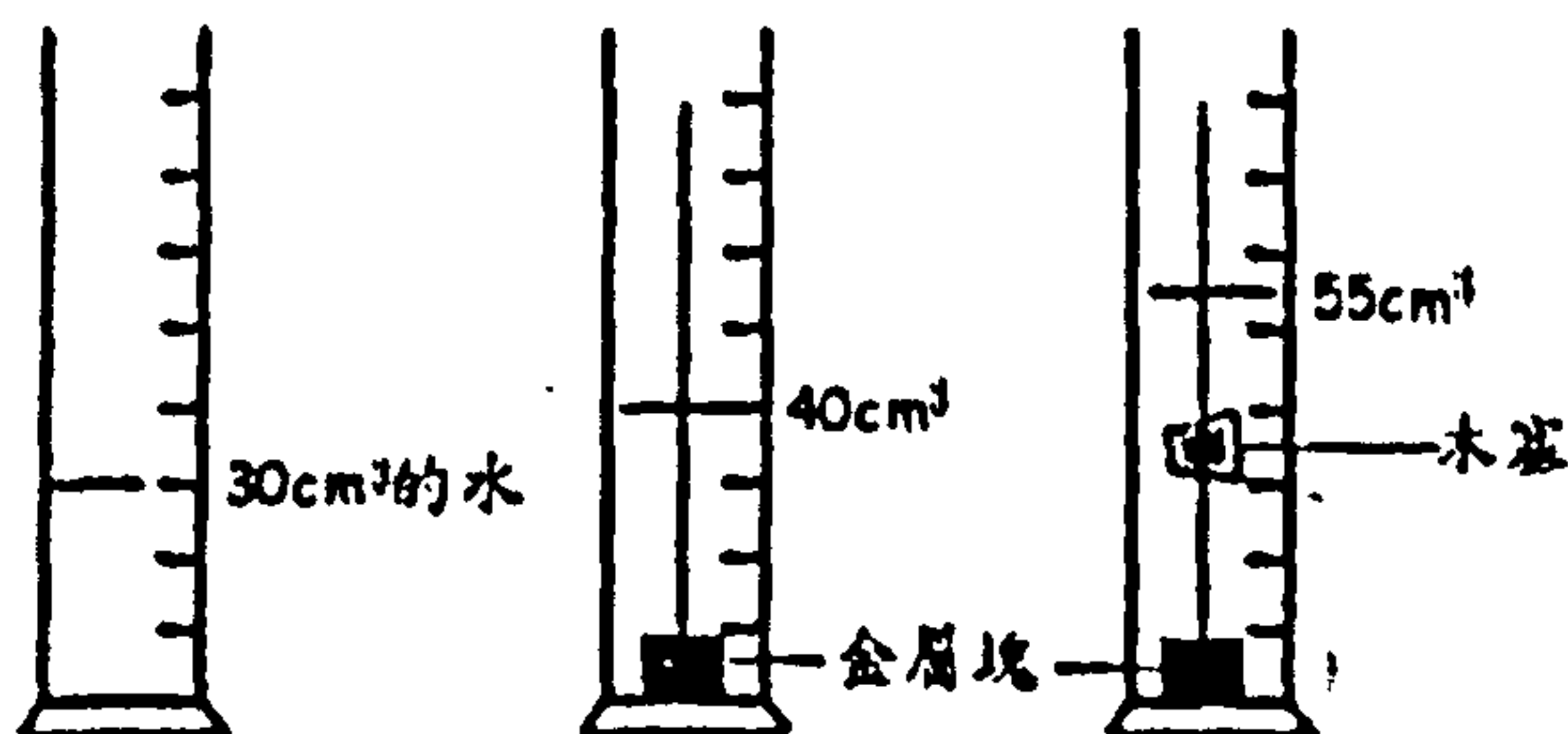
- 量度液體的體積時需要用 1。
- 科學家提出設想來解釋眼前的現象，如果實驗結果支持這套設想，這套設想便稱為 2。
- 在研究科學的過程中，我們需要思考，細心 3 任何變化，準確 4，以及記錄實驗 5。
- 科學發現幫助我們了解周圍的世界，科學發明也大大改變了我們的生活質素，但科學方法始終解決不了 6、7、不公平等問題。

