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Relationships between Second Language Acquisition and Home Background Factors for Hong Kong Primary Students

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Abstract

This study used item response modelling to develop measures of proficiency in speaking, reading and writing English among Hong Kong primary students. Home and family background factors were identified that could be linked to higher than average levels of development in proficiency across two school years, from Primary One to Primary Two or from Primary Two to Primary Three. Participants were 2133 Hong Kong primary students and their parents, sampled from 140 primary schools that had employed a native-speaking teacher of English to work with the students. Higher than average improvement in English proficiency was associated with the students' attitudes to learning, their opportunities to use English in everyday life, and parents' support of their child's English studies. The year level, parents' level of education and gender of the student also interacted with home background factors in predicting development of second language acquisition.

The importance of English to the economic prosperity of Hong Kong is axiomatic. Coinciding with the last stages of a shift from a manufacturing to a service industry base, the need to promote English became an increasing preoccupation of the administration from the late 1970s. The colonial Hong Kong Government of the time began a programme of investment in the development of English, which was carried forward by the post-1997 Government of the Hong Kong Special Administrative Region (SAR) of China. One of the measures that heralded the inauguration of the new SAR Government was the large-scale recruitment of native-speaking teachers of English to work in Hong Kong schools where Cantonese was the primary medium of instruction.

Native-speakers of English had played a role in schools during the first 150 years of Hong Kong's history (Bickley, 1997; Sweeting, 1990). However, by 1982, localisation was felt to have led to deterioration in language standards which ought to be "amended so that children in their first years of schooling might be exposed to native English speakers" (Visiting Panel, 1982. III.1.9). In October 1997, in his first policy address, the new Chief Executive undertook to implement a Scheme to provide more than 700 additional native-speaking English teachers to secondary schools (Hong Kong SAR, 1997). In addition, some primary schools received support from Government funding agencies to enable them to introduce expatriate teachers during the period from 1998 to 2000.

The Native-speaking English Teacher (NET) Scheme was expected to result in improvement of the professional profile of local English language teachers, leading to advances in the quality of language teaching through a system where NETs produced teaching resources, effected gains in student language proficiency and were integrated into the life of the school. A team of researchers from the Hong Kong Institute of Education evaluated the NET Scheme from 1997 to 2000, and concluded that it had enjoyed some success, despite difficulty in identifying clear-cut language gains

resulting conclusively from interaction with a NET (Storey, Luk, Gray, Wang & Lin, 2000). Building on this research, they suggested that primary schools might offer an excellent context for the goals of the NET Scheme to be successfully realised because, in the primary schools, public exam pressure was absent and English content was oriented towards social interaction (Storey et al.). In secondary schools, on the other hand, the effects of the NET were seen as less likely to be significant without a cultural shift involving increased professional collaboration between NETs and local teachers, and corresponding changes to the exam-oriented, textbook-based learning culture of most secondary schools in Hong Kong (Storey et al.). The Native-speaking English Teacher Scheme for Hong Kong primary schools was formally launched by the government in September 2003.

Evaluation of the Native-speaking English Teacher Scheme for Primary Schools in Hong Kong

In 2004, the Hong Kong Education and Manpower Bureau (EMB) requested that a detailed evaluation of the effectiveness of the NET Scheme in primary schools be undertaken. EMB also stipulated that the evaluation begin with students currently in Key Stage One (aged from 5 to 8 years) because this was seen as a crucial and formative stage in the development of language skills. This meant that the evaluation of language achievement commenced with students in the earliest years of schooling, and the first years of their introduction to English for most students, thus posing particular measurement challenges for the study. There were many reasons why formal and standardized language testing procedures were seen as unsuitable methods for gathering data on English proficiency for very young students. For example, the Association for Childhood Education International (1991) has pointed out that standardized testing places undue pressure upon young students, fails to recognize the impact on test outcomes of limited attention span or problems with understanding multi-step directions for this group, or to set conditions for targeted intervention and teaching, and often results in teachers spending time preparing children to take tests rather than providing a developmentally sound program that is responsive to students' needs. Clearly, a developmentally appropriate form of assessment was needed, and preferably one that would enable a rich description of student language proficiency to be developed, while also addressing EMB's interest in promoting cooperation between NETs and local teachers and shifting away from Hong Kong's traditional exam-oriented learning culture.

Accordingly, this paper reports the use of item response modelling to validate measures of student proficiency and attitudes that were appropriate and useful to describe English language achievement for young children. It also presents relationships between the observed trajectories of development for students and personal and home background factors that were related to students' opportunities to use English outside school. In the first year of the study, data were collected from students in Primary 1 and Primary 2 classes (P1 and P2, students aged from 5 to 7 years) to establish baseline levels of English language proficiency and attitudes towards learning and using English. Attitudes were considered particularly important as indicators of development of a lifelong commitment to learning English, which was one of the targets of success against which the NET Scheme was evaluated. The process was repeated in the second year of the study, with the same sample of students then in P2 and P3 (aged between 6 and 8 years). Information about home background factors was gathered from parents in the first year of the study.

Analysis of baseline data collected in the first year of the evaluation confirmed the strong influence of the home background on student achievement (Griffin et al., 2004). Students tended to do better on tests of English achievement and attitudes to learning if they had well-educated parents who took a keen interest in their studies, as well as access to many books in any language at home and at school, and regular opportunities to speak English outside school (Griffin et al., 2004). For this reason, the evaluation was designed to include repeated measures to assess value-added gains in key variables, while controlling for some of the contextual factors that influenced the growth of indices of effectiveness. Of particular interest was whether or not the influence of personal and home background factors on the development of English proficiency was cumulative and ongoing. In other words, the study aimed to investigate whether students from homes that were enriched, in terms of

support for English language studies, would not only demonstrate higher levels of proficiency in the baseline assessment, but would also develop their English language skills at a faster rate than students of similar baseline ability who did not have similar opportunities to practise and use their English outside the classroom and school.

Method

Participants

> *Students.*

> The unit of analysis for the study was the student, and the sample included 904 students in P1 in 2004 and P2 in 2005 (465 boys, 439 girls) and 1229 students in P2 in 2004 and P3 in 2005 (665 boys, 564 girls) from 140 schools in which a NET had been deployed. The sampling frame encompassed primary schools from a wide range of local districts in Hong Kong. Most students (64%) attended schools located in the New Territories, 23% were from schools located in Kowloon, 12% on Hong Kong Island, and less than 2 % were from the sparsely populated Outlying Islands. Special schools and schools where English was the primary medium of instruction were not included in the sample. An initial target sample of 15 P1 students and/or 15 P2 students was randomly selected from each school where there were P1 and P2 classes taught by a NET. This cluster size was selected to take advantage of efficiency and accuracy. The *roh* was estimated at 0.3 for the study and a cluster size of 15 to give a sampling error of 5% or less with 140 schools. The cluster size of 15 was also selected because of the need for one-on-one testing and larger clusters were considered to place excess pressure on school resources. In fact the *roh* was calculated to be 0.55 which increased the sampling error to almost 8%.

> *Parents.*

> Most of the mothers and fathers of student participants were native-speakers of Cantonese (93% of fathers, 83% of mothers). Less than one percent of students had either a mother or father who was a native speaker of English, and none of the students had both mother and father with English as their first language. Nine percent of students had mothers who were native-speakers of Putonghua, and seven percent had mothers from other language backgrounds (usually Indian). Only two percent of the fathers were native-speakers of Putonghua and four percent were from other language backgrounds.

> Most of the students had parents who had completed Secondary 5 level education (28% of mothers, 26% of fathers), lower secondary (32% of mothers, 33% of fathers) or primary education only (22% of mothers, 21% of fathers). Relatively few students had parents who had completed university education (5% of mothers, 7% of fathers) or upper secondary or vocational school (6% of mothers, 7% of fathers). In addition, four percent of students had mothers and three percent had fathers who had not received any formal education, and three percent did not respond to the survey question.

Materials

> *Language proficiency.*

> The instruments used to collect data on student language proficiency were the *Profiles in English as a Second Language* (Griffin, Smith & Martin, 2003) and the *Interview Test of English Language* (ITEL-ed) (Griffin, Tomlinson, Martin, Adams & Storey, 2003). The *Profiles in English as a Second Language* were descriptive scales that illustrated progress in learning English. They involved direct observation of student behaviours from which teachers inferred development of skills and knowledge, and recorded their inferences in terms of the descriptions in the profiles. They provided a common reference frame for teachers to talk about student learning and to plan

developmentally appropriate and targeted learning experiences for individual students and classes. These features indicated that the *Profiles in English as a Second Language* would foster cooperation and collaboration between NETs and local teachers, which was one of the primary goals of the NET Scheme articulated by EMB.

The *Interview Test of English Language (ITEL-ed)* (Griffin, et al., 2003) continued work that began two decades ago with the design of a test to support the placement needs of the British Council in Hong Kong, and then extended to the development of a parallel test for the migrant education services in Australia. The test had been shown to support a variety of English language programs offered in a range of settings: these included its use in the refinement of teachers' broad assessments of students on language proficiency scales (e.g., The International Second Language Proficiency Rating Scale (ISLPR) and the American Council for the Teaching of Foreign Languages Proficiency descriptions (ACTFL)). For this study, a version of the test was produced with prompt materials that had been tailored to the Hong Kong environment and designed to be attractive and interesting for young children. The interview test was conducted entirely in English by two teachers with whom the student was comfortable and familiar (usually the student's local teacher of English and native-speaking teacher of English).

