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Assumptions behind Singapore's language-in-education policy: implications for language planning and second language acquisition

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Abstract Singapore's officially bilingual education policy, in which the majority of children are schooled through a non-native medium with their 'Mother Tongue' (an ethnic heritage language that is not necessarily spoken in the home) as a single school subject only, has resulted in dramatic language shifts in the population and high academic achievement as measured by international comparison studies. Much current second language acquisition theory would predict failure for such a policy. This paper examines the assumptions concerning language planning and second language acquisition underlying the city-state's language-in-education policy, their relation to current theory in the field, and how the case of Singapore can support or challenge these different theories.

Keywords Bilingual education · Language planning · Language-in-education policy · Second language acquisition · Singapore

Widely hailed as an educational success story, Singapore, a multilingual island nation in Southeast Asia, embraces an officially bilingual education policy. English is the medium of all content-area education from the start of schooling, with students' official Mother Tongue[1] required as a single subject. Singapore's education system has gained worldwide recognition through its excellent results on international comparisons such as the Third International Math and Science Study (TIMSS) and the Progress in Reading Literacy Study (PIRLS; Elley 1992; Martin et al. 1999; Mullis et al. 1999), making it a fascinating case study of government language planning

[1] Because these languages are not necessarily the language children learn in the home, in this paper Mother Tongue will be capitalized to indicate the Singaporean usage.

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(see Dixon 2005 for a more detailed discussion of the empirical data). Although successful in its ultimate academic results, Singapore's language-in-education policy rests on assumptions that are not always supported by current theories in language planning and second language (L2) acquisition.

I will address the following questions in this paper: (a) what are the language planning and L2 acquisition assumptions underlying Singapore's language-in-education policy?, (b) how do these assumptions reflect current theories in language planning and second language (L2) acquisition?, and (c) what aspects of these theories may be supported or challenged by the case of Singapore?

Background: the linguistic, economic and social context of Singapore

Language planning has played an important role in Singapore's education and social policies since separation from Malaysia in 1965. Singapore is comprised of three major ethnic groups in the following proportions: Chinese 77%, Malays 14% and Indians 8% (Singapore Department of Statistics 2001). These proportions have remained stable since around 1900 (Chua 1964). In 1965 after gaining independence, Singapore chose to become an officially multilingual state, selecting four official languages: English, Mandarin Chinese, Malay and Tamil (Pakir 2000). English is promoted as the 'working language' of Singapore for inter-ethnic communication, while the other official languages are considered 'Mother Tongues' of the major ethnic groups (Rubdy 2001).

Although English was not spoken at home by the vast majority of Singaporeans at independence, the appellation 'Mother Tongue' implies that those languages were spoken at home. At independence, however, virtually no ethnic Chinese in Singapore spoke Mandarin as their predominant home language; rather Chinese spoke a variety of Chinese languages (termed 'dialects') such as Hokkien, Cantonese, and Teochew (Afendras and Kuo 1980). Additionally, only 60% of Indians in Singapore in 1957 spoke Tamil as their home language; others spoke Malayalam, Telugu, Hindi, Punjabi, Bengali, Urdu and Gujarati (Afendras and Kuo). Only Malays were assigned a Mother Tongue that corresponded to the language they spoke at home. Examining the economic, social and political situation around the time of Singapore independence will help explain the choice of these languages as official languages in Singapore.

The economic, social and political situation in 1965

In 1959, Singapore gained self-rule from Britain and prepared to merge with Malaysia. Merger occurred in 1963, but political disagreements led to the separation of Singapore from the federation in 1965 (Tan 1997a). Singapore, a nation of only 637.5 km^2 (CIA 2001) amidst much larger, belligerent neighbors, faced great uncertainty as it gained an unanticipated independence. Political leaders and observers around the world gave it little chance for success (Kissinger 2000).

In 1959, as Singapore prepared for self-rule, per-capita GDP equaled only US$400 (Lee 2000). At that time, Singapore's economy was dependent on trade,

mostly importing, processing and then exporting other countries' goods (Singapore Government 1965). Indonesia, up till then Singapore's second-largest trading partner, imposed a trade embargo on Singapore and Malaysia in 1963 due to Indonesia's opposition to the formation of Malaysia; after separation, Malaysia, too, wanted to bypass Singapore's ports (LePoer 1991). Consequently, Singapore's entrepôt trade dropped by 23% (Singapore Government 1966). At the same time, an estimated 7.4% of the population was unemployed, a majority of them young people (Singapore Government 1966). With over half of the population in 1965 under the age of 20, the problem of youth unemployment was serious, demanding job-creation rates of at least 3% a year simply to keep the unemployment rate stable.

With no natural resources of its own, and its traditional entrepôt-trade function undermined by its neighbors, Singapore needed to transform its economy rapidly (Yip et al. 1997). Singapore worked to increase its industrialization, by extending the necessary infrastructure of roads, power, water, port facilities, and industrial facilities; and by encouraging new manufacturers to settle in Singapore (Singapore Government 1966).