e) 在下表填上適當的名稱。

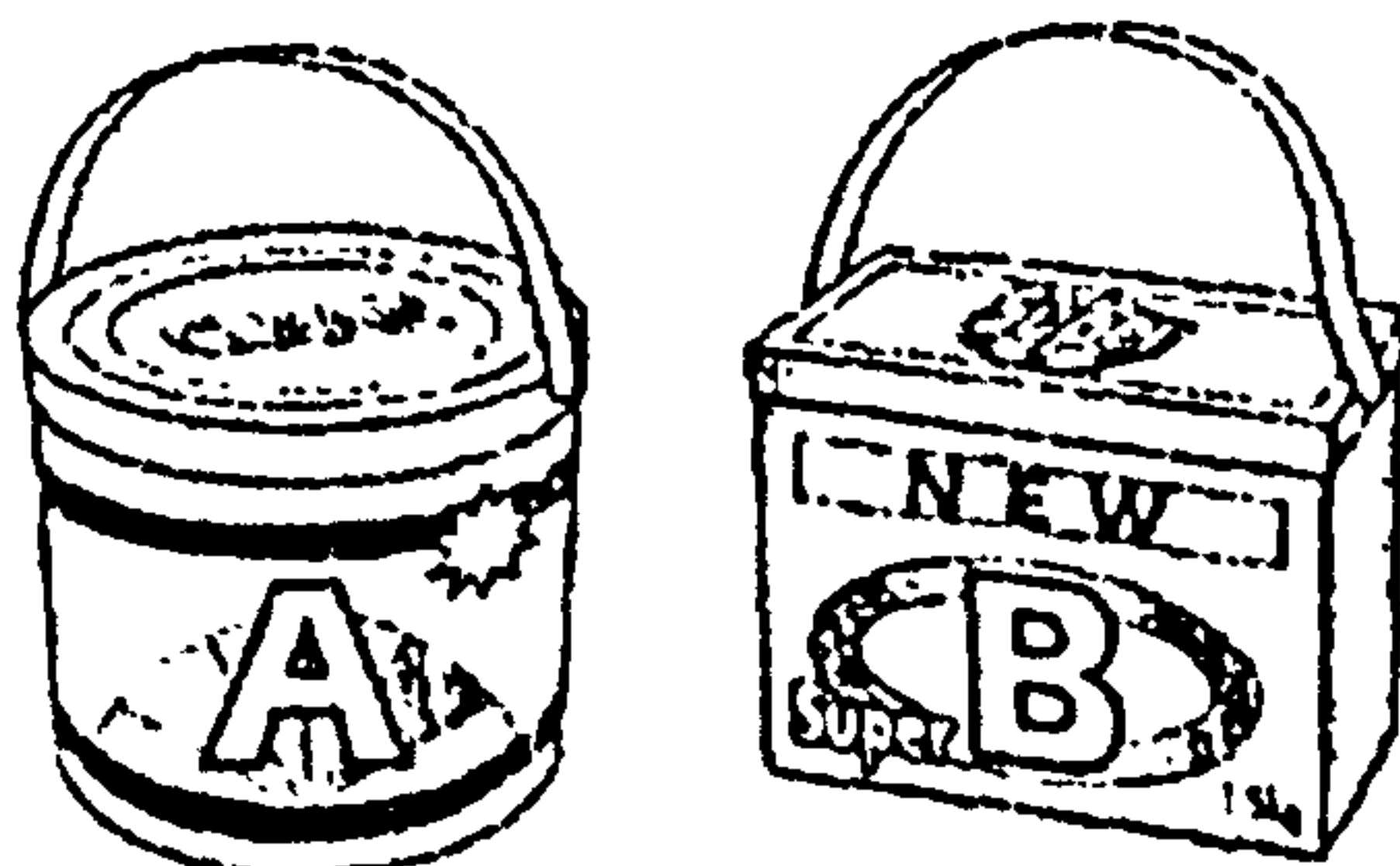
測量的東西	所用儀器	測量所用單位
身體的溫度	8	攝氏度
游畢 50 米的時間	9	10

丙、問答題 (30 分)

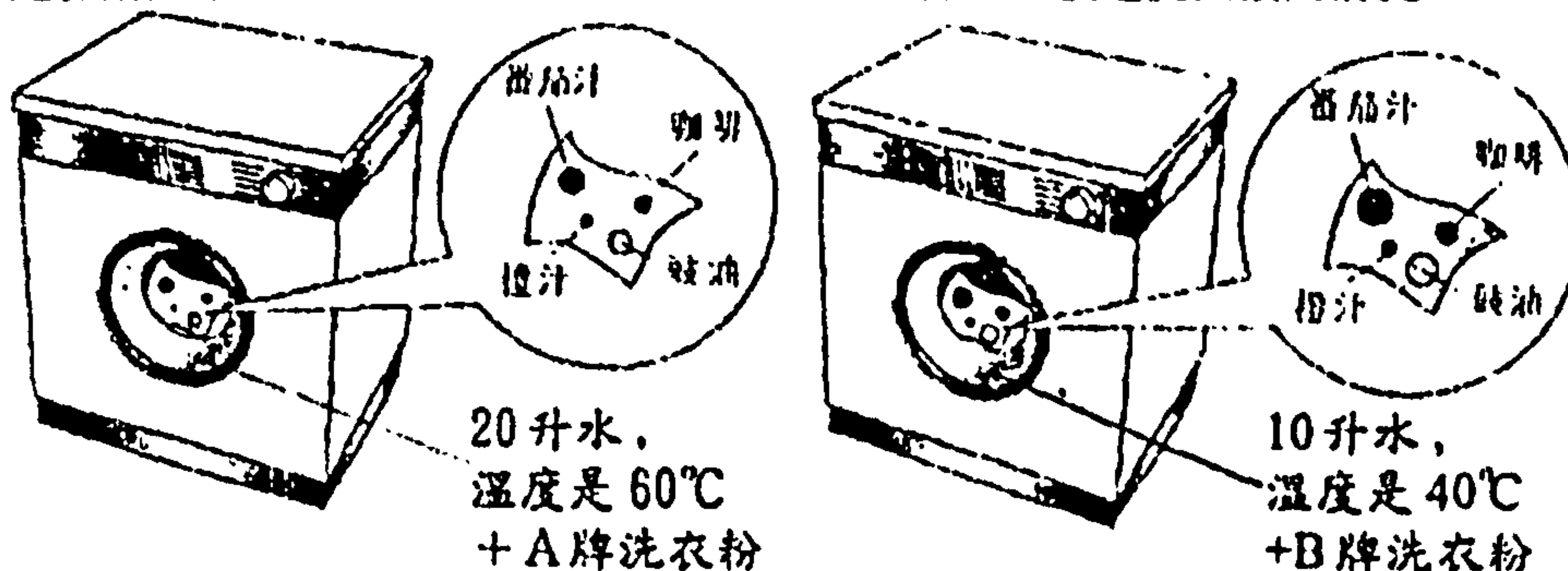
1. 下圖所顯示為量度一木塞的步驟：



- 金屬塊有甚麼用途？(2 分)
 - 金屬塊的體積是多少？(請列式計算)(2 分)
 - 木塞的體積是多少？(請列式計算)(2 分)
 - 如果換了一件能夠在水中溶解的物件，應怎樣才能用同一個方法來量度它的體積？(2 分)
2. 珊珊設計了一個實驗來測試兩種牌子的洗衣粉，以比較哪種的除污能力較強。