Attitudes to English

Questionnaires to assess student and parental attitudes towards learning and using English were developed, using the taxonomy of affective development described by Krathwohl and his colleagues (Krathwohl, Bloom, & Bertram, 1973). It was assumed that attitudes towards English language studies would progress through stages of passive reception, responsiveness, valuing, organization and internalization (characterisation), and questionnaire items were written to reflect these stages. Attitude items were translated into Chinese for both parents and students. Students responded to the questions posed to them verbally in Cantonese by a familiar adult (usually the local teacher of English) by pointing to "happy" or "sad" faces on an answer sheet.

Data Collection

Training in data collection and reporting procedures was provided to NETs and local teachers from all participating schools through information sessions and workshops, and an instruction manual was supplied to schools to advise on data collection and recording. Quality assurance procedures meant that only those data that were checked and confirmed as gathered and recorded by teachers in accordance with mandated data collection procedures were retained for further analyses, and approximately five percent of data were discarded.

Sample Weights

A sample weighting was assigned to each sampling unit (i.e., to each participating student). Weights were computed as the reciprocal of the probability of student selection in the sample. The purpose of weighting was to maintain the relative balance between sampling units (students) in order to make accurate inferences for the target population (i.e., Hong Kong primary students taught by a NET). This negated any undue influence of students chosen from smaller schools where the chance of selection was higher than for students in larger schools. The need to produce reliable estimates for sub-groups of a population required that different sampling weights be applied to sub-groups (based on school year level). Any difference in achievement levels between two sub-groups could lead to inaccurate estimation of the overall achievement level, over-emphasising the contribution of students in particular schools or sub-groups. The sampling weights restored the proper balance between sub-groups in order to estimate the overall achievement level. Thus, all outcomes in this paper were based upon weighted estimates.

Calibration of Scales of Student Proficiency in English

The following sections detail the various scales and test items that were estimated using item response modelling. More specifically, the *ConQuest* computer program (Wu, Adams, & Wilson, 1998) was used to apply a Rasch model to teachers' observations of students, recorded against the *Profiles in English as a Second Language* band levels for reading, spoken language, and writing proficiency, and test items used in the Interview Test of English Language. Given the hierarchical nature of the bands in the ESL profiles, there was potential for overfit in the modelling, but this was not a serious issue as the progressions in the bands were not deterministic.

Profiles in English as a Second Language

Calibration involved establishing that descriptions accurately measured students' proficiency in spoken language, reading and writing in English. To do this, it was necessary to show that teacher observations not only described a single, underlying trait in each instance, but that they did so consistently. Descriptors of student proficiency were expected to be spread out, in order to measure different levels of performance on each of the scales; when this was achieved, it could be argued that the substance, magnitude and direction of student proficiency had been established. Descriptors were then used for locating students along a scale of proficiency.

The underlying logic of the item response modelling was probabilistic, so that levels on the scales indicated the standard of proficiency that a student had at least 50% probability of displaying. This information had consequences for school curriculum planning and classroom practice, as well as for any national approach to the English language curriculum. At a school and classroom level, for instance, teachers needed to focus instruction around the students' current and immediate next level of proficiency in order to target teaching and learning in a manner that minimised student frustration (through attempting work that was too difficult or being asked to spend time on tasks that were too easy). At the national level, teaching resources and new input to teacher training needed to be produced to appropriately teach students at different levels. Teaching students at low levels of competence should not follow the same process or use the same resources as teaching those at higher levels (Griffin, Smith & Martin, 2003).

Scaling Profiles in English as a Second Language

NETs and local teachers worked together to record profile levels (described in full in Griffin, Smith & Martin, 2003, and summarised in Appendix 1*)* for each student, ranging from scores of 0 to 3 at each level. A score of 3 indicated that a student had achieved all or nearly all of the behaviours described for that level. For example, a score of 3 against *Speaking and Listening Band 1* indicated that a student:

> *Initiates conversations with mother tongue peers. Interprets and responds appropriately to some non-verbal cues. Repeats the words of other speakers without comprehension. Repeats simple words or phrases appropriately in context. May use first language with teacher or mother tongue peers. Repeats modelled utterances of very short phrases with understanding, usually with a group of other learners.*

A score of 2 represented a case where a student had demonstrated some of these behaviours, while a score of 1 indicated that a student was just beginning to demonstrate one or two of the behaviours. A score of 0 indicated that a student had not yet shown any of the listed behaviours. Item response modelling was used to derive the estimates of band level difficulty and student proficiency in English. These estimates were then simultaneously plotted on a chart to illustrate the relative position of students against the difficulty levels assigned to each of the band level scores. When the student ability was at the same level as the band level difficulty, then the odds that the student would score a

perfect score of 3 for the item were 50/50. The logarithm of these odds was zero, indicating that there was no difference between the ability of the student and the difficulty of scoring at this level.

Reading Profiles.

The reading scale had an alpha reliability of 0.87, a Rasch case separation reliability of 0.91 and a Rasch item separation reliability of 1.00. Figure 1 presents a chart of the reading scale. The vertical axis displays the logit values (a measure of the difficulty of items), and the reading band levels are shown on the horizontal axis. The bars illustrate the threshold range for scores on each band level. The right-hand column shown in Figure 1 provides a qualitative descriptor of the sets of skills demonstrated by students who participated in the baseline data collection. It should be noted that the reading and writing levels described in Griffin et al. (2003) included levels that described patterns of achievement for students who were new to literacy (pre-literate levels A, B and C) and also for students who were already literate in their home language but new to literacy in English (literate levels 1 – 5). These distinctions were important to capture different patterns of development among students learning English as a second language but commencing their studies at a range of ages. However, the students sampled for the Hong Kong study were relatively homogeneous in age (5 – 8 years of age), and the levels derived from the analysis of student outcomes reflected this homogeneity. Thus, students could be separated into six distinctive groups, based on the profile descriptions supplied by their teachers.
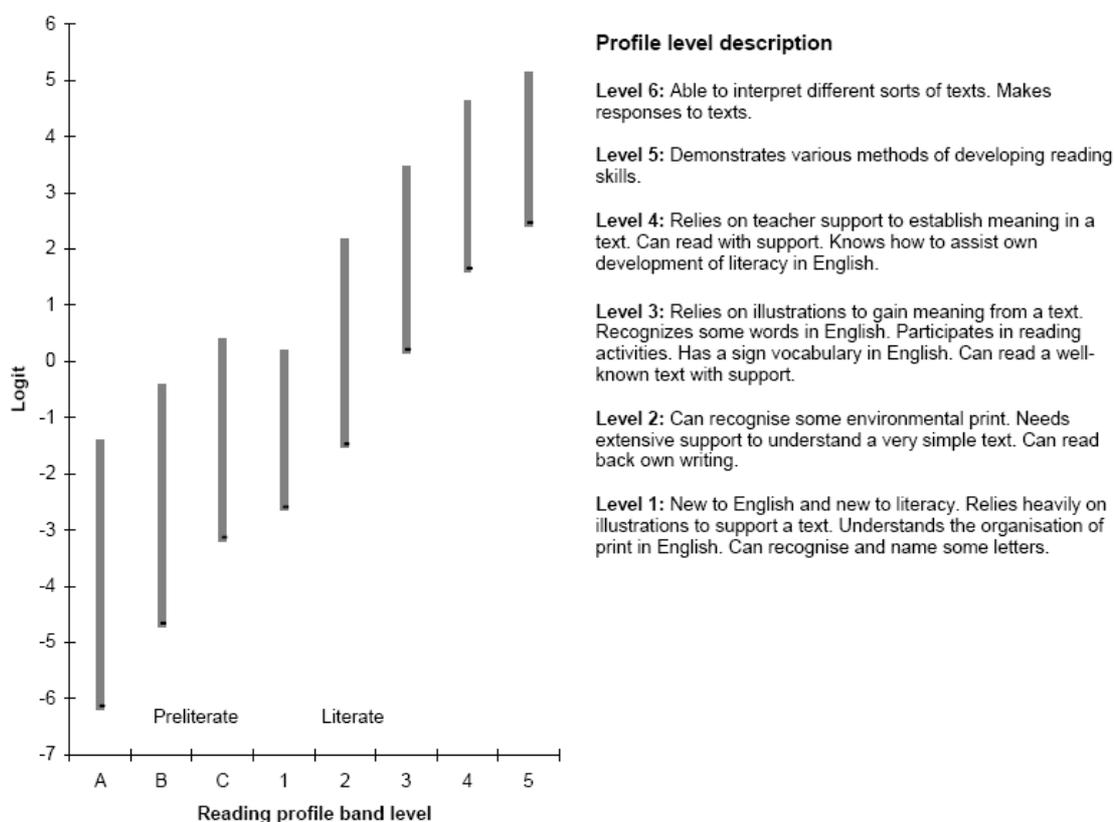

Profile level description

Level 6: Able to interpret different sorts of texts. Makes responses to texts.

Level 5: Demonstrates various methods of developing reading skills.

Level 4: Relies on teacher support to establish meaning in a text. Can read with support. Knows how to assist own development of literacy in English.

Level 3: Relies on illustrations to gain meaning from a text. Recognizes some words in English. Participates in reading activities. Has a sign vocabulary in English. Can read a well-known text with support.

Level 2: Can recognise some environmental print. Needs extensive support to understand a very simple text. Can read back own writing.

Level 1: New to English and new to literacy. Relies heavily on illustrations to support a text. Understands the organisation of print in English. Can recognise and name some letters.

Figure 1. Thresholds and levels on the reading scale.