Social conditions also appeared unstable. The British had kept the three major ethnic groups geographically and ethnically divided (Kwan-Terry 2000). During disputes with Malaysia in 1964 over new laws for the union with Singapore, race riots broke out in Singapore between Malays and Chinese (Tan 1997b). How could a tiny, fractious nation, plagued by poverty and unemployment, survive with hostile neighbors? And how would the sensitive issue of language be dealt with in this fragile, multilingual, racially-divided city-state?

Lee Kuan Yew, Prime Minister of Singapore from self-rule until 1990 (Government of Singapore 2006b), cited economic reasons as the impetus behind his party's decision to choose English as an official language in newly-independent Singapore and the government's encouragement of English as the language of inter-ethnic communication (Lee 2000). Lee recognized, however, that the language of the former colonial power could not be the sole official language of the new nation. Thus, three additional languages, chosen to correspond with the major ethnic groups, were also selected as official languages. Mandarin was selected for the Chinese because it had already gained status as the language of educated Chinese since the introduction of Mandarin-medium schools in the early 20th century. Tamil was selected as the language of the largest Indian ethnic group, and also the language with the longest history of education in Malaysia and Singapore. Malay was the obvious choice for the Malay ethnic group.

Although the Prime Minister of this new fledgling nation believed that only mastery of the English language would bring Singapore the international trade and investment it needed as well as access to Western science and technology, he knew for political reasons that he could not force the population to all attend English-medium schools, nor seem to elevate English above the three other ethnic 'Mother Tongues' (Lee 2000). Instead, he adopted a policy that allowed parents to choose the language in which their children would be educated but required students in non-English language streams to study English as a subject and students in the English language stream to study one of the other official languages as a subject.

Singapore's language-in-education policy

In 1966, parents could choose education through any one of the four official languages (English, Mandarin, Malay, Tamil) but all students also had to study one of the other official languages, English for students in the non-English-medium schools (Yip et al. 1990). The government subsequently required all schools to teach math and science in English starting with first grade. By 1979, parents, engaging in 'invisible language planning' (Pakir 1997), stopped enrolling their children in Malay- and Tamil-medium schools, and Chinese-medium enrollment was down to about 10% of the entering cohort (Yip et al. 1990).

The government then adopted the bilingual education policy that is, with a few modifications, currently in place: All students study their subject-matter curriculum through the medium of English, but they are also required to reach a 'second-language' level of proficiency in their official Mother Tongue—Mandarin for Chinese, Malay for Malays and Tamil for Dravidian-speaking (Tamil, Malayalam) Indians (Yip et al. 1990). For Indians who speak non-Dravidian languages at home, Hindi, Punjabi, Bengali, Urdu and Gujarati are offered as options for Mother Tongue study in "community-run weekend … classes" (Saravanan 1999). Though the government has provided national examinations in these low-incidence languages since the 1990s, government funding to support the teaching of these languages was not available until 2008 (Ministry of Education 2007b).

Currently, roughly 95% of students are permitted to study Mother Tongue at a higher level according to their interest (Ministry of Education 2006). In addition, the lowest track has been eliminated and replaced by 'subject-based banding' starting in 2008 (Ministry of Education 2004). This new type of tracking allows lower-achieving students to be placed according to their level in each of the four subjects tested: English, Mother Tongue, math, and science.

At the end of 6 years of primary school everyone takes the Primary School Leaving Examination (PSLE). Previously, the students' results on this exam determined their placement in specified courses of study that, among other things, affected their access to different levels of Mother Tongue language study. Prior to 2006, the top 10% of students according to their PSLE results went into the Special stream, which allowed them to study Mother Tongue at a more advanced level, while about 50% entered the Express stream and studied Mother Tongue at a 'second-language' level. Expectations for Mother Tongue proficiency for the approximately 40% of students in the Normal (Academic) and Normal (Technical) streams were even lower. Gradually, the option to study Mother Tongue at a more advanced level was expanded to include the top 11–30% of PSLE takers who did well in their Mother Tongue exam, until the Ministry of Education announced that schools would be able to allow any student to study Mother Tongue at a higher level "if they are assessed to have exceptional ability in MTL [Mother Tongue Language] and are able to do HMTL [Higher Mother Tongue Language] without affecting their performance in other subjects" (Ministry of Education 2007c).

Admission to local universities is partly determined by Mother Tongue exam results. All three universities require Mother Tongue results of their local applicants; for the National University of Singapore (NUS) and Nanyang Technological

University (NTU), taking 'Higher Mother Tongue' or obtaining better grades in Mother Tongue provide an applicant with 'bonus points' for admissions. Students who first attend a polytechnic and obtain good grades, however, may bypass this Mother Tongue requirement.

Because Singapore's government has been dominated by a single political party, the People's Action Party (PAP), since independence, continuity in language planning and education policy has been possible. The PAP term their approach to governing 'pragmatic' (Wee 2002) and tweak their policies as conditions change. In framing and justifying its language-in-education policy, the Singapore government relies on some explicit, and many implicit, assumptions concerning language planning and second language acquisition. These assumptions are examined below in light of current theories in these fields.

