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Developmental assessments in speech-language therapy in Singapore

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There are no standardised tests of language development which have been normed for the Singapore population. Given the extreme multilingualism of the population, and the fact that the local variety of English is significantly different from Standard English, this presents considerable problems in the assessment of pediatric cases. Speech-language therapists in Singapore develop a variety of strategies including the use of tests standardised elsewhere, and assessments based on seat-of-the pants experience. The unsatisfactory nature of these compromises can be distressing. We have been attempting to develop more realistic norms for acquisition of language in Singapore, beginning with the acquisition of English. We have (a) adapted the *PRO-ED Speech & Language Development Chart* (Gard, Gilman & Garman 1993, 2nd edition) incorporatung findings of research on the acquisition of Singapore English and the intuitions of experienced therapists and (b) begun the norming of Renfrew's *Bus Story* on a sample of children aged 4-6. The chart reveals reflects the need to recognise the different pattern of acquisition of syntax and morphology in the local variety of English, and the importance of recognising local cultural factors. The use of the *Bus Story* appears to be useful after one year of education, although low scores may result from insufficient exposure to English, from educational problems, or from speech-language problems.

1. Speech- language therapy in Singapore

Speech-language therapists[1] in Singapore face a number of challenges, including problems in service delivery and the fact that the majority of speech-language therapists are non-Singaporean, and that all speech-language therapists are at present trained overseas[2] (Gupta & Chandler 1993, Gupta 1994). Most children grow up with two native languages, and three native languages are not unusual. Many languages are spoken in the community. However, the complexity of earlier generations has been somewhat reduced (Gupta & Siew 1995), so that pediatric speech language therapists are likely to find that most children would have Mandarin, Malay or English as one of the home languages, the

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1   In many countries a fully qualified practitioner is referred to as a *Speech-language Pathologist* (SLP). In others, including Singapore, a fully qualified practitioner is referred to as a *Speech-language Therapist* (SLT), or as a *Speech Therapist*. In this paper we use the term *Speech-language Therapist* (SLT).

2   An ever increasing proportion of SLTs are now Singaporean, and there is a proposal to have some local training, although at the time of writing it seems likely that this will not be at degree level. This is discussed further below.

most common combination being English and either Mandarin or Malay. The older the clients, the less likely it is that they will be able to speak Mandarin or English. This age related pattern makes it more possible for some pediatric speech-language therapists to work solely in English. Mandarin (an even newer language in Singapore than English) is now the single largest native language in Singapore, however, and Mandarin-speaking therapists are in great demand.

There is a severe shortage of studies of the acquisition of language by bilingual children growing up in settings like Singapore, where local varieties of languages have arisen as a result of language contact, where bilingualism is almost universal and where code-mixing is prevalent and serves many social functions. Summaries of research on bilingual language acquisition such as Genesee's (1993) show how they are dominated by a polarised kind of bilingualism where a bilingual child has access to two discrete languages whose speakers are principally monolingual. There are a number of consequences of long-term contact. language shift, and widespread bilingualism. For example, a study of the acquisition of phonology in such a setting would have to begin with the analysis of the phonological systems of the local varieties of any languages involved, themselves the result of historical interference. The studies reviewed in Watson (1991) compare the phonological development of bilinguals with monolinguals. In Singapore there are almost no adult monolinguals and very few child bilinguals who could be used as the basis of any comparison, so embedded in society is the use of more than one language on a daily basis. It is hard to imagine how interference could be identified in a setting where the heady mix of languages has affected the phonology of all of them.

Although around half of all pre-school children appear to have English in the repertoire, the prevalent variety of English acquired by children, Singapore Colloquial English (SCE), is very different from Standard English (StdE) (Gupta 1994). The single largest obstacle to using standard assessments is that SCE has little inflectional morphology, and can be described as creole-like, in the sense that it has been fundamentally influenced by other languages.. It has many syntactic features in common with other creoles. For example, tense marking is optional, and PRO-drop and zero-copula are discoursal possibilities, as in these examples from normally developing children (all from Gupta 1994):

> Go where? (boy, aged 5;11. PRO-drop, [subject is *you]*)
> Because going Toa Payoh. (boy, aged 5;11. PRO-drop [subject is *they]*; zero copula)
> OK, fly away already. (adult. No tense marking for past time reference; PRO-drop [subject is *it*])
> Still got fever? (adult. PRO-drop, [subject is *you]*)
> She so naughty. (girl, aged 10 years. Zero copula.)