A comparison of the distribution of the students who were in P1 in 2004 and in P2 in 2005 who were working at each of the six derived levels of reading achievement is shown in Figure 2, while Figure 3 illustrates a similar comparison for students in P2 in 2004 and P3 in 2005. The distribution for students in the same school year from 2004 to 2005 (i.e., P1 in 2004 compared with P1 in 2005, or P2 in 2004 compared with P2 in 2005) did not differ to any marked extent, so this is not illustrated for any of the following graphs.
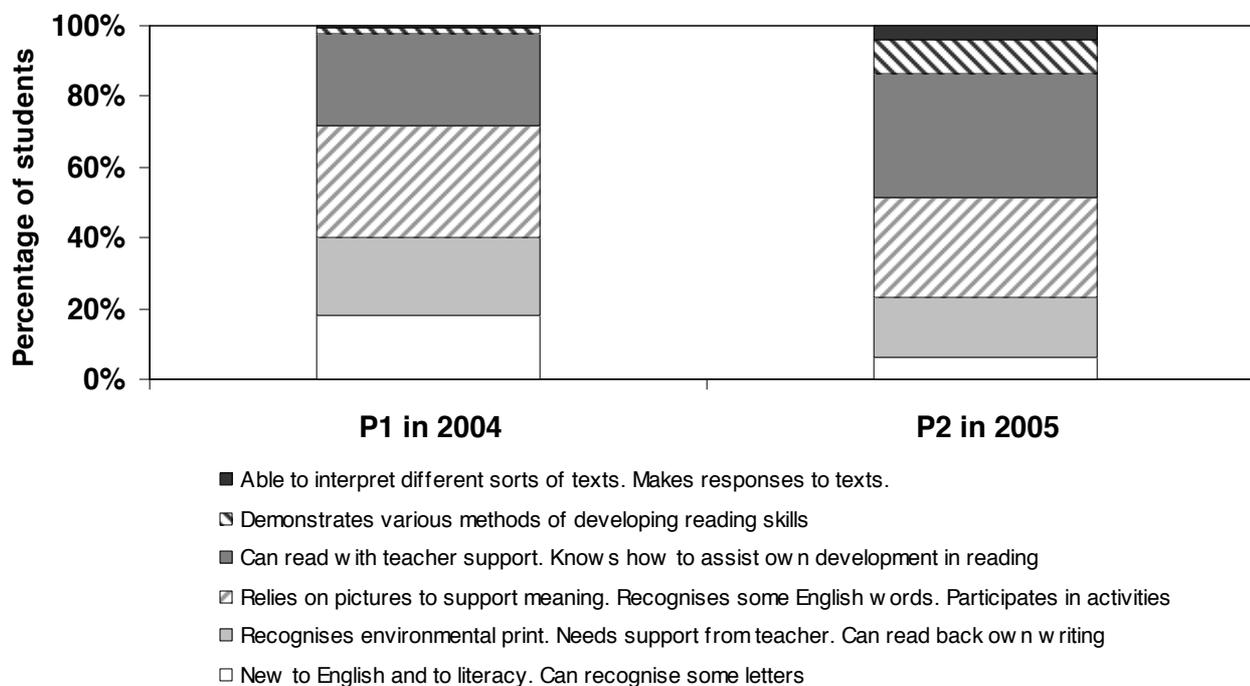
- ■ Able to interpret different sorts of texts. Makes responses to texts.
- ◩ Demonstrates various methods of developing reading skills
- ▨ Can read with teacher support. Knows how to assist own development in reading
- ◪ Relies on pictures to support meaning. Recognises some English words. Participates in activities
- ▨ Recognises environmental print. Needs support from teacher. Can read back own writing
- ▢ New to English and to literacy. Can recognise some letters

Figure 2. Distribution of students in P1 in 2004 and P2 in 2005 on the reading scale.

- ■ Able to interpret different sorts of texts. Makes responses to texts.
- ◩ Demonstrates various methods of developing reading skills
- ▨ Can read with teacher support. Knows how to assist own development in reading
- ◪ Relies on pictures to support meaning. Recognises some English words. Participates in activities
- ▨ Recognises environmental print. Needs support from teacher. Can read back own writing
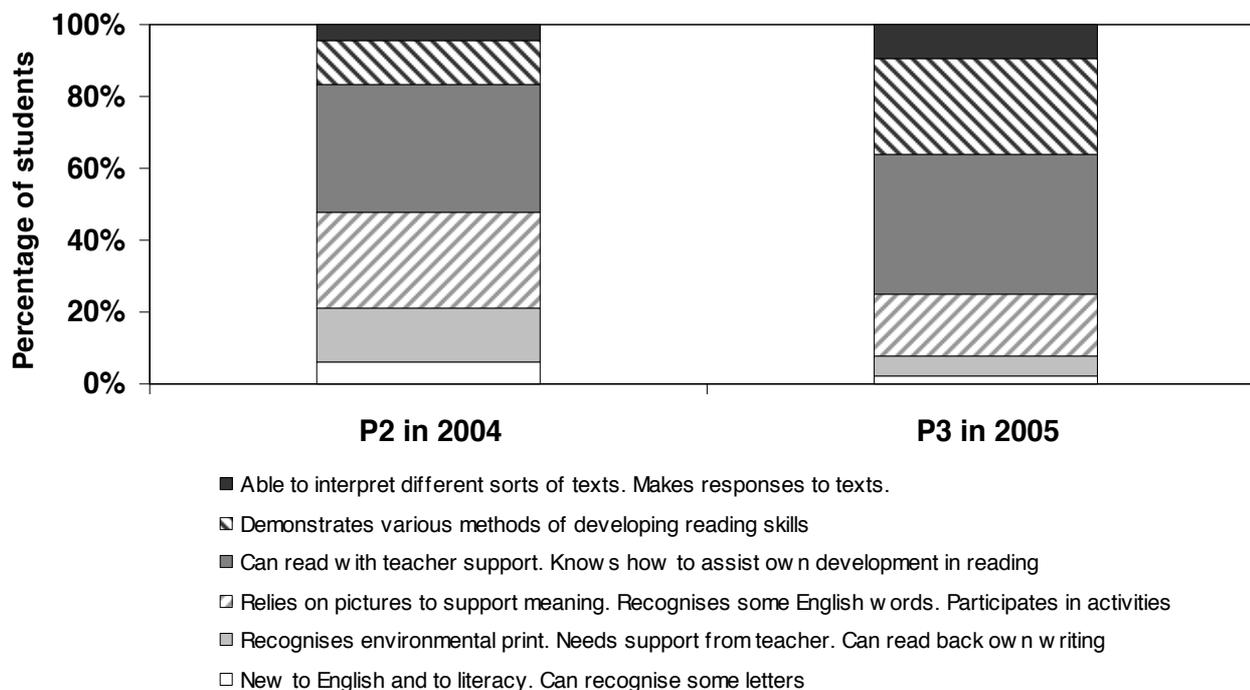- ▢ New to English and to literacy. Can recognise some letters

Figure 3. Distribution of students in P2 in 2004 and P3 in 2005 on the reading scale.

These graphs illustrate a clear developmental shift in reading proficiency from P1 to P2 and from P2 to P3. By P3 most of the students were assessed by their teachers as able to read, albeit with teacher support.

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Writing Profiles.

The writing scale had an alpha reliability of 0.86, a Rasch case separation reliability of 0.91 and a Rasch item separation reliability of 1.00. Figure 4 presents a chart illustrating the levels on the writing scale, and Figures 5 and 6 illustrate distributions of students who were working at each of the derived levels of writing achievement from P1 to P2 or from P2 to P3 respectively.

In both P1 and P2, most students were working at Level 3 on the scale of English writing proficiency. They were making some attempts at conventional spelling but much of their production of written English consisted of reproducing modelled or familiar forms. By P3, however, many of the students were able to write simple sentences and were beginning to explore different forms of writing.
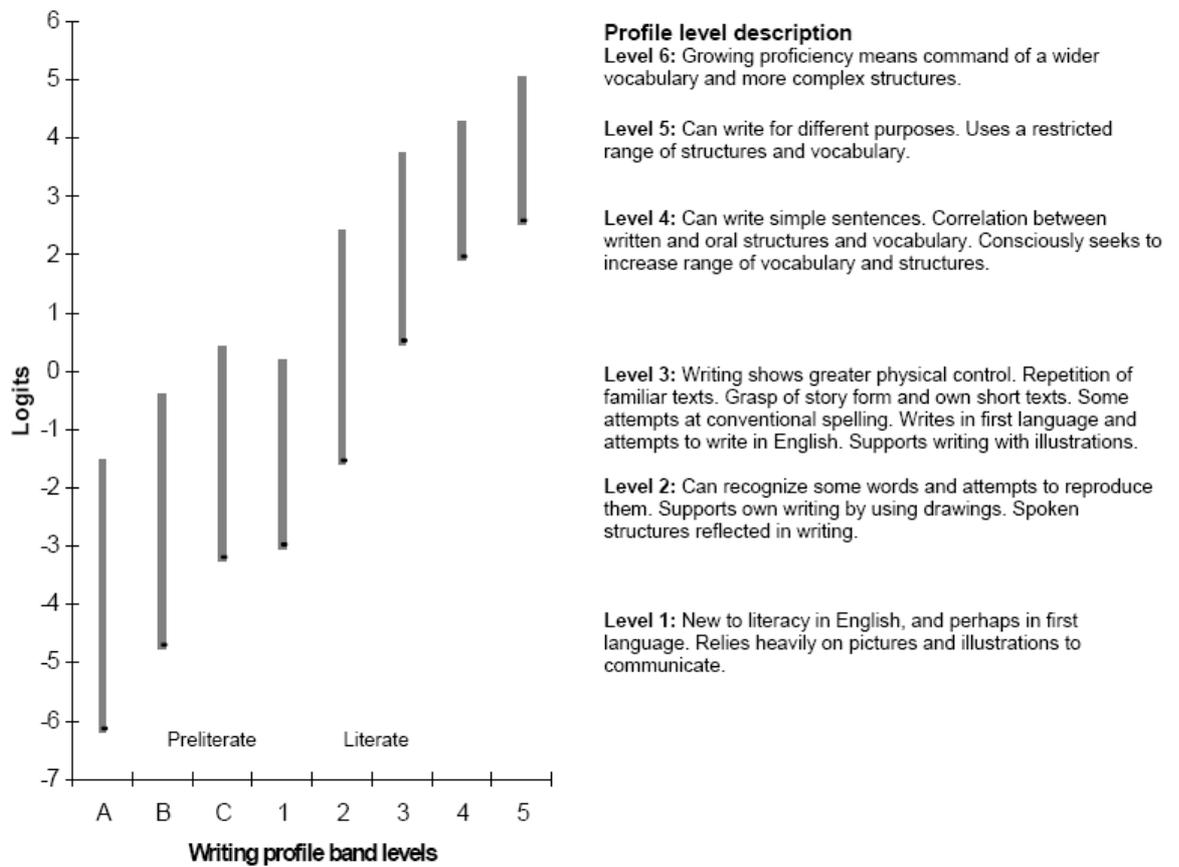