Assumptions about language planning underlying Singapore's policy

Some of the major assumptions regarding language planning underlying the policy include:

A. Language is a tool that should be carefully chosen for its utility to the national interest.
B. A 'language' is different from a 'dialect;' only standardized languages are appropriate vehicles for education.
C. The government should encourage the use of high-status languages at home and in social interactions.

These assumptions contain an interesting mix of instrumentalist, prescriptive and sociolinguistic orientations toward language planning. As seen in Assumption A, the Singapore government takes an instrumentalist's view of language as a tool (Tauli 1968) that should serve the national interest. In addition, the Singapore government takes a strongly prescriptive view of what constitutes a 'language,' in both written and spoken forms, that is appropriate for education (Assumption B). On the other hand, the Singapore government seems to have often followed or encouraged the prevailing sociolinguistic trends in promoting its policies (Assumptions A, B and C).

Instrumentalists view language as a tool or instrument, and believe that languages or features of a certain language can be objectively evaluated to determine which is more efficient for different language functions (Appel and Muysken 1987). Instrumentalists do not *assume* that the existing literary language is the best vehicle for education, since a literary language may be based on an archaic form or register of the language (Appel and Muysken 1987). Instrumentalists view written language as subordinate to oral language and urge the use of the simplest and most efficient forms of the language, whether derived from 'dialect' or a more prestigious language form (Tauli 1968). While in reality an existing literary language may command high status, such a language often contains inefficient, archaic forms; instrumentalists support the development of a simpler, more efficient standard written language from the vernacular, despite its lower status (Tauli 1968). While urging a rational, objective

approach to this type of language planning, instrumentalists also recognize that political realities may interfere with the immediate acceptance of a lower-status language; in this type of case, a reform of the literary language to bring it closer to the vernacular is suggested.

Thus, Singapore's officials followed an instrumentalist path by considering the major languages in use in Singapore at independence and deciding that only English could help Singapore industrialize and modernize its economy (Yip et al. 1990). However, Singapore did not determine that English was better suited to these purposes based on its linguistic characteristics, such as any advantage in simplicity or clarity compared to the other languages. Rather, the government chose Singapore's working language based on the economic benefits the government believed English could convey, due to its status as the language of many international corporations and centers of scientific and technological innovation (Lee 2000).

Although taking this instrumentalist view, the Singapore government also gauged the sociolinguistic situation in society and implemented their language-in-education policy in stages, as described in the quote below from then-Prime Minister Lee Kuan Yew, the major architect of the policy:

> To announce that all had to learn English when each race was intensely and passionately committed to its own Mother Tongue would have been disastrous…. Not wanting to start a controversy over language, I introduced the teaching of three mother tongues, Mandarin, Malay, and Tamil, into English schools. This was well-received by parents. To balance this, I introduced the teaching of English in Chinese, Malay, and Tamil schools. Malay and Indian parents welcomed this but increasing numbers preferred to send their children to English schools. A hard core of the Chinese-educated did not welcome what they saw as a move to make English the common working language, and they expressed their unhappiness in the Chinese newspapers. (Lee 2000, p. 146)

Although some Chinese resisted the move toward more English in schools and society, a majority of Chinese parents chose English-medium education for their children at the time, with an increasing proportion choosing English as the years progressed (Chiew 1980). The policy thus followed the sociolinguistic trend of parents sending their children to English-medium schools rather than trying to resist or even prematurely hasten them.

In this way, the Singapore government seems to have taken the sociolinguistic approach in looking at the whole context (Appel and Muysken 1987) of each language present in Singapore, while rejecting sociolinguists' assertions of the equality of all languages (Eastman 1983). Sociolinguists argue that no dialect or language is inappropriate for classroom use, as all language varieties are inherently equal (Appel and Muysken 1987). The lack of trained teachers, textbooks or other teaching materials in a certain language may pose a practical barrier but does not indicate that a certain language variety or 'dialect' is in itself inferior to a language that has already developed such supports.

At the same time, however, the Singapore government engages in a prescriptive approach to the appropriate languages its citizens should speak at home and at school (Assumptions B and C). With regard to English, the Singapore government

actively encourages the use of 'Standard' (British) English over a localized variety of English, often called 'Singlish,' through its "Speak Good English" media campaign (Chua 2004). In addition, the Singapore government promotes the use of Mandarin over dialects with its "Speak Mandarin" campaign (Kuo 1984; Newman 1988; Chua 2004). In each case, the government recognized only the variety of the language already associated with education in Singapore.

Prescriptive linguists seek an 'ideal' or 'pure' language for governments and/or national language academies to define and defend (Eastman 1983). They support the assumption that the high-status variety of a language should be encouraged in the population. Sociolinguists, on the other hand, argue that written language is always more conservative than oral language, leading to more than one 'correct' oral usage. Sociolinguists would point out that in every society, different registers of the same language are in daily use by native-speaking populations for different purposes (Eastman 1983). Trying to confine a population to one standard usage is unlikely to be successful, as oral language is a dynamic, living system that is constantly open to negotiation and change. Different registers of English currently in use in Singapore are well-documented (Pakir 1999), lending support to the sociolinguistic theory. In this case, the Singapore government is actively trying to reverse the sociolinguistic trend toward more use of Singlish among Singaporeans, emphasizing the economic utility of Standard English over Singlish (see Lui 2006).

