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ABSTRACT

This study examined the effect of an English intervention program on Singaporan pupils' proficiency in listening and spoken language skills in English and their native language. In 1966, the Singapore Ministry of Education instituted a bilingual school program to ensure that children developed a command of English and one native language. In 1983, the Institute of Education began a longitudinal study consisting of three phases. In the first phase, kindergarten children were tested for language, mathematics, general cognitive skills, and social behavior. In the second phase, teachers at nonprivate kindergartens received special training in language teaching. Teachers in one group were trained by institute staff; those in another group by supervisors at their local schools. Parent involvement in education is currently being studied in the third phase. The effectiveness of the teacher training intervention was assessed by means of a test of the language skills of children taught by the two groups of trained teachers studied in the second phase. Results indicated that these students made gains in language skills. Both groups of students made significant gains over a control group of children whose teachers had not received training. Gains made in knowledge of English words were exceptionally encouraging. However, the native language skills of children in the group whose teachers were trained by institute staff were adversely affected by the intervention. A reference list of 15 items is provided. (BC)

ENGLISH INTERVENTION IN BILINGUAL PRE-SCHOOLS IN SINGAPORE

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INTRODUCTION

For many years, English has been used as the principal medium of instruction in the majority of Singapore schools, but since 1987, with the establishment of a national school system, English is quite entrenched as the principal medium in all schools. The role of English as the major international language for commerce and technology is well recognized in Singapore. As Singapore advances towards modernity, parents are conscious of the marketable value of English mastery.

To provide a cultural ballast in the face of rapid modernization, the Ministry of Education in 1966 implemented the bilingual school policy. This is to ensure the preservation and promotion of the cultural and linguistic heritage of the different ethnic groups that make Singapore their home. In this way, every Singaporean will have sufficient command of two languages, with English as the "pivotal" language, and the "mother tongue" as the other language of communication with his own community. At this point, it is necessary to point out that the "mother tongue" here is referred to the other three official languages, namely Chinese (Mandarin), Tamil and Malay and not necessarily the language spoken by the children at home.

The high premium placed on the acquisition of English and the mother tongue is further demonstrated by the newly proposed 3-stage primary schooling announced by the Education Ministry to the press on 16 November 1990. The new system comprises a one-year preparatory programme (age five) which focuses on English and the mother tongue; a foundation period of four years (Primary 1 to 4) which concentrates on English, the mother tongue and Mathematics; and an orientation period of two years (Primary 5 to 6) which sees the addition of Science to English, the mother tongue and Mathematics.

The rationale behind the strong emphasis for every child to be bilingual seems practical and sensible. However, many children are facing difficulties in trying to cope with two languages. This is especially true of children from working class families where the language of communication is usually a dialect, not any of the four official languages (English, Mandarin, Malay, Tamil). They have to handle two foreign languages simultaneously. In 1985, the standard of English in schools was found to be "far from desirable" by the Ministry of Education (The Straits Times, 4 February 1985). It was reported in the Straits Times (25 March 1985) that "the first

brick of children's English is often laid in the kindergartens". Most children attending low-cost pre-schools organized by the People's Association (PA) and the People's Action Party (PAP) speak little or no English at home. This is compounded by the fact that many teachers teaching in these pre-schools are not very conversant with English.

THE IE-BvLF PROJECT IN SINGAPORE

In 1983, the Institute of Education (IE) in Singapore started a Longitudinal Project of three phases entitled, "A Study of the Cognitive and Social Development of Pre-school Children in Singapore". The project is funded by the Bernard van Leer Foundation (BvLF) in The Hague (Holland).

Each phase takes 3 years. Phase One (July 1983 - June 1986) concentrated on the collection of baseline data from which possible subsequent intervention strategies would be recommended. Phase Two (July 1986 - June 1989) focused on Centred-based Intervention Strategies. For Phase Three (July 1989 - June 1992), work is centred on involvement of parents in centre activities.