她在兩塊布上塗了污跡，然後分別加入兩種衣粉，並放進洗衣機內清洗。

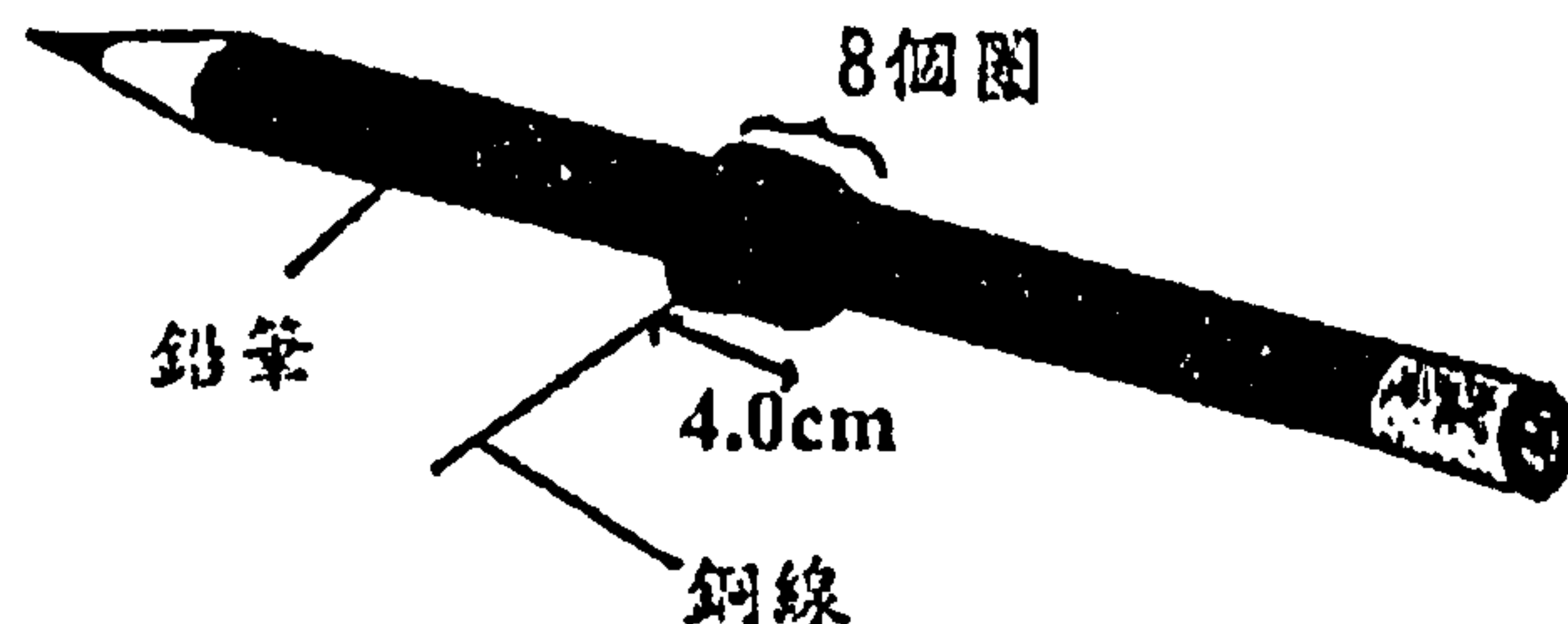


她發現 A 牌洗衣粉把污跡完全洗掉了，但 B 牌卻不能。於是她下結論說 A 牌洗衣粉比 B 牌好。

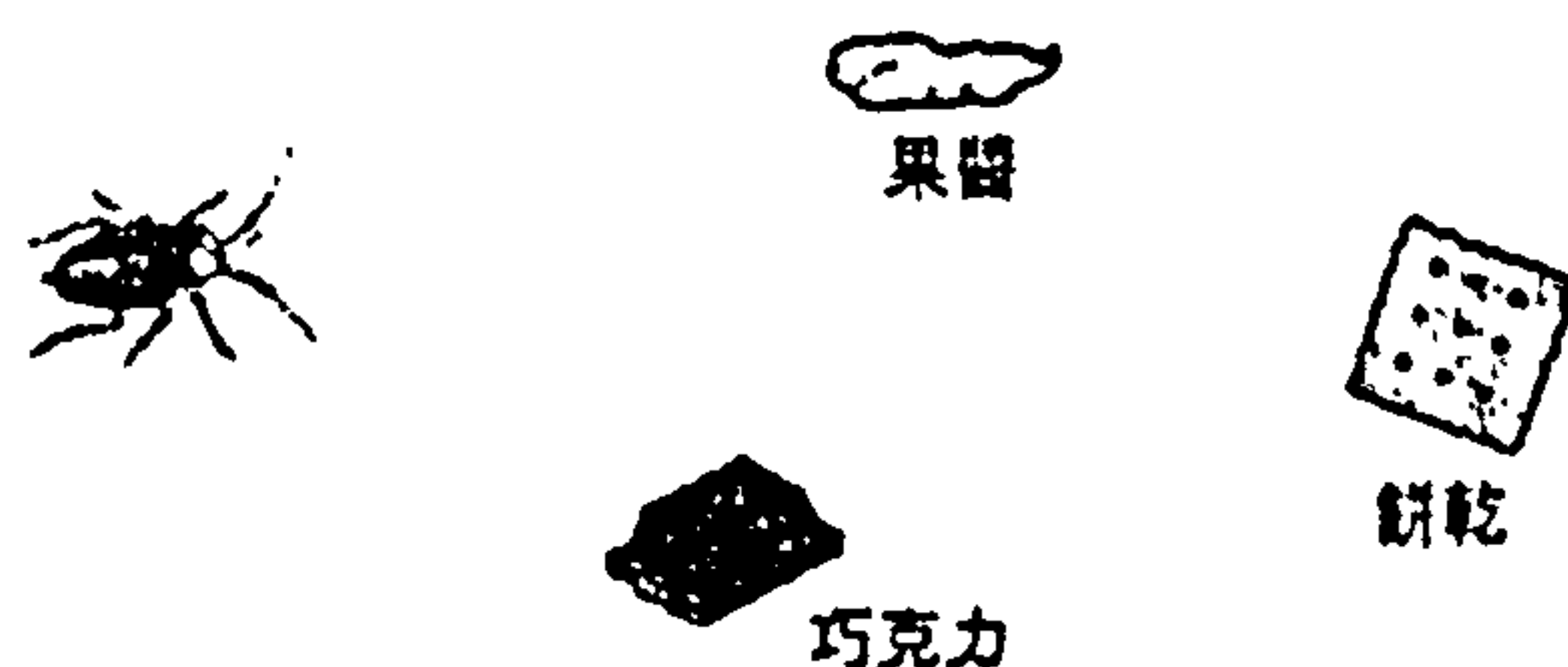
- 你是否同意她所定下的結論？試加以解釋。(4 分)
- 還有哪些條件需留意，以確保她所作的結論更可靠？(1 分)