Profile level description
Level 6: Growing proficiency means command of a wider vocabulary and more complex structures.

Level 5: Can write for different purposes. Uses a restricted range of structures and vocabulary.

Level 4: Can write simple sentences. Correlation between written and oral structures and vocabulary. Consciously seeks to increase range of vocabulary and structures.

Level 3: Writing shows greater physical control. Repetition of familiar texts. Grasp of story form and own short texts. Some attempts at conventional spelling. Writes in first language and attempts to write in English. Supports writing with illustrations.

Level 2: Can recognize some words and attempts to reproduce them. Supports own writing by using drawings. Spoken structures reflected in writing.

Level 1: New to literacy in English, and perhaps in first language. Relies heavily on pictures and illustrations to communicate.

Figure 4. Thresholds and levels on the writing scale.

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- Growing proficiency means command of a wider range of vocabulary and more complex structures.
- Can write for different purposes. Uses a restricted range of structures and vocabulary
- Writes simple sentences. Consciously seeks to increase range of vocabulary and structures.
- Writing shows greater physical control. Some attempts at conventional spelling. Repeats familiar forms.
- Can recognise some words and attempt to reproduce them. Spoken structures reflected in writing.
- New to literacy and English. Relies on pictures to communicate.

Figure 5. Distribution of students in P1 in 2004 and P2 in 2005 on the writing scale.

- Growing proficiency means command of a wider range of vocabulary and more complex structures.
- Can write for different purposes. Uses a restricted range of structures and vocabulary
- Writes simple sentences. Consciously seeks to increase range of vocabulary and structures.
- Writing shows greater physical control. Some attempts at conventional spelling. Repeats familiar forms.
- Can recognise some words and attempt to reproduce them. Spoken structures reflected in writing.
- New to literacy and English. Relies on pictures to communicate.

Figure 6. Distribution of students in P2 in 2004 and P3 in 2005 on the writing scale.

Speaking and Listening Profiles.

The scale derived from the teachers' observations of students' achievement in speaking and listening in English had an alpha reliability of 0.88, a Rasch case separation reliability of 0.86 and a Rasch item separation reliability of 1.00. Figure 7 illustrates the levels on the spoken language scale, and the distribution of students working at each of the levels of achievement in 2004 and 2005 is shown in Figures 8 and 9.
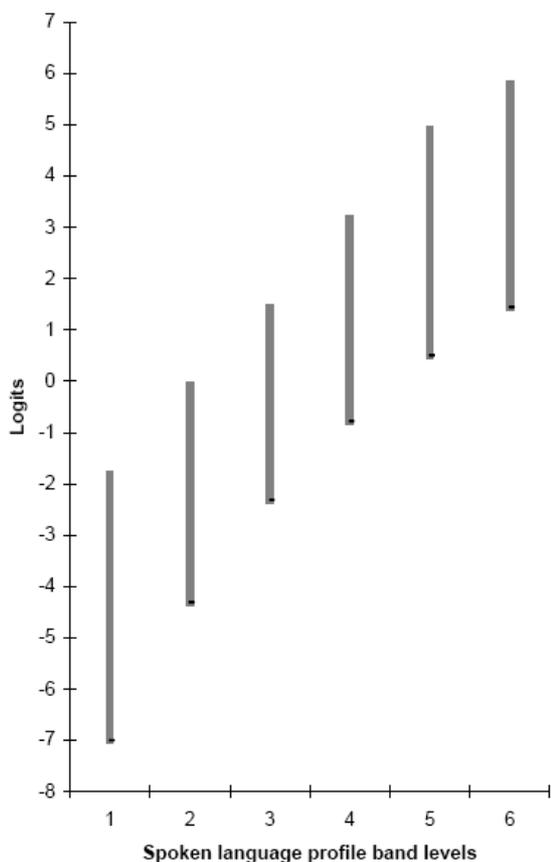
Profile level description

Level 7: Communicates in English in a variety of situations. Relies heavily on a core of learned vocabulary and structures.

Level 6: Independently communicates experiences. Sentences contain simple connectives, some pronouns, simple descriptors.

Level 5: Expands vocabulary through different sources. Gaining stronger structural control of English through experimentation.

Level 4: Uses English to communicate simple messages. Able to indicate time and tense. Can express simple opinions and ideas.

Level 3: Communicates simply in English. Takes part in everyday activities and routines. Experiments with structure of English. Increases knowledge by borrowing from other speakers.

Level 2: Communicates simply using a mixture of words, phrases and non-verbal communication. Some communication skills transferred from first language to English. Takes part in everyday activities and routines. Models behaviour on peers.

Level 1: Settling into English language classes. Communicates with peers in first language. Discovering importance of non-verbal communication.

Figure 7. Thresholds and levels on the spoken English scale.

- ■ Communicates in English in various situations. Relies on core of learned vocabulary and structures.
- ■ Communicates experiences. Sentences contain simple connectives, pronouns and descriptors.
- ◩ Expands vocabulary through different sources. Gaining stronger structural control.
- ■ Uses English to communicate simple messages and ideas, indicates time and tense.
- ▱ Communicates simply in English. Takes parts in activities. Experiments with English.
- ▤ Communicates simply using a mix of words, phrases and non-verbal communication.
- ☐ Settling into English class. Communicates with peers in first language.

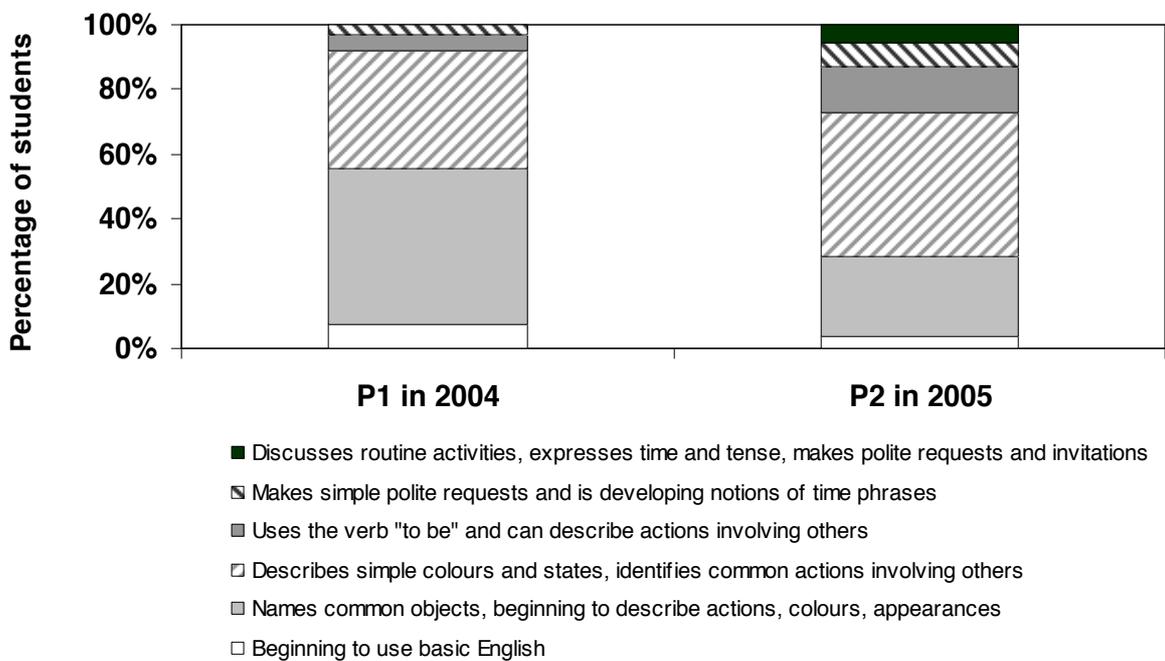*Figure 8*. Distribution of students in P1 in 2004 and P2 in 2005 on the spoken English scale.
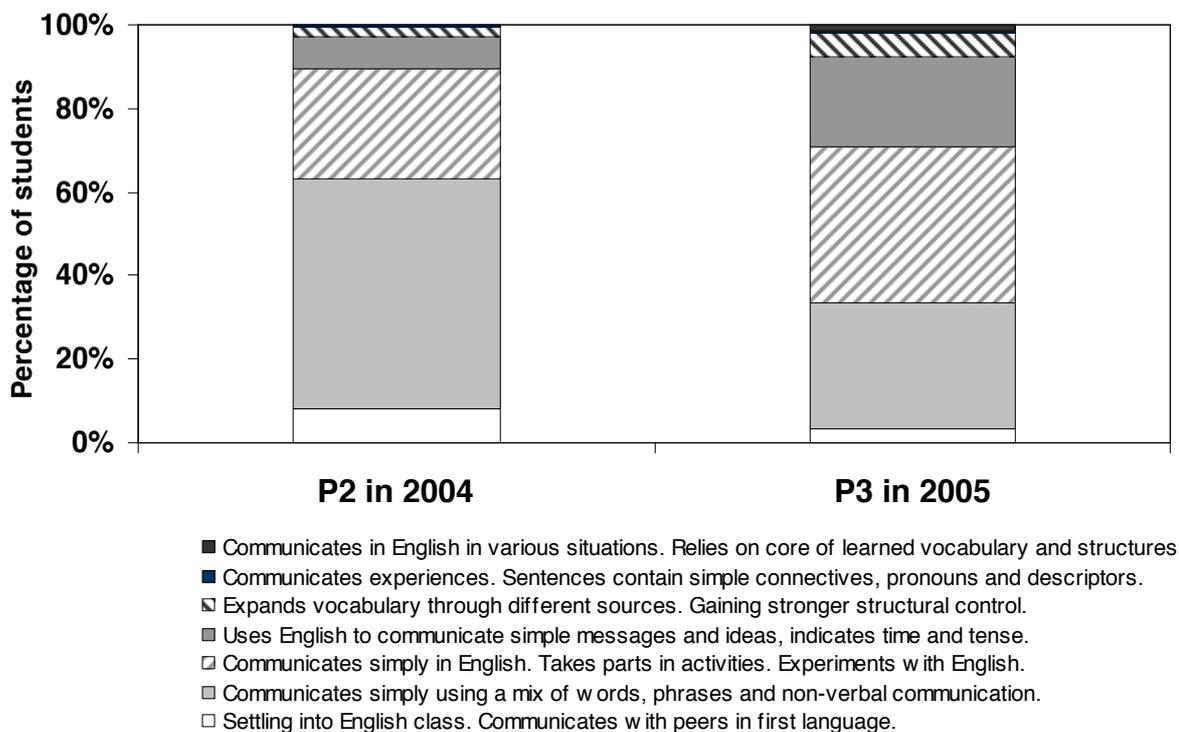
Figure 9. Distribution of students in P2 in 2004 and P3 in 2005 on the spoken English scale.