In Phase One, subjects were tested on languages (English and a second language), mathematics, general cognitive skills and pro-social behaviour. The results showed obvious discrepancies between pupils attending Private Kindergartens and those attending Non-Private Kindergartens (low-cost) especially in English Language tasks on Listening Comprehension and Verbal Fluency. While 16% of the childrens aged 6+ in Private Kindergartens failed to attain the 50% success in Listening Comprehension, the number in Non-Private Kindergartens was 52%. Verbal Fluency showed even poorer results (71% vs 93%). This has caused much concern as English is the medium of instruction in all schools. Hence it was decided that there was a strong case for intervention in English at the pre-school level for Phase Two.

In Phase Two, intervention took place in selected Non-Private Kindergartens. Intervention strategies involved training of teachers and supervisors from these centres over 2 years, equipping them with the necessary communication skills in language teaching. The intervention programme was set at two levels. Group 2 comprising 20 teachers and 20 supervisors was trained entirely by the Institute's Project staff. Group 3 consisted of supervisors trained in Group 2 and on completion of their Stage One training conducted similar workshops for the teachers in their own centres. A total of 126 teachers were trained by the participating supervisors.

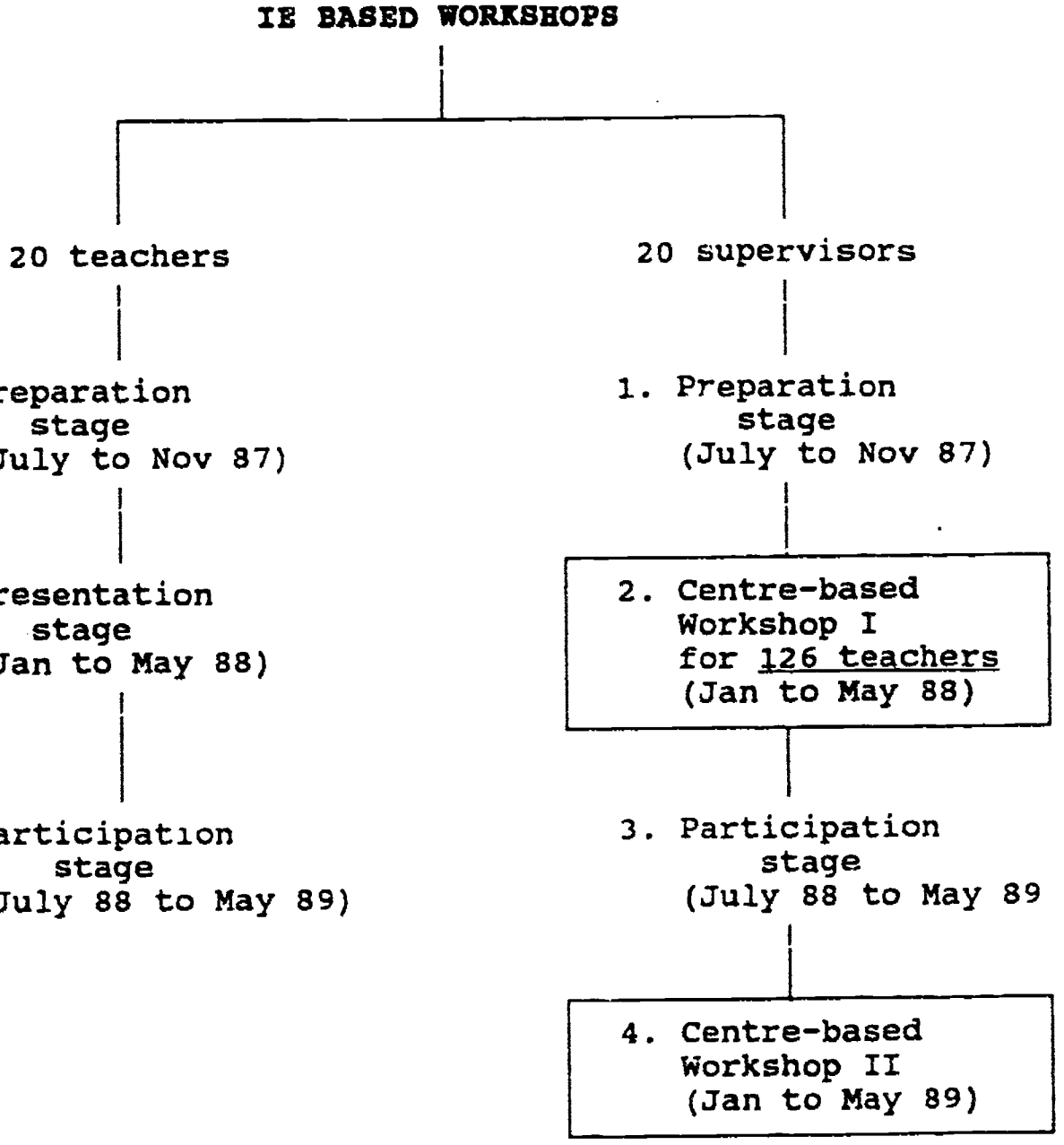
There were <u>three stages</u> in the training programme at the IE-Based Workshops.