中一 / 科學科 / 第一次測驗 / 2004-05 /

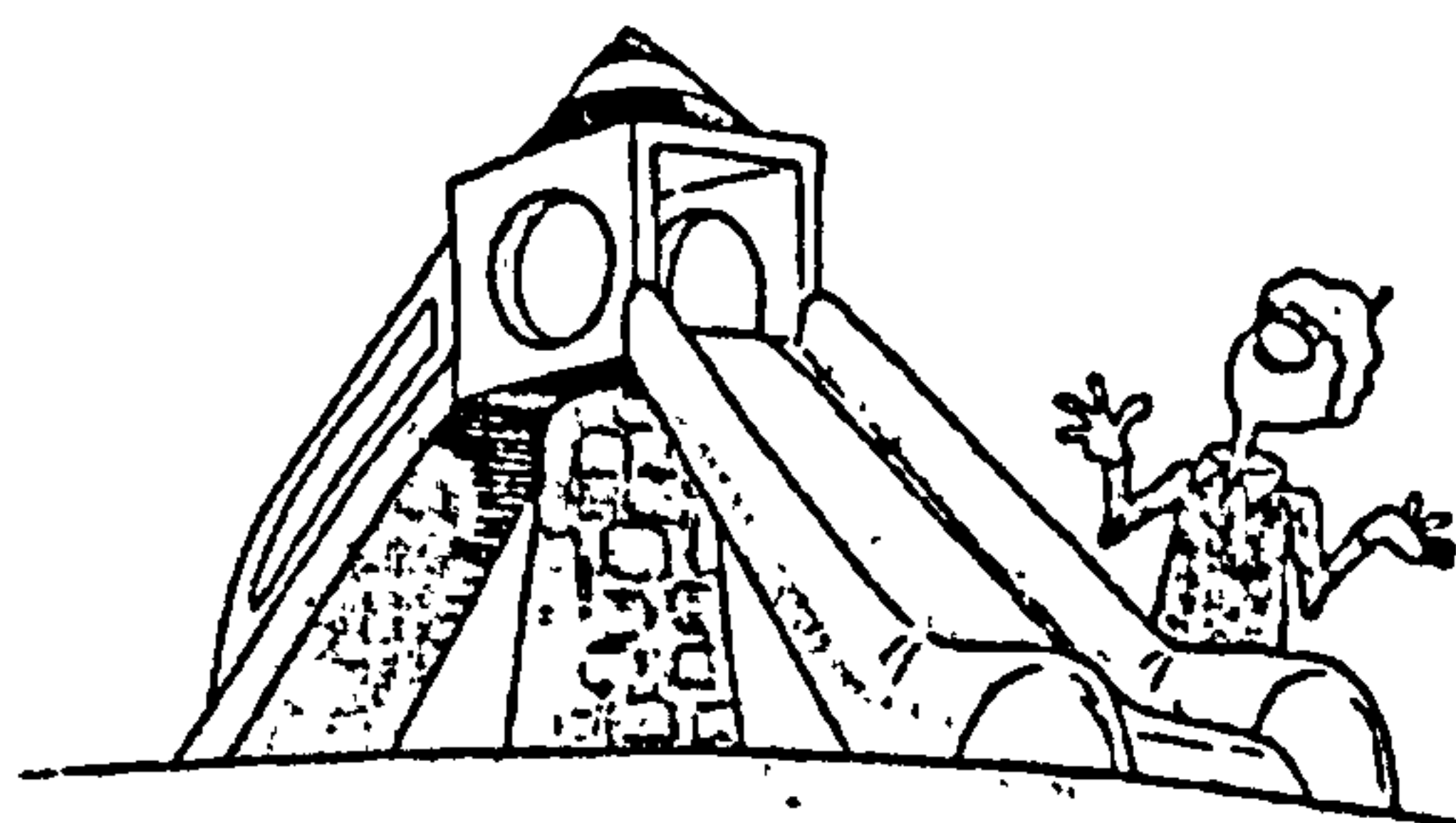
3. 根據圖中的量度結果，計算一條銅線的直徑是多少？(須列算式。)(2分)



4. 一位同學意外地把化學液體倒手上，他應該立刻做些甚麼？(3分)
5. 學聰想知道甚麼食物最能吸引蟑螂，於是他把幾種食物放在蟑螂面前。他認為蟑螂一定會先吃最吸引牠的食物，他的實驗草圖如下：