The Interview Test of English Language (ITEL-ed)

The interview test scale had an alpha reliability of 0.91, a Rasch case separation reliability of 0.87 and a Rasch item separation reliability of 0.87. The scale was measured in logits, interpreted as a measure of the difficulty of achieving a particular score on each of the interview test items, and the scale bars illustrate the cut points for scores. Figure 10 illustrates thresholds and levels on the interview test scale.

If, for example, a student was located at a position equivalent to -0.5 logits on the scale derived from the interview test, this indicated that the student had considerably higher than 50% probability of competently responding to the first two test items (common nouns and adjectives), and approximately 50% probability of using both "s/he" and "they" appropriately (pronouns) and identifying two or more common actions (verbs). The student was assessed as likely to "describe simple colours, appearances and states (adjectives), and identify common actions (verbs) and describe actions involving different people (pronouns)". This corresponded to Level 3 on the scale derived from the interview test. As the scale was cumulative, students at this level were also likely to "name common objects" (Level 2) and "use basic English in the form of greetings and providing personal information" (Level 1). A student's location on the scale was thus a point of intervention for targeted teaching. For example, if a student was assessed as having a 50:50 chance of being able to demonstrate these abilities, then teaching strategies aimed at consolidating these skills and building those at the nearest next levels on the scale (in this case use of the verb "to be" and beginning to frame simple requests) would be particularly supportive to the student's development. The distributions of students who were working at each of the levels on the scale derived from the interview test in P1 in 2004 and P2 in 2005, or in P2 in 2004 and P3 in 2005, are shown in Figures 11 and 12 respectively.

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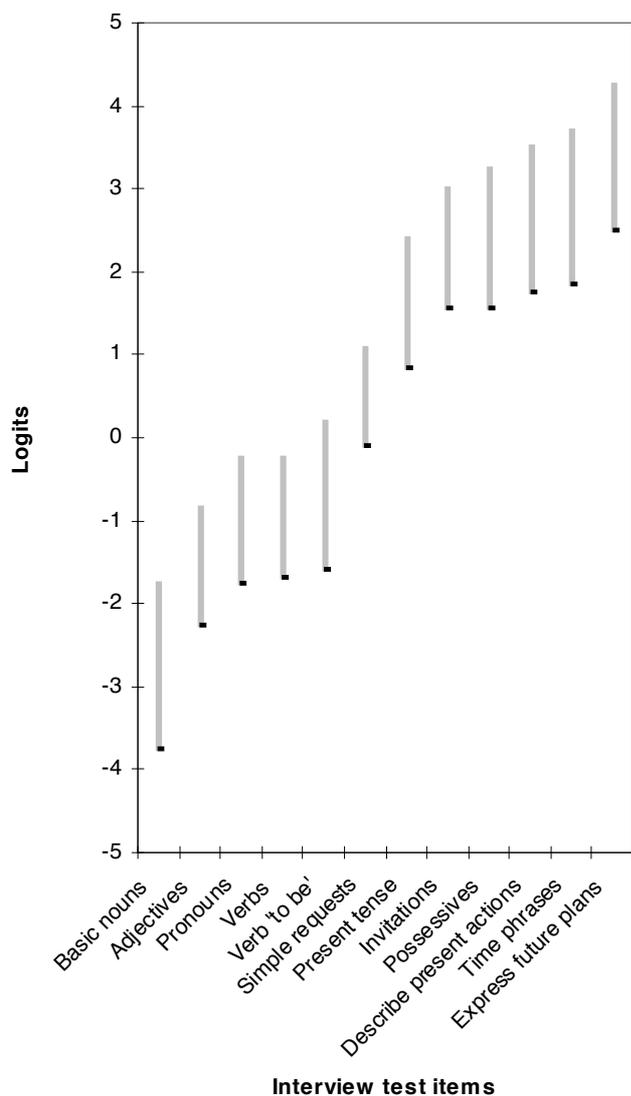
Interview test level description

Level 6: Discusses routine activities, expresses notions of time and time sequence, and makes polite requests and invitations.

Level 5: Makes simple polite requests and is developing notions of time phrases and the ability to describe routine actions and behaviours.

Level 4: Uses the verb 'to be' and can describe actions involving others.

Level 3: Describes simple colours, appearances and states, identifies common actions and describes actions involving different people.

Level 2: Names common objects, and is beginning to describe some actions, colours and appearances.

Level 1: Beginning to use basic English in the form of greetings, providing personal information, and naming some everyday objects.

Figure 10. Thresholds and levels on the interview test scale.

Figure 11. Distribution of students in P1 in 2004 and P2 in 2005 across levels on the interview test scale.
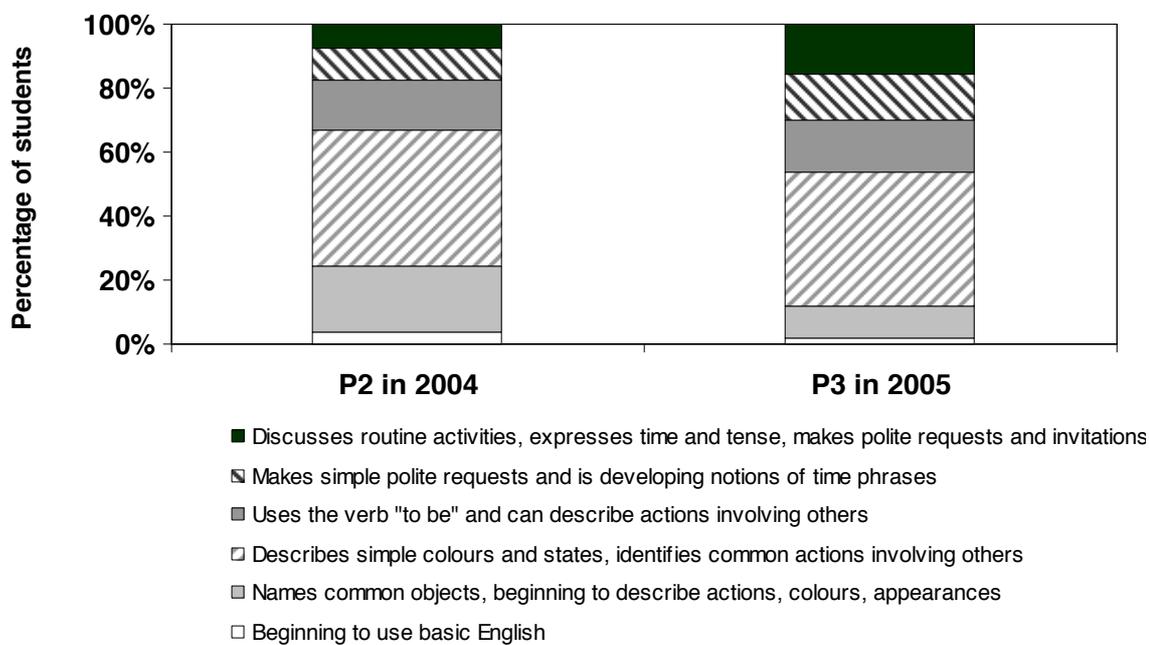
Figure 12. Distribution of students in P2 in 2004 and P3 in 2005 across levels on the interview test scale.