Faced with this situation, speech-language therapists called on to assess a child respond in one of three ways:

1) Use standard assessments, knowing that they are not appropriate, and that reliance on assessments using inflectional morphology suggests that there is widespread delay in Singaporean children.
2) Use standard assessments, assuming that Singaporean English speakers are 6 months delayed. This has the dual danger of failing to identify real delay in an area where age norms are similar, while still identifying false delay in areas relating to morphology.
3) Use an impressionistic assessment, based on experience.

This paper reports on two moves towards the remediation of this unsatisfactory situation.

2. The Pro-Ed Chart[3]

The most experienced SLTs tend to make assessments impressionistically, based on experience. This method is not available to SLTs newly arrived in Singapore and is disagreeable to newly qualified SLTs, even those from Singapore. Recently, courses with entry at age 16 have been established for physiotherapy and occupational therapy in Singapore, and it is possible that speech-language therapy will soon cease to be an all-graduate profession in Singapore. Local training of a non-graduate type will produce more Singaporean speech therapists, but they will be younger and less equipped than the present graduates to make ad hoc adaptations. There is a very real need to transmit to newly arrived and newly qualified therapists the experience-based knowledge of the more experienced.

A group of members of the Speech-Language Hearing Association (Singapore) (SHA(S)) was established to discuss this problem. We agreed that use of standard assessments was not helpful, and that in particular, assuming that Singaporean English speakers were 6 months delayed across the board could result in real delay or disorder being missed. It was decided that the greatest service we could do was to pass on to new SLTs the knowledge of experienced practitioners, as embodied in the strategy of using impressionistic, but informed, assessments. As many SLTs use the Pro-ed chart, we began by working through the chart, to identify developmental milestones which were not

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[3]   The Singapore version of the Pro-Ed chart was made in the course of meetings of a subcommittee of the Speech-Langage Hearing Association (Singapore) convened and chaired by Brebner. All members apart from Gupta were speech-language therapists. The most active members of the committe were (in alphabetical order) Chris Brebner, Anthea Fraser Gupta, and Alice Wong. Others who participated in some sessions were Daniel Chew, Susan Goh, Chitra Kathiresan, Jenny Lim and Helen Chandler Yeo.
We would like to thank Steven C Mathews, the Vice President of Pro-ed, for generously giving us permission to modify the Pro-ed chart for Singapore, on a non-profit basis. The SHA(S) version is available at cost from Brebner.

the same as in Singapore. We based changes on the academic research that has been done

on the acquisition of Singapore English, and on the professional judgments of those

present.

The changes are mainly in the category SYNTAX-MORPHOLOGY, from 1½ years

onwards. Changes fall into five groups.

(a)   **Lexical and cultural**
- Changes in lexis, e.g. *tired* → *sleepy*; *Mommy and Daddy* → *Mama and Papa*; *all gone* → *no more* and *finish*.
- Insertion of examples in SingE. e.g. *What to do if you fall down?* was added to *What would you do if you fell down? Don't want* was added to *No*. Singapore English also allows for PRO-drop in a number of environments, and examples reflect this. There is a constant emphasis that the comparison is to be with the adults around the child.
- Some minor rewordings were made for the benefit of Singaporean therapists. One expression defeated all members of the committee. At 6-9 months the Pro-Ed chart says *Hitching present*. This was not explained in the chart itself. Nor did we understand *Exploitative in string play* (3-6 months).
- Culturally inappropriate items were modified or omitted. Singaporeans cannot be expected to know (at age 6-7) about the seasons of the year and what you do in each. The Pro-Ed chart expects childen of 10 months to understand the warning *hot*, but normal practice in Singapore is to remove this kind of danger from small children, which of course is feasible in a climate where space heating is never necessary. We also felt that *Apt to use slang and mild profanity* (6-7 years) was unlikely to be very successful in a society where *slang* means "putting on a foreign accent" and where constraints on children's use of profanity are rather severe. *When you feel cold* → *When you feel hot* in several examples. At various points referring to rituals and gestures we added more common Singaporean example, including *Flying kiss*, *High 5* and the negating hand gesture.

(b)   **Phonological**
There were minor changes in the PHONETICS section so that the end point corresponds to Singapore English. The original chart talks about deletion of final consonants. In SingE final plosives, especially voiceless ones are regularly deleted, so we have made clear that it is the final consonants that *are* pronounced (fricatives and nasals) that are relevant.
Dental fricatives are not widely used in SingE, so we have omitted them as being learnt. We also inserted a mention of the use of tone in Chinese words, which would be likely to appear in loanwords in many children.