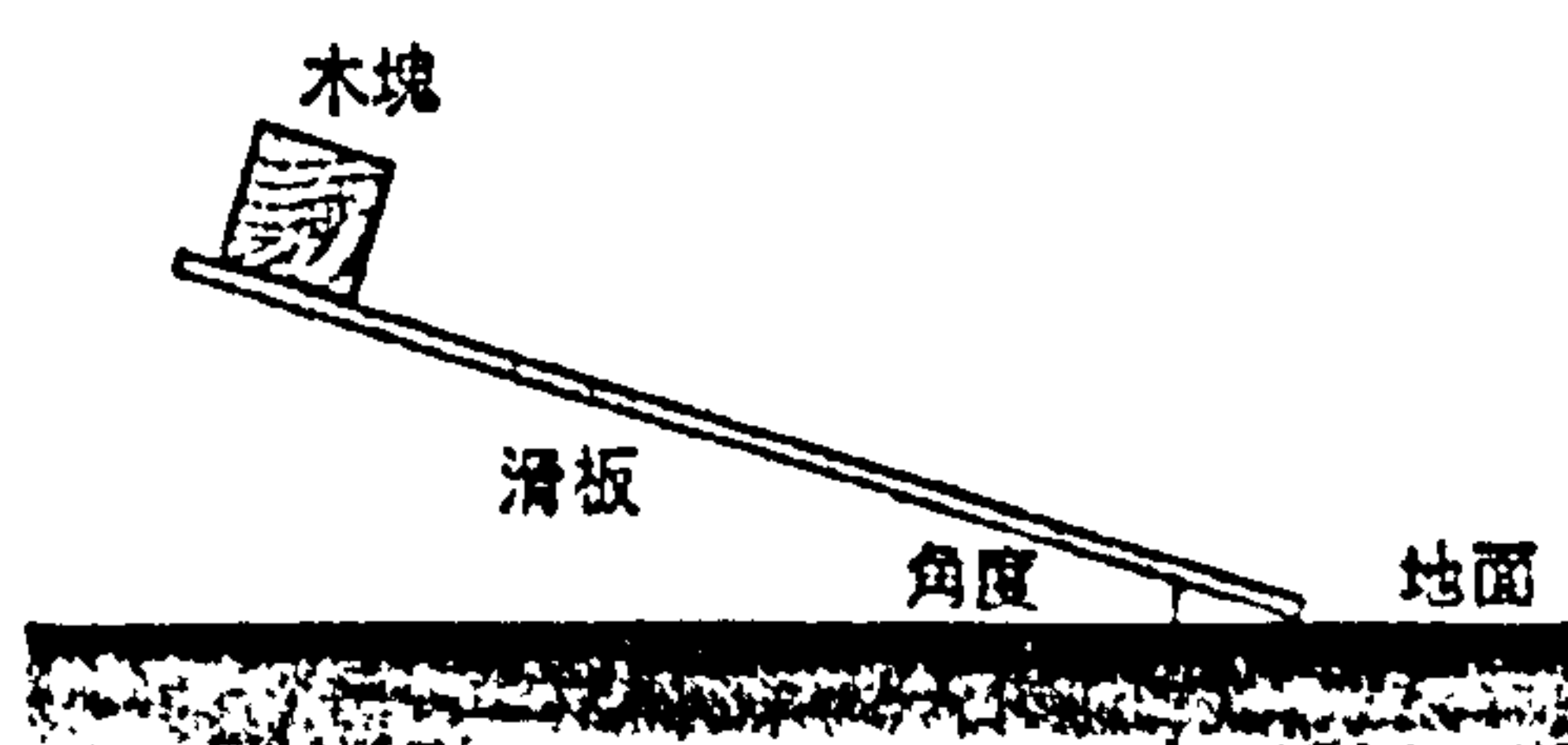


- a 這是一個公平測試嗎？為甚麼？(2分)
- b 試作出修正，使學聰的實驗成為一個公平測試。畫圖來表達你的想法。(3分)
6. 約翰發現他從滑梯上滑下來時，有的滑梯滑得快些而有的則慢些。他質疑為甚麼滑下來的時間會不同。他認為這時間可能和滑梯板與地面的交角有關：和地面的交角越大則滑下得越快。於是他決定做實驗來測試他的想法是否正確。



- a 上述哪些是約翰的觀察結果？(1分)
- b 上述哪個是約翰的問題？(1分)
- c 約翰的假設是甚麼？(1分)

約翰的實驗如下圖所示：



他量度了木塊下滑所需的時間，實驗結果記錄在下表中：

角度(度)	到達地面的時間(秒)
10	3.4
20	2.5
30	2.0
40	1.7
50	1.5

- d 在實驗中哪些東西是必須保持不變的？(2分)
- e 從實驗結果，你能得出甚麼結論？(2分)

丁、圖表題 (10分)
題目見答題紙上。

*** 中文部份完 ***

PART TWO – ENGLISH PART (30%)

Section A : Multiple Choices (5 marks)

1. What should we use to hold a test-tube to heat it over the Bunsen burner?
 - A A piece of cloth
 - B Test-tube holder
 - C Test-tube rack
 - D Bare hands
2. What is used to clean test-tubes after an experiment?
 - A Cleaning cloth
 - B Tooth brush
 - C Test-tube rack
 - D Test-tube brush
3. Which of the following statements is incorrect?
 - A Test-tube holder can be used to hold a test-tube.
 - B To heat a liquid, we can fill the beaker with the liquid to one-third full. Then, the beaker is placed on the tripod and wire gauze and heated with the Bunsen burner.
 - C Dropper can be used to transfer a small amount of liquid to a test-tube.
 - D Beaker can be used to accurately measure 10 cm^3 of water.
4. Which of the following statements about the Bunsen burner is correct?
 - A The blue flame is hotter than the yellow flame.
 - B The yellow flame is hotter than the blue flame.
 - C The yellow flame is luminous and its shape is regular.
 - D The blue flame is non-luminous and its shape is irregular.
5. The correct sequence of lighting a Bunsen burner is
 - (1) to light the match
 - (2) to adjust the air hole
 - (3) to turn on the gas tap
 - (4) to close the air hole
 - A (1), (2), (3), (4)
 - B (2), (3), (1), (4)
 - C (3), (1), (4), (2)
 - D (4), (1), (3), (2)