Student Attitudes

Levels of attitudes towards learning and using English were defined using a process similar to that adopted for defining levels of achievement. Attitude items were ordered according to the stringency of attitude they required. An audit of items then identified the underpinning intention or meaning of clusters of item stems that were located at similar points along the continuum, and this was back-translated (Griffin, Woods, & Dulhunty, 2004) to evaluate how closely they matched the hypothesised attitude levels (adapted from Krathwohl et al., 1973) used to develop survey questions. Item response modelling was used to calibrate the scale and produce attitude scores for students.

The scale had an alpha reliability of 0.74, a Rasch case separation reliability of 0.73, and a Rasch item separation reliability of 0.99. Details of the attitude items and their relative stringency are shown in Table 1, with an interpretation of clusters of attitudes. Ordering items and then examining clusters of items yielded information about the nature of the underlying variable. The items clustered into groups ranging from those that expressed a willingness to join in with English activities, through active participation in English classes, to social use of English, and ultimately to belief that the use of English should be mandatory.

Table 1. *Student Attitude Items and Levels*

Difficulty	Item	Attitude Level
3.60	All subjects should be taught in English.	Level 5: Shows a generalised belief that everyone should use English
2.30	I speak English even to Chinese people.	
2.27	I ask my parents to speak in English with me.	Level 4: Shows a generalised use of English socially and outside school
2.13	I like to speak English more than Chinese.	
2.01	I get my friends to speak in English.	
1.63	I like to speak English with my family at home.	
1.36	I speak in English with my friends.	
1.30	I don't wish I did not have to speak English.	
1.08	I ask my parents to read books with me in English.	Level 3: Values and enjoys learning and using English
1.02	I don't learn English just because my parents want me to.	
0.94	Speaking English is not too hard.	
0.77	I want to read lots of books in English.	
0.61	I don't speak English just because my teachers want me to.	
0.33	I don't wish I did not have to learn English.	Level 2: Responsive, actively participating in English classes
0.06	I like to write in English.	
-0.34	I listen in English class.	
-0.49	I join in the songs and games in English class.	
-0.88	I remember some of the English words I learn.	Level 1: Receptive, willing to learn English
-1.06	Learning English is fun.	
-2.09	Learning English is useful.	

The distribution of 2005 P2 and P3 students who were working at each of the levels on the attitude scale is shown in Figure 13. The graph indicates that student attitudes were similar across year levels, and that most of the students expressed positive attitudes towards speaking English in social situations as well as learning and using English in school. Student attitudes were also stable from

2004 to 2005. Very small proportions of students expressed extreme attitudes, either in terms of rejection of English language studies or a generalized belief that English should be mandatory. Rather, most students indicated that they enjoyed learning English at school, and approximately half also responded that they liked to practise their English in social situations away from the school and classroom.
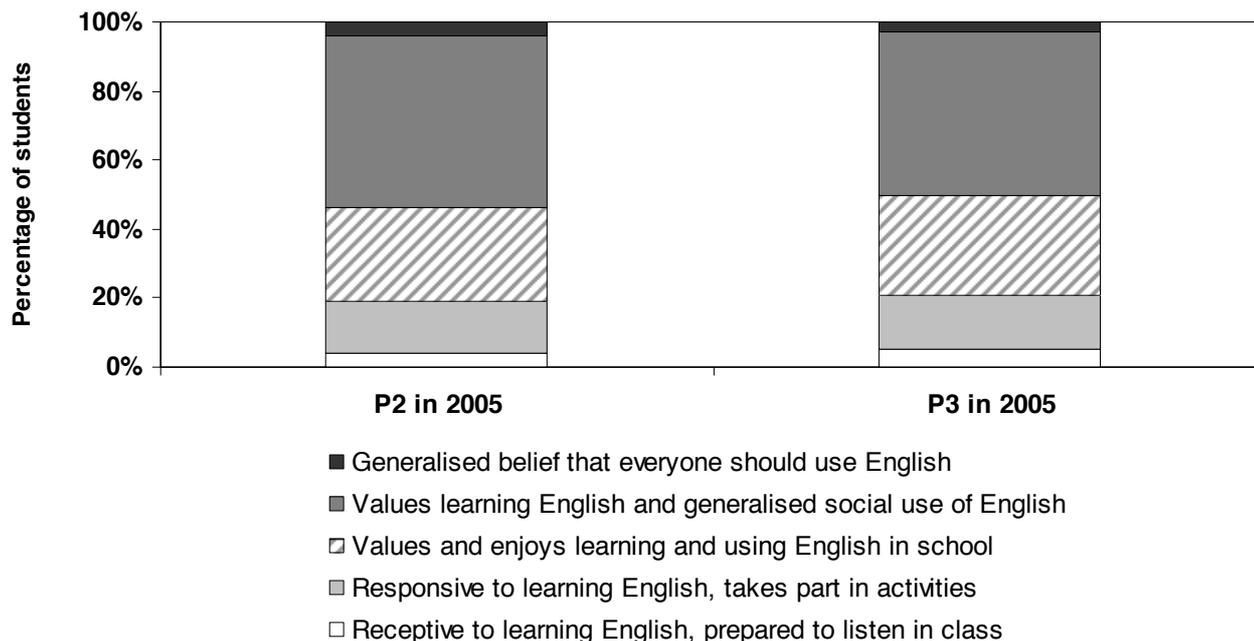

Figure 13. Distribution of students across levels on the attitude scale.

Value-Added Analyses of Student Achievement Outcomes

The data were explored to uncover contextual variables that could be linked to higher achievement outcomes for students, and that could not be controlled by or attributed to the school, the teachers or the NET Scheme. This was important, because it would not be appropriate or useful, in terms of system-level policy decisions, to directly compare schools or teachers who were working with large populations of students from disadvantaged backgrounds with their counterparts who were working with students from backgrounds that offered an enriched environment for learning English. In particular, in both 2004 and 2005, higher achievement scores for students were associated with home backgrounds in which the parents had achieved higher than average levels of education. In addition, girls tended to show higher average proficiency than boys across all of the assessments. This pattern was characterised by higher mean achievement scores for girls, with higher proportions of boys being assessed at the extremes of the scales. In other words, boys were more strongly represented than girls both among students who were assessed at the highest and at the lowest levels on the proficiency scales, with a lower overall mean score. Accordingly, proficiency scores in 2004, the gender of the students, and the educational attainment of the fathers, were explored for their appropriateness as predictor variables in a regression model.

The educational attainment of the father, and not of the mother, was chosen for inclusion in the analysis because it was slightly more strongly associated with higher student achievement and because the high correlation between maternal and paternal level of education meant that both could not be included in the statistical model. Paternal education acted as a general indicator of many of the markers of an advantaged home background, at least from the perspective of opportunities to learn and practise English. In other words, students whose fathers were more highly educated than the average were considerably more likely than their peers to live in a home where there were many

forms of support for their English studies, including opportunities to speak English and an English speaking maid, someone who supervised the child's English language studies, and access to books and other resources.

Analyses were conducted separately for students making the transition from P1 to P2, or from P2 to P3, so that weighting procedures could be used to provide an accurate and representative picture of relationships between achievement and background factors.

There was a substantial positive relationship between achievement outcomes across all assessment procedures in 2005 and the predictor variables of student gender, paternal level of education, and achievement outcomes in 2004, with previous achievement consistently the strongest predictor of subsequent performance. Indeed, the model explained 43% of the variation in the weighted data of P1-P2 students' achievement on the interview test in 2005 (F (3, 458) = 117.06, $p < .001$), and 44% of the variation in P2-P3 students' achievement on the same test (F (3, 820) = 218.21, $p < .001$). For the spoken English profiles, the model explained 36% of the variation for P1-P2 students (F (3, 458) = 54.77, $p < .001$) and 27% for P2-P3 students (F (3, 820) = 59.37, $p < .001$), while for reading proficiency it explained 29% of the variation for P1-P2 students (F (3, 458) = 37.74, $p < .001$) and 33% for P2-P3 students (F (3, 820) = 78.84, $p < .001$). For writing proficiency, previous achievement, student gender and paternal education explained 25% of the variation for P1-P2 students (F (3, 458) = 30.92, $p < .001$) and 29% of the variation for P2-P3 students (F (3, 820) = 65.92, $p < .001$).

Development of Proficiency in English and Home Background Factors

The influence of home background factors on the development of English proficiency was of interest for this study, and in particular whether or not these were cumulative and ongoing. In other words, did students from homes that were enriched, in terms of support for English language studies, not only demonstrate higher baseline levels of English proficiency, but did they also improve their English language skills more than expected? Did students of the same baseline ability who did not have access to the same resources or opportunities to practise their English outside school improve less than expected?

Regression analysis was used to predict the expected improvement of each student based on that student's previous achievement, gender, and the educational attainment of the student's father. This enabled each student to be assigned a standardised residual score that reflected how much their observed score differed from their predicted score controlled for the effect of contextual factors. A score of zero indicated that the student had scored as predicted for all students with similar baseline achievement, gender and a father with a similar level of education. A positive score indicated the student had scored better than predicted given the effect of the controlled contextual factors, and a negative score indicated that a student had performed worse than predicted given the effect of the controlled contextual factors. The residuals were then used to examine how other factors affected these deviation or value added scores.