(c)   **Morphological and syntactic**

This was the major area of change. Many things which are categorical in StdE, including tense and agreement, are optional in SCE. So that, for example, where the US Pro-Ed chart says that *Regular plural forms are consistent* at age 3-3½ years, we indicate that the plural may begin to emerge at age 3½-4, and that at 6-7 the child should be able to use the plural when writing or speaking carefully.

The presence or absence of the verb BE, interrogative formation, and the pattern of negation also had to be changed to reflect local patterns of development, and the presence of SCE alternatives alongside the Standard ones.

(d)   **Pragmatic**

SCE uses a system of pragmatic particles to show various attitudinal and interactive features (Gupta 1992, Gupta 1994).   These are learnt early, and utterances using pragmatic particles appear among the first 2 word utterances. They are also important in showing the child's social and pragmatic development. Their learning was inserted at appropriate points (e.g. *Uses pragmatic particles (ah, lah, hor) correctly, especially in noun+particle combination* was added under Syntax-Morphology at 1½-2). Because of the simpler syntax of conditionals in SCE, they appear to be learnt earlier than they are by children acquiring StdE, and were inserted at age 3½-4. *Pro-ed* has *if* appearing at 4-4½.

(e)   **Pedagogical**

Certain scholastic skills are taught very early to Singaporean children, and had to be brought forward, usually by six months, sometimes by more. These include counting skills, alphabet recitation and letter recognition, and colour recognition. Both parents and pre-schools pay a great deal of attention to these skills. We have at present changed little in the category PLAY, although we do feel that most Singaporean children are rather more ahead in manipulative play (form boards, fine motor control tasks, etc.) and perhaps less well developed in imaginative play than the US children on whom this chart was based, due to the societal concentration in Singapore on the scholastically 'relevant'.

3. The Bus Story[4]

Method

Renfrew's *Bus Story* is a "test of narrative speech" which is being used by many speech therapists in Singapore as part of assessment and remediation. Many therapists judge it to be one of the most useful means of assessment of productive language, a. clinical judgement that has been supported by studies such as Bishop & Edmonson's (1987). The tester tells the child a simple story, about a naughty bus who runs away, while the child

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4   This section is based on work done by Chandler Yeo and Gupta (1996). This is available from us as an unpublished report. The project was usefully discussed by members of the Language SIG of the Department of Social Work and Psychology at the National University of Singapore in 1995.

looks at accompanying textless pictures. Then the child, using the pictures as a prompt, retells the story to the tester. In the case of the *Bus Story,* free permission to make a local adaptation was not given. We have therefore used the UK version of the Bus Story and scored it according to Renfrew's guidelines. There were some cultural problems in both text and pictures which would make the story harder for Singaporean children than British children, but using the standard text does allow for a straightforward comparison with UK norms.

We tested the Bus Story in two kindergartens, on a sample of 32 in Kindergarten A and 16 in Kindergarten B. The choice of kindergarten was partly determined by willingness of the kindergarten to participate in the study, and partly by a desire to find contrasting instititions. It is hoped that this study will continue as more kindergartens are sampled in the same way, by us or by other researchers.

A child's fifth birthday falls in the first year of Kindergarten (K1), and the sixth birthday in the second year of Kindergarten (K2). Kindergartens are managed by a variety of semi-governmental, religious, and private organisations, and are not under the control of the Ministry of Education. In most kindergartens, most activity is in English, and children usually are given some exposure to the one of the other languages of education (Mandarin, Malay, or, in a small number of kindergartens, Tamil).

Kindergarten A is likely to be at the lower end of the proficiency scale for English for two reasons. Firstly, the social class composition suggests that a lower proportion of children are likely to be from English-speaking homes than in the population as a whole. Secondly, as Gupta has suggested before (Gupta 1994) centres which have a policy of mixing children (and teachers) by race are likely to foster a setting which is more

supportive of English, as the mixture of ethnicities requires the use of English among the children, and between child and teacher. In Kindergarten A children studying English and Mandarin were placed in classes with Chinese teachers, and children studying English and Malay were placed in classes with Malay teachers. Kindergarten B is also not ethnically very mixed, as it offers only English and Mandarin, and is a run by a Christian organisation which many Malay Muslims would be reluctant to send their children to. However, due to the socio-economic class composition, Kindergarten B has more English speaking children, and therefore can create an English-speaking environment without a policy of ethnic mixing. Whereas Gupta's estimate for the nursery class in a previous study (Gupta 1994) was that 50% of the children came to school with a useful amount of English, and all left the nursery class (age 4) with basic English, the impression at Kindergarten A is that less than ¼ enter K1 (age 4) with English skills, and that about ¾ leave K2 (age 6) with enough English to cope with Primary School. In Kindergarten B, nearly all children appear to enter K1 with a useful amount of English.