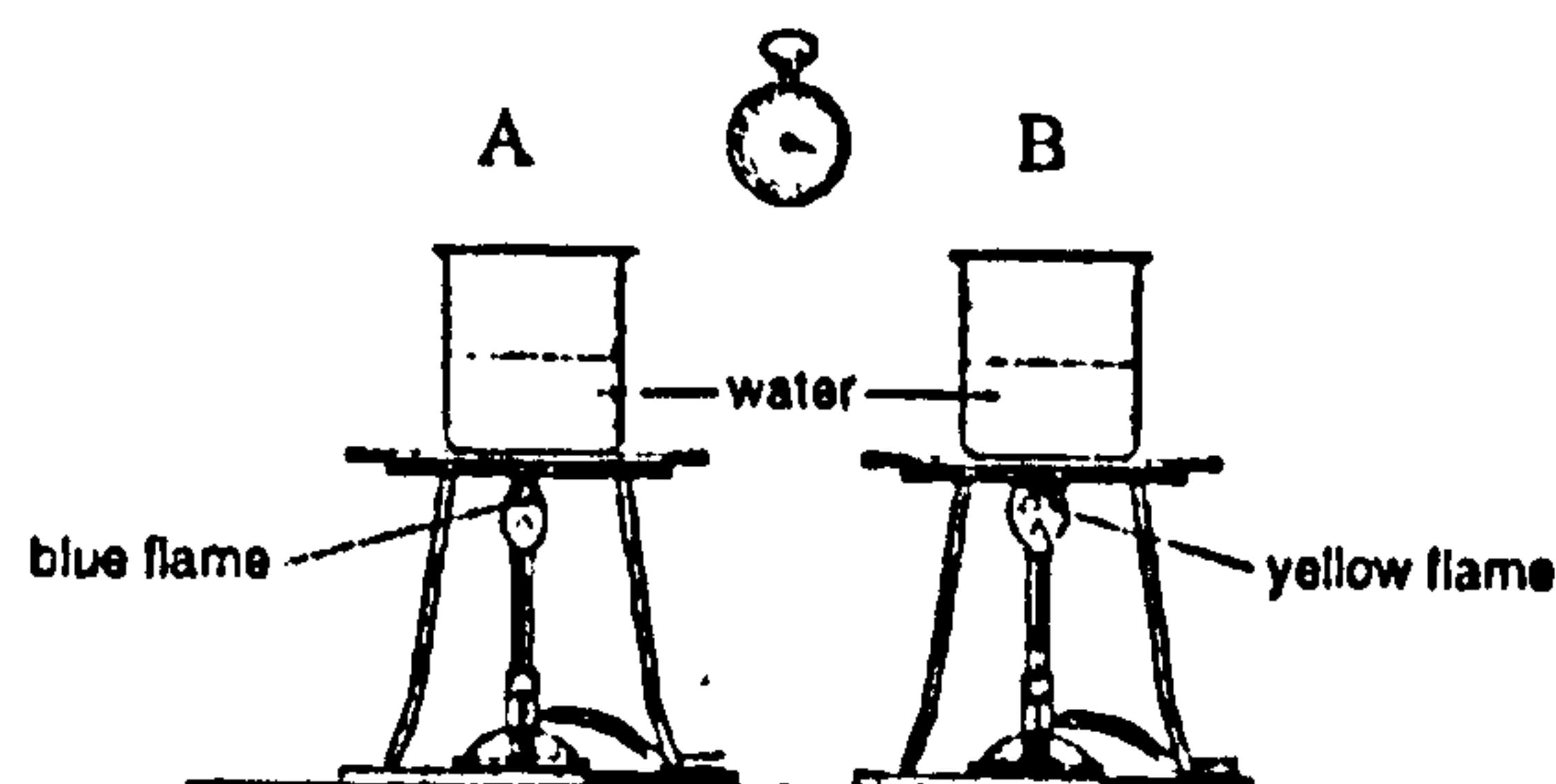
Section B: Fill in the blanks (10 marks)

- a) When we use the Bunsen burner, we should wear the 1 to protect our eyes.
- b) The 2 is used to store solutions.
- c) If the Bunsen burner is lit with the air hole fully open, the flame may burn inside the chimney. This is called 3 .
- d) We use 4 to hold test-tubes in place.
- e) We use 5 to measure 5 cm^3 of water.