In the case of Chinese, only Mandarin Chinese was considered a 'language,' while other varieties of Chinese (such as Hokkien, Teochew and Cantonese), understood by many more people in Singapore prior to independence, were considered 'dialects,' unworthy for use in the educational or other official domains (Pakir 1997). Children's linguistic resources were largely ignored by this policy. For the Chinese majority, who in the beginning mostly came to school dominant in a Chinese dialect that reflected their specific cultural heritage within China, dialects were seen as an impediment to learning Mandarin Chinese and English (Lee 2000). However, Newman (1988) reports that a proficient Hokkien speaker, drawing on analogies between the two languages, would be able to predict the Mandarin tonal pronunciation of a given word 90% of the time; but this potential advantage in learning Mandarin was dismissed in favor of urging all Chinese to use Mandarin at home and with other Chinese.

Because this promotion of Mandarin at the expense of dialects was begun prior to Singapore independence as a result of fervor from the Chinese nationalist movement at the beginning of the 20th century (Ang 1999), the Chinese populace of Singapore seemed to accept this government policy and view Mandarin as the only proper language of Chinese education. Although denying that Mandarin would be in any way 'superior' to other varieties of Chinese for educational purposes, sociolinguists would predict that such a language policy would have better odds of being successful, as language policies promoting low-status languages are often resisted by the population (Haugen 1971).

Similarly, at first classical Tamil, rather than the colloquial variety of Tamil actually spoken in Singapore, was chosen as the official variety promoted by the government and used in the schools. Recently, the policy changed; apparently due to recognition that students struggled with the classical variety, the colloquial variety

was officially adopted as the language of instruction for Tamil in Singapore (Ministry of Education 2007a). In addition, the initial policy that all ethnic Indians in Singapore must study Tamil was relaxed to allow students to study their actual home or heritage language outside of school to fulfill their Mother Tongue requirement; recently, the government started providing funding to help support the teaching of low-incidence Indian languages (Ministry of Education 2007b). These changes in the policy regarding Indian Singaporeans indicate a slight move away from the assumptions listed above.

Whether or not instrumentalists would support Mandarin over 'dialect' education, therefore, depends on whether written Mandarin meets the criteria of economy, efficiency and clarity (Tauli 1968) better than the various dialects, not on its existing status as the language of Chinese education. Instrumentalists would agree with the Singapore government's adoption of spoken Tamil over classical Tamil for use in the classroom, as the vernacular is more widely understood and probably simpler and more efficient in its expression. Sociolinguists, however, might point to the trend for more Indian families to speak English at home as indicating that even the switch to colloquial Tamil in the classroom may only slow, rather than reverse, the shift to English. Only Malay seems to be the appropriate choice whether from the instrumentalist or sociolinguistic point of view, given the congruence between the language spoken in Malay homes and that taught in the classroom. However, even Malay is losing ground to English, particularly in high socioeconomic status (SES) households (Aman 2007 ISB6 presentation).

The success[2] of Singapore's English-language policy may be attributed to the high status of English. Instead of imposing any one language as the medium for education, the government offered parents a choice of language stream, then followed the parents' choice of English as the medium of education for their children, thereby allowing sociolinguistic trends to shape the evolution of the policy. Now that more children are learning Singlish as a first or early second language, however, the question is whether the government's effort to promote Standard English will succeed in defying the sociolinguistic trend toward more Singlish use (Stroud and Wee 2007).

The promotion of Mandarin as a high-status language for the Chinese ethnic group has lead to dramatic shifts away from Chinese dialects and toward Mandarin in home and interactional use (Rubdy 2001), although some studies indicate the level of Mandarin proficiency, particularly in writing, is not uniformly high (Hsui 1996; Cheng 1997). However, the promotion of classical Tamil as the ethnic language for Indians was less successful, leading to the recent change in policy to the use of spoken Tamil in the classroom. One survey of Tamil teachers indicates that Standard Spoken Tamil, a variety developed among educated Tamil speakers, may be well-accepted as an appropriate medium for education (Saravanan et al. 2007). Only time will tell if this policy will lead to greater student success in Tamil language classes, perhaps reversing the trend toward English-dominance in Tamil Indian households.

[2] The success of the policy is not uniform. On average, Singaporean students have done extremely well in education by international standards. However, there is an achievement gap among the different ethnic groups, which may stem from socioeconomic differences (Stroud and Wee 2007).