This then allowed some further analyses to be undertaken to explore the relationships between other factors and the value added to student proficiency by background factors such as opportunities to speak English outside school, parental attitudes to English language studies, and students' attitudes to English. The value added analysis results for these factors are presented in Figures 14, 16, and 18 for students progressing from P1 to P2, and in Figures 15, 17, and 19 for students progressing from P2 to P3.

Parental attitudes towards English were grouped into three broad levels for the analysis. At the lowest level, parents merely acknowledged that it was useful for their child to learn English but indicated that they did not actively support English language studies. At the next level, parents responded that they encouraged their child to do their best in English language studies. At the highest attitude level, parents modelled their support for English language studies by responding that they

tried to speak to their child in English, to listen to their child's English reading and to read English books with their child. Clearly, the categorisation of parental attitudes to English measured not only the willingness, but also the capacity, of parents to take an active interest in their children's English studies. It contributed substantially to the value added as parental attitudes became more positive.

For the scale of student attitudes towards English, there were very small numbers of students in the highest and lowest categories of attitude (i.e., students who were merely receptive in English classes, or conversely those who thought that all subjects should be taught in English), and so these categories were merged with the adjacent levels on the attitude scale for the purposes of exploring relationships between student attitudes and development of proficiency.

Opportunities to speak English outside school.
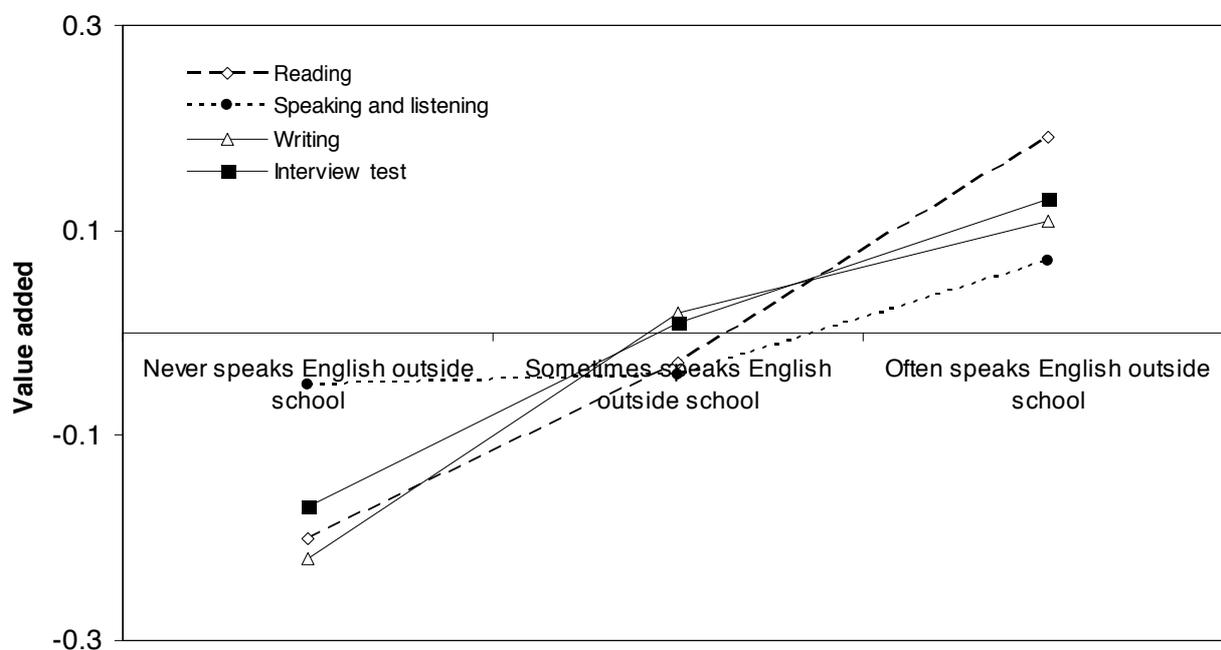
P1-P2 students' opportunities to speak English outside school

Figure 14. Relationships between student development and opportunities to speak English for students in P1 in 2004 and P2 in 2005.
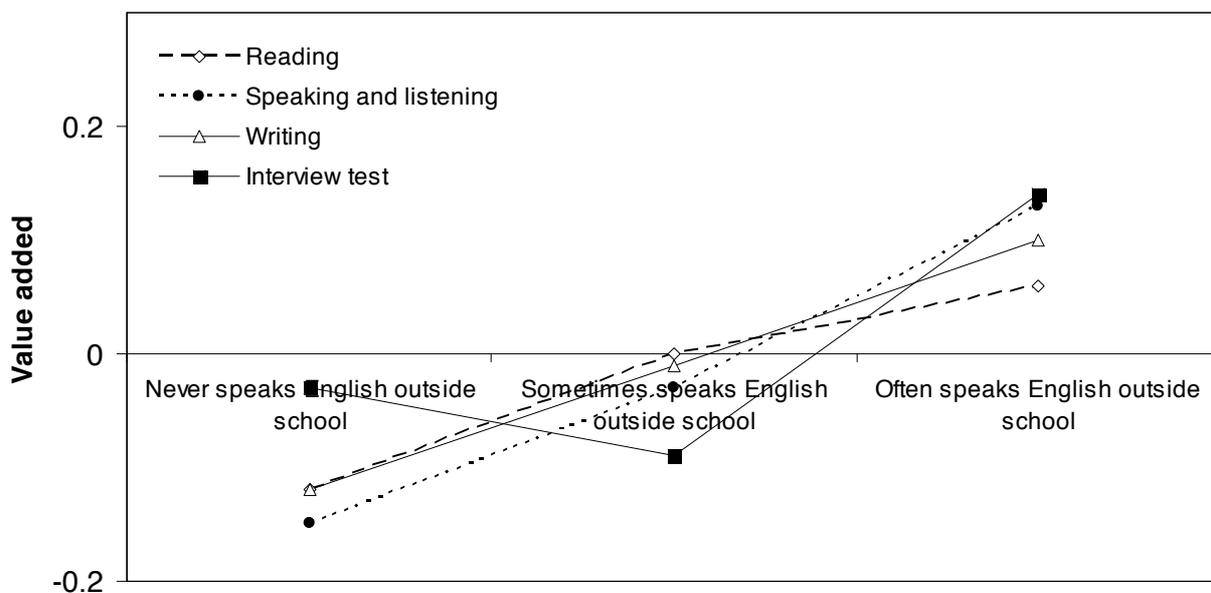
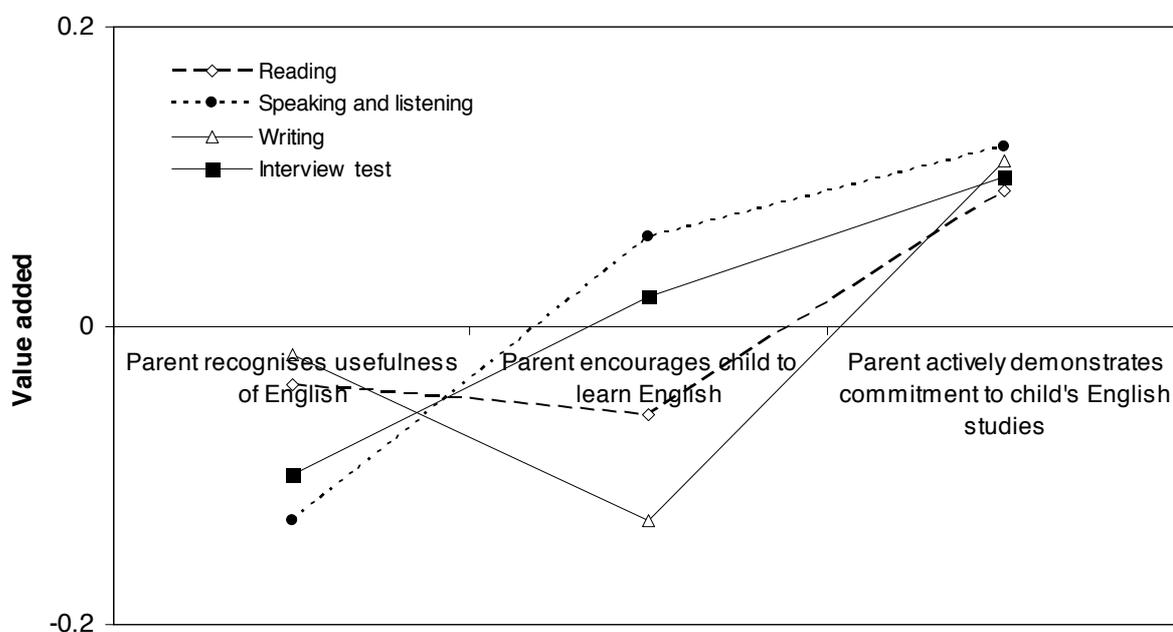**P2-P3 students' opportunities to speak English outside school**

Figure 15. Relationships between student development and opportunities to speak English outside school for students in P2 in 2004 and P3 in 2005.