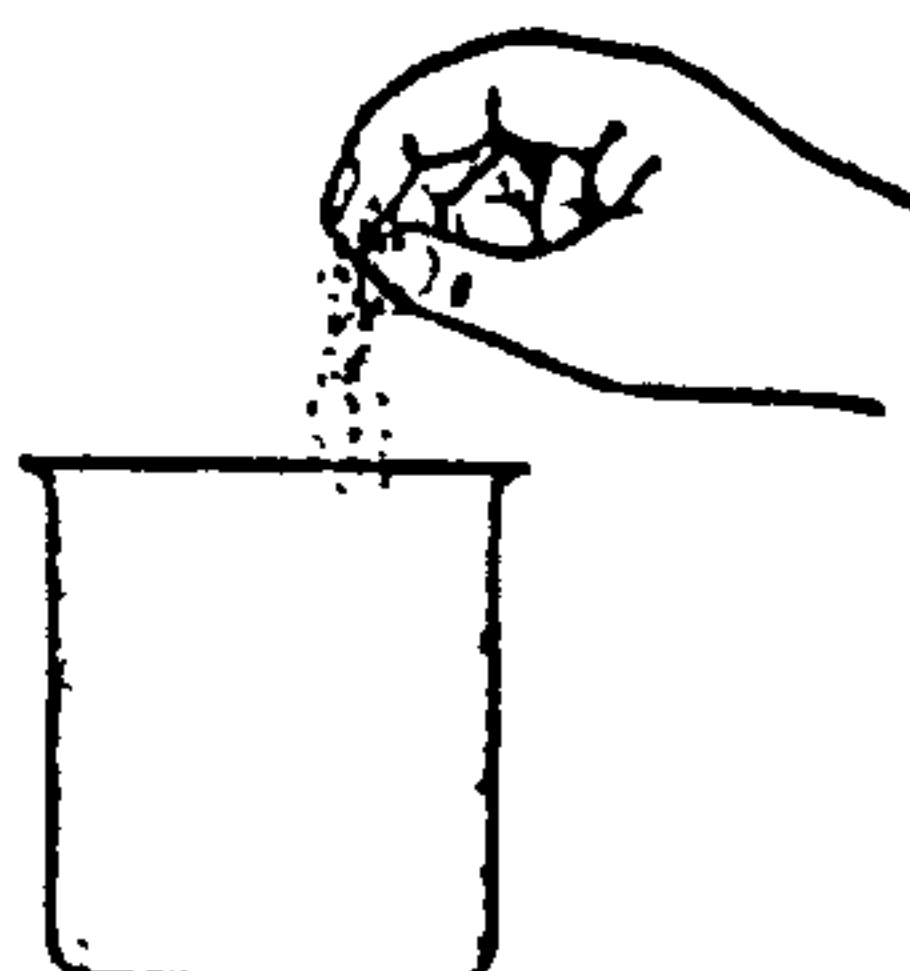
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Section C : Short questions (10 marks)

1. The diagram below shows two beakers of water being heated by a Bunsen burner.



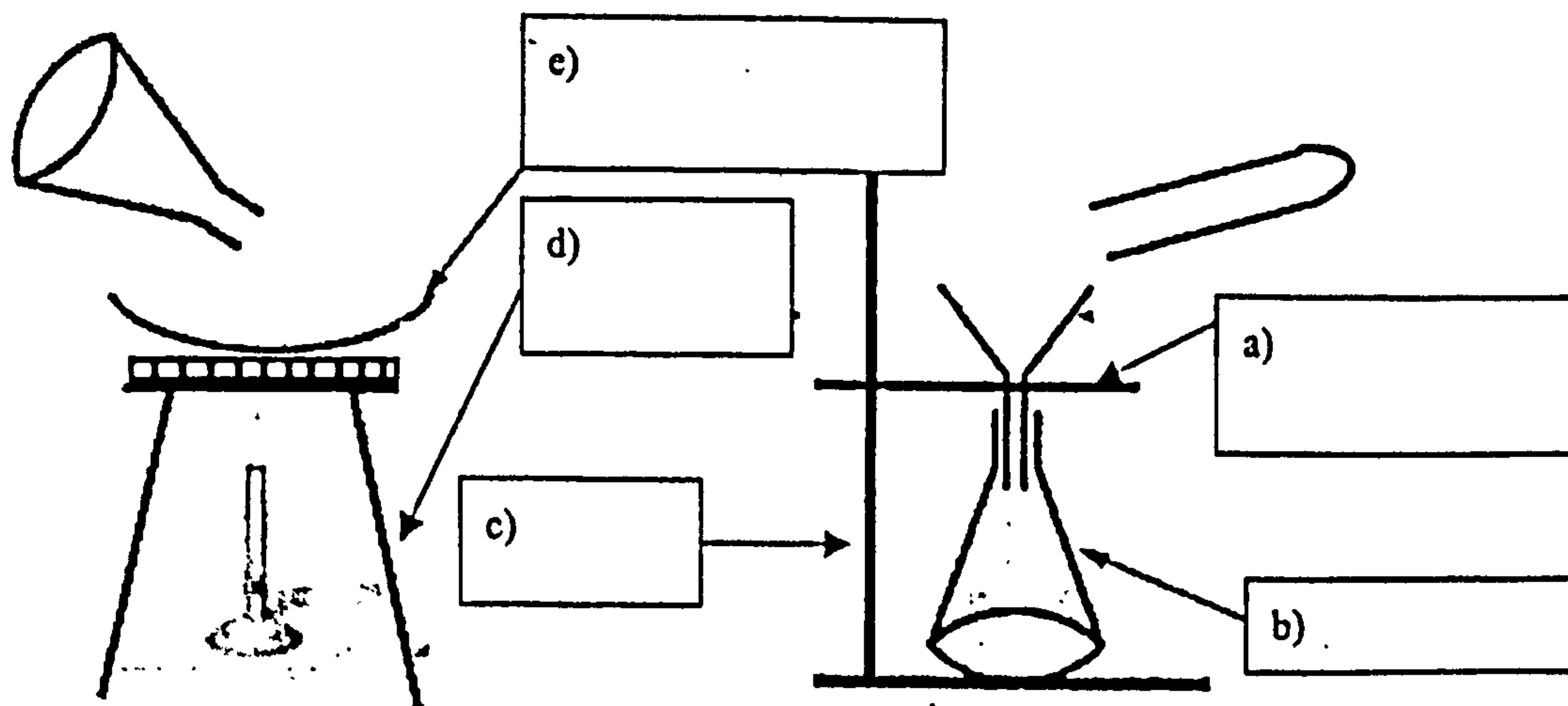
- How can we turn the flame from blue to yellow ? (2 marks)
 - Which flame is noisier ? (1 mark)
 - What should always be placed under the Bunsen burner during heating ? (1 mark)
 - Which beaker of water will boil first? Why? (3 marks)
2. The diagram below shows the flame of a Bunsen burner.
- Which part has the highest temperature ? (1 mark)
 - Which part has the lowest temperature ? (1 mark)