Assumptions about second language acquisition underlying Singapore's policy

Beginning a second language early leads to higher proficiency

Singapore's policy of emphasizing L2, English, from the beginning of formal schooling apparently stems from a belief that children learn English better the earlier they start learning the language. Lee Kuan Yew, then-Prime Minister, urged parents to teach their children English "as early in life as possible" (Lee 1982, p. 5). More recently, Goh Chok Tong, Prime Minister of Singapore 1990–2004 (Government of Singapore 2006a), kicked off the 2000 Speak Good English Movement with a speech including the following comments:

> It is best we learn to speak good English from young. Learning to do so when we are old is more difficult, but it can be done and is worth the effort. (Goh 2000)

The assumption that beginning a second language early leads to higher proficiency is a commonly-held view (Marinova-Todd et al. 2000). This assumption jumps right into the heart of the hotly-contested *critical* or *sensitive period* hypothesis debate among second language acquisition researchers. The critical period hypothesis refers to the view that there is a critical (or sensitive) period for language acquisition, usually set at puberty, after which learners find it difficult if not impossible to acquire a second language at native-like levels of proficiency. While many studies established an advantage in pronunciation for younger language-learners (Oyama 1976/1982) and perhaps grammar (Bialystok 2001), evidence is mixed as to whether age of exposure to L2 determines successful outcomes in other areas of second language acquisition (Bialystok and Hakuta 1999; Marinova-Todd et al. 2000; Garcia Mayo and Garcia Lecumberri 2003).

Since adults have been observed to achieve very high levels of proficiency in a second language (Birdsong 1992; Marinova-Todd et al. 2000), any strict biological view of a critical period is clearly untenable. However, many studies have demonstrated an apparent advantage for younger language learners in immigrant immersion contexts (Johnson and Newport 1989/1995). By contrast, studies of children beginning English as a foreign language in school settings show a significant advantage for those who begin their study later, holding number of hours of instruction constant (Garcia Mayo and Garcia Lecumberri 2003).

The Singapore context, however, is perhaps more similar to a foreign-language school immersion program. Because the majority of Singaporean citizens are not native or first-language speakers of English, students receive less home and street exposure to English compared to language minority students in a more monolingual country such as the US or Canada. Although the contexts are different, Anglophone children in the strongly bilingual city of Montreal in the French-speaking province of Quebec, Canada, provide a potential comparison group to young non-English-speaking or bilingual children in multilingual Singapore. Comparisons of early- and late-entry French immersion programs for Anglophones in Montreal indicated that by grades 10 and 11, students with very different amounts of French language

exposure performed the same on measures of French listening, reading, writing and speaking skills (Swain and Lapkin 1982). Students in the early total immersion program dropped to 40% French exposure in grades 4–11; students in the late immersion group had minimal exposure to French prior to grade 7 (approximately 30 min a day) followed by 80% or more of their instruction in French in grades 7 and 8. In this example, the early-starters did not perform better than the late-starters despite a larger number of accumulated hours of French instruction.

In reviewing the relevant literature on the critical period hypothesis, Marinova-Todd et al. (2000) conceded that younger learners as a group outperform older learners as a group; however, the existence of highly proficient older learners raises questions about what factors explain the more variable outcomes of older learners rather than confirming a biological advantage for younger learners. These findings do not point to an absolute advantage to starting study of an L2 early in life; since some older learners also attain high levels of proficiency, the question is *why* younger learners generally achieve higher levels of L2 proficiency than older learners and whether an instructional program or immersion experience can be designed to improve the ultimate attainment of older learners.

Some second language researchers argue that differences in input to child and adult second-language learners account for their differences in ultimate L2 proficiency. Supporters of this input hypothesis argue that the quality of input, not the age of the learner, is most important to ultimate L2 attainment (Krashen 1982, 1985). By this theory, L2 acquisition could begin at any age; the teacher's role would simply be to provide the proper input to help students (young or old) achieve proficiency.

The policy implications of this assumption are clear: if earlier is always better, then it is essential to provide English-language instruction in Singapore at the start of formal schooling (or before). However, considering the importance of quality of input and the possibility that fewer hours lead to good results in Canadian immersion programs, a prudent policymaker might decide to delay the introduction of English immersion in Singapore in order to concentrate its most English-proficient teachers with older learners. Singapore's overall success with English instruction starting at an early age lends support to the earlier-is-better assumption; however, because Singapore has not experimented with the introduction of English at different ages to determine the optimal age for its introduction, the success of its program cannot be said to be caused by the early introduction of English.

Home language development is not academically helpful to development of English language skills

Lee Kuan Yew believed the path to academic success in English was to use English more. After presenting correlational data indicating that "the more English is used at home, the better the performance in EL1 [English studied at a 'first language' level]," Lee urged Malay parents to speak more English at home:

> Parents have to decide on the trade-off between the convenience of speaking in Malay or the mother tongue at home with their children at the cost of EL1.