Within each kindergarten we sampled for age, gender, and ethnicity (Chinese or Malay in Kindergarten A and only Chinese in Kindergarten B, as there were no Malay children). In the event, we saw no effects due to gender or ethnicity in these children, although this is something that might emerge in a larger study. The present study is too small to support there being no such link or to support there being a link, and therefore only age will be referred to in this report.

Results

The most important measure in *The Renfrew Bus Story* is the information score. The difference between the kindergartens in immediately apparent in the results for

information score (Figures 1 and 2). These graphs show the absolute information score. As is to be expected, in both kindergartens the K2 children perform better than the (younger) K1 children. However, the difference between the two kindergartens is so great that the K1 scores for Kindergarten B are higher than the K2 scores for Kindergarten A. This is despite the fact that the average age of the children in Kindergarten A was higher, and that they had been in kindergarten longer, as the testing in Kindergarten A was at the end of the school year, while that in Kindergarten B was in the middle of the school year.

Figures 3 and 4 show the distribution of children in this study against what we call *UK norm*. We calculated *UK norm* from Renfrew as being the mean of the youngest children in each age group, with a range from the Standard Deviation subtracted from that mean to the Standard Deviation added to that mean. This is a calculation that produces a rather low norm, which we felt would allow as many as possible of our subjects to attain it. Our second category, *Acceptable*, is a group scoring below the UK norm, but at a level shared by many of their peers. Our labelling of this as *acceptable* is impressionistic at this stage. Due to the large numbers scoring zero in Kindergarten A we have separated zero from very low scores. As these figures are presented according to norms, if all children came from English-speaking backgrounds there should be no difference in performance between K1 and K2, as one could expect equal numbers of children to be performing according to the norms for their age group. An improvement between K1 and K2 performance should mean that children are learning English at school.

The difference between the two kindergartens is again apparent. In Kindergarten A there is a great improvement in performance in K2, while in Kindergarten B there is little difference between K1 and K2. In Kindergarten B the proportion of children attaining low scores is the same (and very low) in both years, while in Kindergarten A a much

higher proportion attain low scores (including zero) in K1. What these graphs show is the difference in population. The Kindergarten B children improve in absolute scores (Figure 2) because they are getting older, while the Kindergarten A children improve their absolute scores (Figure 1) both because they are getting older and because they are being more exposed to English. For pre-school children the *Bus Story* test cannot, of course, discriminate between children who cannot speak English and children who have language and/or developmental problems.

Discussion

The low scores do not give cause for great concern at K1. However, very low scores do begin to be worrying in K2. The children with low scores would benefit from some further assessment from their teachers and perhaps some professional help. In Singapore all education is English-medium. We think that some of these children will have great difficulty coping with Primary One, given their lack of English. It is rather worrying that after two years in kindergarten they still cannot follow a simple story in English. Children who perform badly in English on the *Bus Story* should be tested in Malay or Mandarin (as appropriate). If they do well in their home language, but badly in English, it means they need more exposure to English. But if they do badly in both school languages, it could mean that they have a language disorder, and that they should have professional help. Whatever the cause of a lack of English by the age of 6, poor English is likely to adversely affect a child's ability to cope in Singapore's school system, and it will be to the benefit of such children to be identified early. It should also be remembered that a score which is acceptable for a child from a home where English is not one of the family languages may give cause for concern in a child who is more exposed to English. The scores should always be assessed in the context of the child's exposure to English.

We discussed the results with the teachers of Kindergarten A. It became apparent that these teachers see their most important role as teaching basic *literacy*, and that they expect children to develop *oral* language skills after they leave the kindergarten, in primary school. They identified the high scoring children as being from "educated" or "English-speaking" families. The focus on written rather than oral skills at kindergartens is unfortunate in centres where the majority of children do not use English in the home. It is a great pity that the very real demands of Primary One have led to the neglect of oral skills, which should form the foundation of the literacy skills.

Sample Texts

Text 1

The child below (aged 6;8, from Kindergarten A) was a high scorer, with an information score of 23 and an A5LS of 8. Inaudible syllables are represented by $. T is the tester (Gupta) and S is the subject. Notice the characteristic features of SCE (Gupta 1994), such as absence of tense and concord marking, and the use of BE as a multipurpose auxiliary.