3. A student wants to add some chemical to a beaker. What apparatus should he use ? (1 mark)

Section D : Diagram (5 marks)

1. Write down the name of the parts of the following diagrams.



全卷完
END OF PAPER

Appendix 3: Student post-questionnaire

T.W.G.Hs S.C.Gaw Memorial College

Post-Questionnaire

Name: _____

Class: _____ ()

Sex: M / F

Dear fellow students,

The objective of this questionnaire is to find out your views towards bilingual teaching. The result of the questionnaire will enable teachers to develop a better teaching methodology. Your response will neither be made open, nor affect your academic result. Thanks for your cooperation.

Please circle the appropriate answer

1. How willing are you to accept:

a) Mother tongue education (i.e. textbook, notes, teaching and examinations are all in mother tongue)

1 2 3 4 5 6 7

Very unwilling No preference Very willing

b) English medium education (i.e. textbook, notes, teaching and examinations are all in English)

1 2 3 4 5 6 7

Very unwilling No preference Very willing

2. Please describe the extent to which you like the following subjects:

Subject	The extent you like the subjects						
a) Chinese	1	2	3	4	5	6	7

	Not at all		No preference			Very much	

b) English	1	2	3	4	5	6	7

	Not at all		No preference			Very much	
c) Economics & Public Affairs	1	2	3	4	5	6	7

	Not at all		No preference			Very much	
d) Mathematics	1	2	3	4	5	6	7

	Not at all		No preference			Very much	
e) Integrated Science	1	2	3	4	5	6	7

	Not at all		No preference			Very much	
f) World History	1	2	3	4	5	6	7

	Not at all		No preference			Very much	
g) Design & Technology	1	2	3	4	5	6	7

	Not at all		No preference			Very much	
h) Home Economics	1	2	3	4	5	6	7

	Not at all		No preference			Very much	
i) Geography	1	2	3	4	5	6	7

	Not at all		No preference			Very much	

Since March 2001, bilingual teaching has been adopted in some sections in some of the subjects, namely EPA, Maths, Integrated Science as well as Geography. If you recall, notes, exercises and examinations in those sections were in English, while teacher's teaching was in Cantonese.

3. Do you think bilingual teaching has been beneficial to you in the followings:

a) Having raised your reading ability in English

1 2 3 4 5 6 7

Completely disagree

No opinion

Completely agree

b) Having raised your writing ability in English

1 2 3 4 5 6 7

Completely disagree No opinion Completely agree

c) Having raised your aural and oral ability in English

1 2 3 4 5 6 7

Completely disagree No opinion Completely agree

d) Having raised your interest in the subjects taught

1 2 3 4 5 6 7

Completely disagree No opinion Completely agree

e) Having raised your knowledge of vocabulary

1 2 3 4 5 6 7

Completely disagree No opinion Completely agree

f) Any other advantages or disadvantages (Please elaborate):

4. Bilingual teaching will continue in the next academic year. How willing are you to see that happen in the following subjects?

Subject	The extent you like the subjects						
a) Economics & Public Affairs	1	2	3	4	5	6	7

	Very unwilling		No preference			Very willing	
b) Mathematics	1	2	3	4	5	6	7

	Very unwilling			No preference			Very willing
c) Integrated Science	1	2	3	4	5	6	7
	Very unwilling			No preference			Very willing
d) World History	1	2	3	4	5	6	7
	Very unwilling			No preference			Very willing
e) Design & Technology	1	2	3	4	5	6	7
	Very unwilling			No preference			Very willing
f) Home Economics	1	2	3	4	5	6	7
	Very unwilling			No preference			Very willing
g) Geography	1	2	3	4	5	6	7
	Very unwilling			No preference			Very willing

Self evaluation

5. Reading habits

a) How much time do you spend on reading extra-curricular Chinese Language books every week?

i. Never ii. 0.5-1 hour iii. 1-2 hour iv. 2-4 hours v. over 4 hours

b) How much time do you spend on reading extra-curricular English Language books every week?

i. Never ii. 0.5-1 hour iii. 1-2 hour iv. 2-4 hours v. over 4 hours

6. Listening habits

a) How much time do you spend on watching English Language programmes, or listening to English Language radio stations or English songs every week?

i. Never ii. 0.5-1 hour iii. 1-2 hour iv. 2-4 hours v. over 4 hours

b) How often do you use Nicam system to turn the English Language programmes into Chinese?

- i. Never ii. rarely iii. sometimes iv. often v. no such system

c) How often do you speak English with friends/teachers/anybody?

- i. Never ii. rarely iii. sometimes iv. often v. always

7. Standard of language

a) You think your standard of Chinese Language is good

1 2 3 4 5 6 7

Completely disagree No opinion Completely agree

b) You think your standard of English Language is good

1 2 3 4 5 6 7

Completely disagree No opinion Completely agree

8. Expectation

a) I hope I will be able to read and write well in Chinese Language

1 2 3 4 5 6 7

Completely disagree No opinion Completely agree

b) I hope I will be able to read and write well in English Language

1 2 3 4 5 6 7

Completely disagree No opinion Completely agree

c) I hope I will be able to speak well in English Language

1 2 3 4 5 6 7

Completely disagree

No opinion

Completely agree

Thanks for your assistance and opinion!

Monitor kindly collect the finished questionnaires and return them to Mr. Edward Chu
at Teacher Room 1

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