> If they want their children to do well in EL1, their children must also, besides Malay, speak English at home. (Lee 1982, p. 5)

With a major shift in home language from Mother Tongue (and others) to English in Singapore, the government changed focus from urging English use at home to urging use of "good" or "Standard" English (rather than Singlish) at home:

> Now, 1 in 2 pupils in Primary One [first grade] speak mostly English at home. However, we realize that many Singaporeans are not aware that they are not speaking Standard English. This in turn impacts the way their children pick up English.
> Parents are very important role models, particularly so in the early years of a child's development. I would encourage parents to read good books to their children so that their children develop an ear for good English. If they are not comfortable with English, they can speak their mother-tongues with their children so that their children will develop the ability to communicate well in their mother-tongues. (Lui 2006, p. 3)

Although in this statement home use of Mother Tongues was mentioned, development of Mother Tongue was not discussed as potentially beneficial to the learning of English. Speaking Mother Tongue at home was depicted as helping children attain the secondary language goal of the Singaporean education system, that is, proficiency in Mother Tongue. This assumption contradicts the transfer hypothesis, which posits that academic skills learned in one's home language are easily transferred to L2 and that a high level of development of the child's home language aids in attaining high levels of proficiency in L2, and vice versa (Cummins 1979, 1981, 1991). For example, concepts learned in one language are easily transferable to another language once the new vocabulary is learned; also, reading comprehension strategies and other kinds of metacognitive skills learned through one language can be readily accessed in L2, provided sufficient proficiency is developed for the tasks in L2.

Singapore's solution to the problem of a difference between home language and school language is to change families' home languages, rather than provide schooling in the students' original home language. While overall, Singaporean students' educational achievement is high (in international comparison studies), it is unknown whether Singaporeans would perform at even higher levels were home language development provided (for those who are learning two non-home languages at school) or emphasized (for those who have only one subject in their home language).

More time devoted to learning a language will result in greater proficiency in the language

When Singapore used four languages as media of instruction, English was taught as the common L2 in the non-English-medium language streams. When the students were not achieving a high level of proficiency in English, the government required mathematics and science to be taught through the medium of English at all schools

(Yip et al. 1990). Although the landmark Report on the Ministry of Education (Goh 1979) cited evidence that this strategy was not improving students' English proficiency and in fact had led to a decline in science achievement among Chinese-medium students, Lee Kuan Yew specifically took exception to this finding in his response to the report:

> Your team concluded that LET [Language Exposure Time] did not improve standards of English in Chinese-stream schools although Science and Mathematics were taught in English… This is contrary to my own learning experience and my personal observations of students. The more you hear a language spoken, the easier it is for you to understand and to speak it…. (Goh 1979, p. vi)

Lee held on to the assumption that it is *time on task* rather than *quality of input* that is key to learning a language. While a large body of educational research supports the time-on-task assumption for reading and other subjects (Snow 1990), learners with the same amount of classroom time devoted to L2 show different levels of proficiency, with older children showing an advantage in rate of acquisition (Swain and Lapkin 1982; Harley 1986). Thus, exposure *time* is not the only factor in second language acquisition. Learner characteristics and type of input must also be taken into account.

As discussed above, the transfer hypothesis indicates that much learning acquired in one language can be transferred to another (Cummins 1991). If many of the concepts, strategies and skills Singaporean students could learn in their Mother Tongue can be readily transferred to English, time-on-task in English diminishes in importance for overall educational achievement. Instead, the quality of input in English should be considered for improved English proficiency.

The input hypothesis emphasizes the importance of students receiving high-quality input in the target language (Krashen 1985). This input must be *comprehensible* to the student—through the use of context, body motions, concrete objects, visual aids and so forth—but ideally just beyond their level of active language knowledge. Traditional teaching methods, such as lecture, drill, and reliance on textbooks, do not provide the comprehensible input posited as critical to second language acquisition (Krashen 1982). Although a high school student may be able to understand a lecture devoid of any visual aids in the first language (L1), a lecture with similar content in L2 for a beginner in L2 would not be comprehensible. Thus, the beginning L2 learner could spend all day attending lectures in L2 but understand little. Although the student's time-on-task would be great, the amount of comprehensible input would be extremely low, and little second language acquisition would be expected; rather, a student with much less time spent exposed to L2, but engaged in, say, an age-appropriate and comprehensible game, would be expected to acquire more L2.

Others emphasize the importance of interaction in creating comprehensible input and in enhancing learners' linguistic repertoire (Pica 1987; Pica et al. 1987). Through checking for comprehension, asking clarifying questions and indicating non-comprehension or confirming comprehension, a language learner can, in essence, create comprehensible input by prompting the interlocutor to re-phrase, substitute a

different word, simplify or elaborate a statement, and/or add information. Similarly, the interlocutor provides important feedback to the learner by employing the same strategies to elicit clarification from the learner. Learners whose utterances are not understood are forced to stretch their linguistic repertoire by re-phrasing, substituting, elaborating or simplifying, and/or adding information to make themselves comprehensible. Again, most classroom instruction does not provide opportunities for such interactions.

In a model of how feedback affects second language acquisition, Vigil and Oller (1976) hypothesized that both positive and negative feedback are essential to the second language acquisition process. Long's (1996) interaction hypothesis emphasized the importance of the role of conversation, especially between native and L2 speakers, to spur L2 speakers' acquisition of the target language. Long theorized that through negotiation for meaning, L2 learners may focus their attention on their (non-standard) forms that are causing confusion thus opening them to acquire the standard form if it is offered by a native speaker through a recast (restatement of a non-standard form in the standard form). Recasts, a form of negative feedback, may be more helpful to learning certain grammatical structures in a language than modeling (Long et al. 1998). Interactional feedback, such as negotiation for meaning and recasts, may be particularly important to L2 acquisition in children (Mackey and Oliver 2002).