T	*Once upon a time-*
S	Once upon a time the bus was not stop.
T	*Right. And then?*
S	And then the bus go road. Then the police is take the whistle and - [gestures blowing a whistle]
T	*Yes.*
S	Then the $$, then he say "Stop, stop." The bus will not stop. The bus follow the train.
T	*Right. And then?*
S	And then - uh- some cow can see with the eyes the bus, then he go on the road. Then he go- then he want to follow the ?self.
T	*He wants to follow the-?*
S	Uh- he want to walk only.
T	*Oh right. And then?*
S	Then he can see one- some water. Then he want to brake, the car cannot brake. Then he drop until the water. Then he go and some - uh - friend, then he say put on- put on in the - uh uh - the- on the road. Then he drive.
T	*That's right. Good, very good.*

Text 2

This child (aged 5;10, from Kindergarten B) attained a low acceptable score, with an information score of 12 and a sentence length of A5LS 5.2. T is the tester (Chandler Yeo) and S is the subject. She needed extensive prompting during the retelling.

T	*Once upon a time-*
S	Once upon a time-
T	*Mhm.*
S	The bus-
T	*Mhm. What do you remember about the bus? What's happening here?*
S	Naughty.
T	*Yes, he was a naughty bus. And then? What's happening here?*
S	The bus ... go away.
T	*Exactly. That's right. The bus goes away, and then what happens?*
S	The bus-
T	*Mhm*
S	the bus
T	*Mhm.*
S	and the train-
T	*Mhm.*
S	Push.
T	*Mhm. And what's happening here?* [pause] *Or what about here? what's happening here?*
S	The police say "Stop, stop, stop".
T	*M.*
S	S- Don't go away-
T	*Mhm. And then?*
S	The bus.
T	*What happens? What's happening here?*
S	The bus- the bus tired.
T	*Yes, that's it. And then?*
S	And the bus /♦♠/- jump over here.
T	*Mhm.*
S	The cow say "Moo, moo, moo." And the bus- M.
T	*Mhm OK, the cow say "Moo, moo, moo." And then the bus-?*
S	The bus go- the bus ?went in the water.
T	*Mhm*
S	And the bus very sad.
T	*Any more? Any more?*
S	Any more?
T	*Uhuh. Then the end, is it?*
S	The end.
T	*Good.*

The above child seems to be adversely affected by the task, as she had earlier shown herself an able conversationalist in free conversation., for example:

T	*And is mummy working and daddy working?*

S	No. Daddy only working, my mummy never working.
T	*Mummy's at home.*
S	Yes
T	*Looking after mei-mei? [="younger sister"]*
S	And me.
T	*And you, OK. So who brought you to kindergarten this morning? How did you come to kindergarten today? How did you come to school?*
S	I take bus. I take school bus I come to school.
T	*And when you go home you go back on the school bus also?*
S	Yes.
T	*Hah. And then mummy will meet you from the school bus?*
S	No. My mummy at home and cook porridge.

4. Conclusion

As we have said before (Gupta 1994, Gupta & Chandler 1993), one of the great dangers in Singapore is of under-referral, due to a combination of lack of knowledge of the normal, tolerance of linguistic variation, and a stress on the scholastic.

Both kindergarten teachers and SLTs need to:

- Identify children's language exposure (not an easy task).
- Learn what is normal in local varieties of English and of other languages.

The additional priorities of kindergarten teachers are to:

- Remember that a child who says little in English or whose English is 'poor' is not necessarily from an English-speaking home -- the child could have speech-language problems.
- Put more emphasis on oral English skills. Put children in a social setting which promotes English (e.g. racially mixed classes).
- Find out whether a child whose English is poor speaks some other language normally -- low evaluation of languages other than the school languages can lead to failure to identify skills in home languages other than school languages as being of importance.
- Be informed about any available therapeutic help, and to recommend action to parents whose children appear not to be attaining normal performance. Also to be in a position to give useful advice to parents who do not have access (usually for financial reasons) to therapy.

Some of the additional priorities for an SLT working with a Singapore child are to:

- Work towards the development of locally normed assessments. SLTs should lead this research themselves to ensure that research is clinically realistic and relevant, and that research findings can have clinical impact.
- Be willing to refer a child for *educational* support if the child is not in need of speech-language remediation, but is weak in English.

In both educational and therapeutic settings English is often the default language choice, sometimes the only one possible. If English language tests are normed in Singapore, they

will not be able to distinguish children from English-speaking backgrounds from children from non-English speaking backgrounds. It is reasonable to give tests initially in English to all children who have had a year's education in English, as a low score in an English test is indicative either of global language difficulties (which will be reflected in the child's other language(s)) or of problems in learning English (where the child does not manifest problems in the other language(s)). Both teachers and SLTs therefore need to act on lower than normal scores, with appropriate remediation.

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