Parental attitudes to English language studies
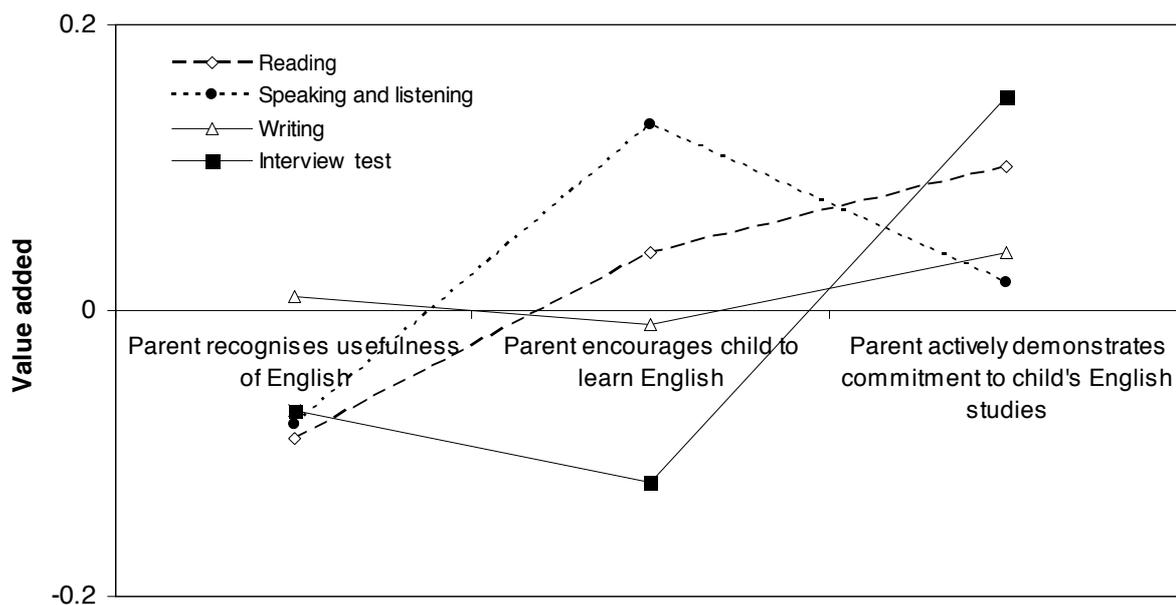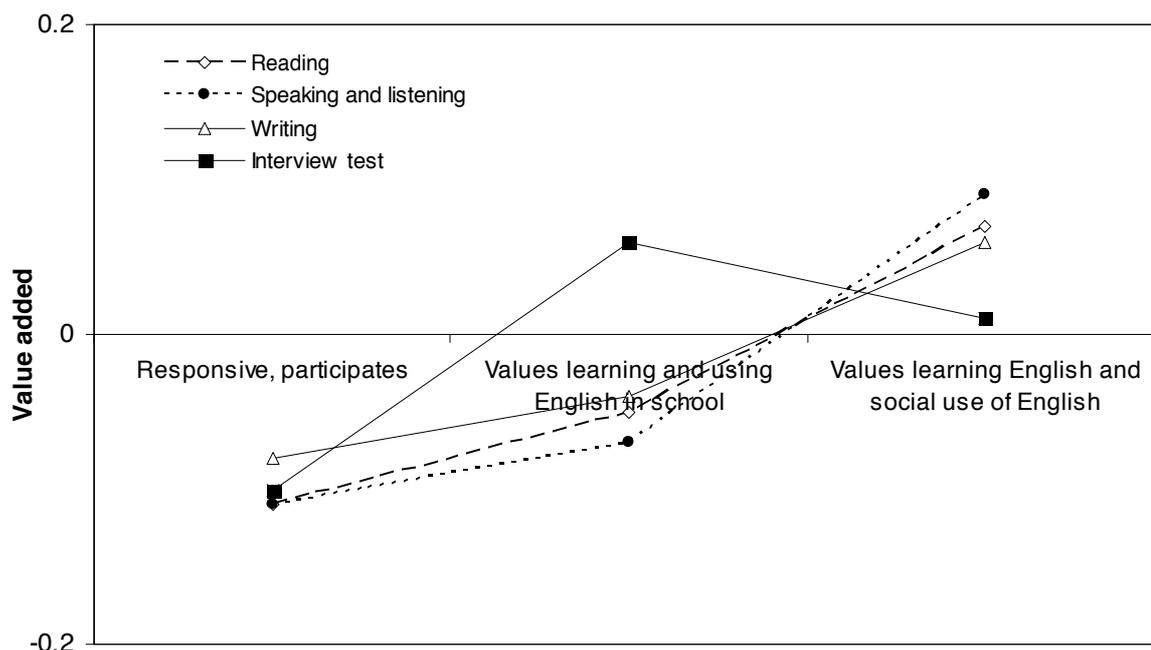

Parental attitudes to English for P1-P2 students

Figure 16. Relationships between student development and parental attitudes to English for students in P1 in 2004 and P2 in 2005.

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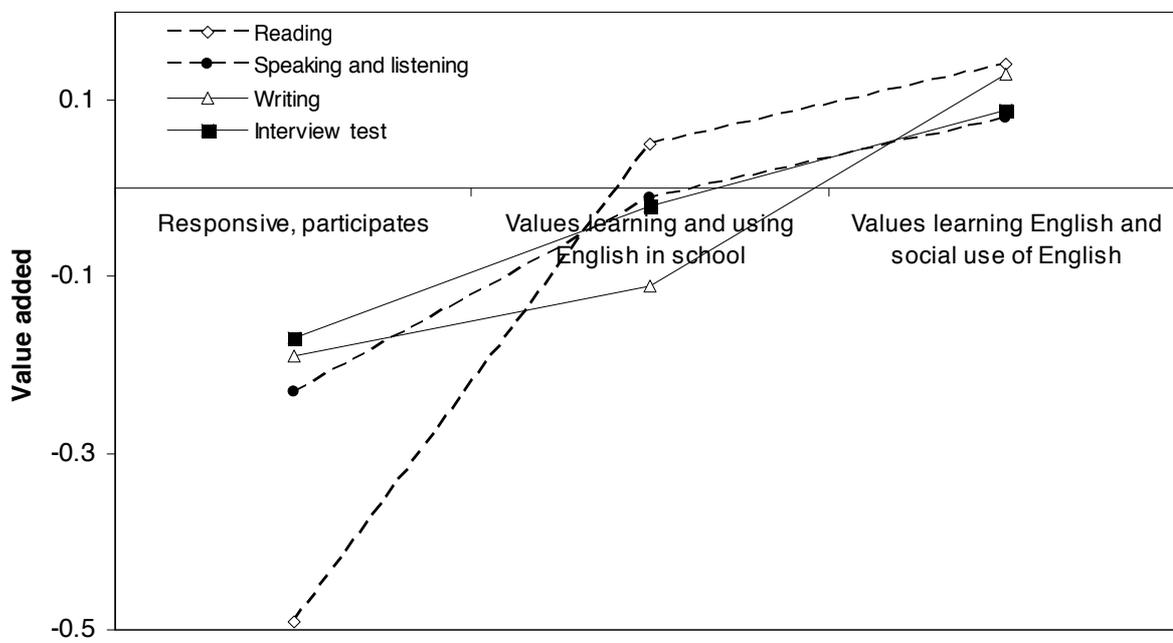**Parental attitudes to English for P2-P3 students**

Figure 17. Relationships between student development and parental attitudes to English for students in P2 in 2004 and P3 in 2005.

Student attitudes to English

Student attitudes to English for P1-P2 students

Figure 18. Relationships between development and attitudes to English for students in P1 in 2004 and P2 in 2005.

Figure 19. Relationships between development and attitudes to English for students in P2 in 2004 and P3 in 2005.

Conclusion

Of particular interest for this study was the influence on development of young students' English proficiency of personal or home background factors related to opportunities to use English outside school. Data were not collected about the socioeconomic status of the participating students. Rather, the home background data centred upon the likelihood that a student had multiple opportunities to use and practise English outside the context of the classroom and school, whether parents had the capacity to actively support and encourage English language studies at home, and whether the student indicated enjoyment of social use of English in addition to English studies at school. The emphasis was upon English as a tool or resource to be used, rather than simply a subject to be studied at school. The educational achievement of parents was strongly correlated with other measures of an enriched home background for English language studies, such as access to many books, presence in the household of an English-speaking maid, and supervision and assistance with English homework. This factor, in addition to gender, was controlled in the regression analysis of student performance, to examine whether the impact of personal and home background factors added further value to the development of proficiency among students as they moved from P1 to P2, or from P2 to P3.

Homes that were enriched in terms of support for English language studies were associated with higher levels of proficiency in the baseline assessments, but also added value to the student development in English language skills compared to students of similar baseline ability who did not have equivalent opportunities to practise and use their English at home. For students making the transition from P1 to P2, opportunities to speak English outside school and their own attitudes to the social use of English were particularly linked to the early development of reading and writing skills. For students who progressed from P2 to P3, their own attitudes towards English language studies and active parental support were important for the development of English skills across all domains. Students who did not express enjoyment of English classes were particularly likely to lag behind other students in development of English reading proficiency. For older students, parental encouragement

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that took the form of telling a child to work hard at English was less clearly related to positive outcomes than the active modelling of interest and enjoyment in English.

The research reported in this paper employed a range of student assessment approaches that were tailored to the demands of measuring language proficiency among very young students, and that were expected to be useful more widely than the project itself in future years. The instruments included descriptive profiles of progress in learning English, an interview test of spoken language, and background and attitude questionnaires. Emerging from the evaluation was the beginning of a more comprehensive understanding of the nature of English language development among Chinese-speaking students in Hong Kong primary schools and ways in which that development can be more effectively promoted. It is clear that home background and opportunities to practise English added considerable value when linked to attitude development. However attitudes appeared to have formed by the time the student finished P1 so early work in this needs to be addressed in the schools.

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