Swain (1985, 1995) emphasized the importance of output, or speech production, in second language acquisition. Besides providing opportunities for feedback as discussed above, output offers learners a chance for testing their hypotheses about how the language works; it may also move learners from focusing on meaning to analyzing syntax as they struggle to put words together in appropriate and meaningful ways (Swain 1985). It may also offer learners the opportunity to "notice" (Swain 1995, p. 126) which grammatical forms they do not know well; in addition, teachers may assign tasks which require students to grapple with grammatical issues and thereby make students' grammatical hypotheses explicit (Swain 1995). Traditional classroom instruction often does not provide for much production on the part of the students.

Singapore, with its exam-based education system, has mainly used traditional methods of language teaching; the policy has focused on maximizing time exposed to English, rather than the quality of the language teaching. Recent attempts to change to a more communicative approach to language learning have largely been undermined by the pressure to prepare students for exams (Cheah 1999). Singapore's students have done well on international exams (Martin et al. 1999; Mullis et al. 1999, 2003), but their actual levels of oral English proficiency may not be so high. Again, without a comparison group of students who studied English for fewer hours but with higher quality input and/or more opportunities for interaction, it is difficult to determine whether Singapore's emphasis on time-on-task is justified or not.

Ability to learn more than one language is related to general education achievement

In this general achievement view of education, some students are stronger, while others are weaker, at learning in general; only the stronger students can handle a high

level of language proficiency and literacy in two languages. This seems to follow the theory of Charles Spearman and others that there is one general entity called intelligence that governs a person's ability in all areas of cognitive development (Gardner 1983). In other words, students who are 'quick' at learning math, history and science will also be better able to learn a second language at a high level; while those who are 'slower' learners in their subject areas will not be able to learn two languages at a high level. However, Howard Gardner and others propose a different view of intelligence: that, rather than being one entity, intelligence can be divided into a number of more specific intelligences (Gardner 1983). By Gardner's theory, linguistic intelligence, or the ability to learn and manipulate language, is separate from mathematical or musical or other kinds of intelligence. In other words, a student who excels in math may not be particularly strong in language, while one who excels in language may not be strong in music. In fact, some researchers such as Pinker (1994) posit an innate language acquisition faculty that is entirely separate from general intelligence. Generally high academic achievement, then, may not predict a student's ability to attain high levels of proficiency in two languages, while low general achievement may mask a student's ability to learn two languages well.

In a study by Harley and Wang (1997), L2 proficiency as measured by an interview was not linked with IQ for early total-immersion students, and it was more highly correlated for late-immersion than for the early partial-immersion students (Harley and Wang 1997); the authors suggest that the different teaching methods involved may account for the older students' performance.

Singapore policy has moved away from this assumption. At first, only those who scored in the top 10% of the PSLE were eligible to study English and Mother Tongue at an advanced level; these requirements were expanded to allow those who score in the top 11–30% of the PSLE and who did very well on their Mother Tongue exam also to take advanced Mother Tongue. Most recently, schools were granted the flexibility to allow a student not meeting the official criteria to study advanced Mother Tongue if the school believed it would not interfere with the student's achievement in other areas (Ministry of Education 2007c). This change seems to acknowledge the possibility that a student who is not outstanding at every subject may be able to learn two languages; however, the policy implies that students not in the top 30% of achievement who will do well in two languages are exceptions. Subject-based banding also acknowledges that students may reach different levels of achievement in their different subjects, including their two languages, although it is generally assumed that a lower-achieving student will not be capable of studying advanced English or Mother Tongue. In addition, the study of a foreign language (French, German or Japanese) is still restricted to students who score in the top 10% of the PSLE *and* who show "special ability" in language (Ministry of Education 2007c).

Maintaining the ethnic language will protect ethnic identity, sense of 'rootedness' and cultural values

As discussed above, the goal of Singapore's bilingual education policy is not in fact to create a general populace who are bilingual and biliterate at a high level; this privilege is reserved for only the best language students. With the emphasis on

English, what, then, is the purpose of studying another language, the so-called Mother Tongue? In discussing Chinese language education, Lee Kuan Yew wrote:

> The greatest value in the teaching and learning of Chinese is in the transmission of the norms of social or moral behaviour….
> It would be a tragedy if we were to miss this and concentrate on second language proficiency nearly equal to the first language. Malay children should know their proverbs and their folklore…. For the Indians, the Ramayana and the Mahabaratha provide marvelous and inexhaustible sources of stories…. That they also carry a moral message is the genius of the culture. No child should leave school after 9 years without having the 'soft-ware' of his culture programmed into his subconscious. (Goh 1979, p. v)

Early on, English was seen as the language of science and technology, while the Mother Tongues were designated the transmitters of cultural values and norms (Rubdy 2001). The Sapir–Whorf hypothesis which posits the language one speaks in large part determines the thoughts one can entertain (Kecskes and Papp 2000), could be used to support this assumption. By this theory, if children did not learn their Mother Tongue, they would be unable to gain access to the traditional thinking and values of their home cultures. However, this theory, in its most strict form, has been rejected by modern linguists who hold that any concept can be expressed in any language (Kecskes and Papp 2000). This intertranslatability postulate indicates that English as well as the Mother Tongues could be used to express and transmit traditional cultural values.

A Vygotskian-based sociocultural theory of the relationship between language and thought is less deterministic than the Sapir–Whorf hypothesis but would more subtly support this assumption. By this theory, ethnic languages emphasize culturally-important concepts and categories (Kecskes and Papp 2000); thus, learning a language reinforces the associated cultural values. Fishman (1977) states that language constitutes a powerful symbol of ethnicity; maintaining ethnic languages can serve to maintain ethnic-group boundaries. However, it is difficult through any of these theories to determine whether learning an ethnically-related but non-native language would carry out the desired function of passing on cultural traditions, values and norms.

In the case of Singapore, the government has not apparently tried to judge the success of passing on traditional values through the Mother Tongues. The success of the "Speak Mandarin" campaign is measured by the shift of language use at home, work, and in everyday transactions to Mandarin, not the maintenance of Chinese cultural values (Newman 1988; Riney 1998). In fact, it has been claimed that although Indians have undergone the greatest language shift to English, they have maintained their traditional values more than Chinese (Pakir 1993; Riney 1998). If this is the case, factors other than language must be responsible for the maintenance or loss of traditional values.

Conclusion

The Singapore case seems to lend credence to both the instrumentalist and sociolinguistic views of language planning. Instrumentalists may champion the

success[3] of the Speak Mandarin campaign, which promoted a simpler standardized language over home dialects despite little evidence of a pre-existing trend in that direction. Chinese were increasingly sending their children to English-medium schools, which might have killed Mandarin in Singapore if the government had not required Mandarin as a school subject and promoted its use outside school. At the same time, however, sociolinguists can point to Mandarin's existing high status among Chinese as reason for the policy's success. In addition, sociolinguists can indicate the shift to English as an example of a government simply encouraging the existing sociocultural trend toward choosing economically-beneficial English education over other languages. The government waited to institute English-medium education for all until the vast majority of parents had already chosen it. The case of Tamil may bolster the instrumentalists' claim that a simpler language is better suited for education, regardless of its status.

It is hard to know whether the Singapore government's prescriptive stance will be vindicated, or whether Singaporeans will persist in using Singlish and Chinese dialects. Sociolinguists would argue that Singlish is impossible to stop, and will not be harmful if maintained as an informal register alongside the Standard English promoted by the government as the formal register. Although the government's Speak Mandarin campaign has precipitated a large shift away from Chinese dialects toward Mandarin, the dialects have shown surprising persistence in some domains (see, e.g., Xu 1999, p. 196).

Singapore's experience does not resolve any of the ongoing debates in the field of second language acquisition, as it followed a uniform policy and did not experiment with early versus late introduction of English, differing amounts of English exposure, or diverse pedagogies. However, it certainly shows that a nation can successfully implement widespread education through a non-native medium starting at an early age with little home-language development and achieve good academic[4] results. Whether these results are replicable in countries with very different circumstances remains an open question. Singapore began its nationhood with a serious crisis, perhaps leading its people to accept governmental policy more readily, especially as promised stability and economic gains materialized.

While Singapore seems to have achieved the major goals it set for language and education policy, the loss of some of the rich linguistic diversity and the shift from multilingualism to bilingualism may have unintended consequences. Pakir (1993, p. 83) reported that in an interview with Taiwanese journalists in 1989, Lee Kuan Yew

> said that if he had had the chance to go back to 1965 or 1970, he would have kept the Chinese primary school, increased the English in it as the second

[3] Success of the Speak Mandarin policy is here defined as the language shift from dialects to Mandarin documented by the census reports and other studies. No claims are made as to the actual level of proficiency achieved.

[4] The best measure of success would of course be whether these students are successful in their careers at the conclusion of their schooling. However, data on ultimate outcomes are unavailable. The international tests (e.g., TIMSS, PIRLS) are considered good measures of academic achievement, since they are not designed to match any particular country's curriculum.

language, and encouraged parents to send their children to the Chinese language school. Then, he would have given an additional year (either at primary or secondary level) to help the average student change from Chinese as First Language learning to English as First Language learning.

This same principle could have been extended to the Malay- and Tamil-medium schools as well. Would there have been a difference in attainment of English? In attainment of Mother Tongue? In overall educational achievement? Or, as Lee believes, in maintenance of traditional values? One cannot turn back the clock to try a different scenario; however, other countries looking to replicate Singapore's educational and economic success should consider these questions in their own context.

Now, Singapore seems on an unalterable course from a diverse multilingualism to a more uniform bilingualism in English and one other official language. As the trend toward English and official languages continues, will Singapore become more of a monolingual English-speaking country, with Mother Tongues reduced to a school subject only? Will a shift to English dominance impair the transmission of traditional values to the next generation? The Singapore case will continue to offer fascinating data to language policy analysts and second language acquisition researchers for decades to come.

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