i) <u>Preparation Stage</u> equipped teachers and supervisors with basic communication skills. (July to November 1987)

ii) <u>Presentation Stage</u> required participants to try out their newly acquired skills in their own classes. (January to May 1988)

iii) <u>Participation Stage</u> provided opportunities for participants to prepare lesson plans, teaching aids and relevant instructional materials. (July 1988 to May 1989)

<u>Centre-based Workshops</u> (January to May 1988 and January to May 1989) concentrated on basic teaching skills.



For each stage, there were weekly workshops for 10 weeks, followed by practice in the centres and monthly meetings in IE.

Teachers under training were monitored by the IE-BvLF Project staff. In addition, pupils of these teachers were also being observed by specially trained research assistants.

One of the evaluative measures of the intervention programme was to assess the pupils of the participating teachers on a series of English tasks. Empirical evidence from Phase One indicated the necessity for refining the language focus to the assessment of listening comprehension and productive English. The Phase Two assessment tasks represent the new emphasis on listening and speaking. There were altogether seven sub-tests (Appendix A)

- Interview
- Commands
- Word Knowledge
- Listening Comprehension
- Record of Oral Language
- Picture Narrative
- Picture Talk

The selection and ordering of the Language tasks is intended to reflect an understanding of developmental stages in language learning, beginning with the receptive language skill of listening comprehension and proceeding to the productive language skill of spoken oral communication. The rationale for the language tasks in Phase Two is presented in Appendix B.

The English Language tasks were also translated into parallel Chinese, Malay and Tamil tasks. These would offer a basis for the comparative study of subjects' proficiency in two languages as the bilingual policy is extended down even to the pre-school level.

A rating scale was also designed to measure the level of proficiency of a developing bilingual child's language. The following Five-Point Rating Scale was used for confirming the receptive level of language understanding and for classifying utterances produced on the production assessment tasks.

The IE-BvLF Five Point Rating Scale

1 - No response, appears to lack receptive understanding, inappropriate nonsense response, mechanical language responses.

2 - Receptive understanding, single word and limited single word responses.

3 - Strings of single words, two-word stage, high content word phrases.

4 - Expanded telegraphic speech, increased communication, is able to express/control ideas.

5 - Communication is not limited, grammatically accurate for age level in Native Speaking environment.

This paper attempts to examine the effectiveness of the English intervention in terms of pupils' proficiency in their listening and spoken language skills. It is also of interest to find out the possible effect the intervention has on the mother tongue.

Language teachers are very concerned with providing linguistically different children with an environment that will enable them to develop their mother tongue so that learning new concepts will not be hindered as they are increasingly exposed to a new language. Answers to questions like how should second language acquisition occur in young children and when should a new language be introduced to young children are alway eagerly sought by researchers.

Anderson (1980) cited many studies on small samples of very young children to show that young children were capable of learning more than one language when they were exposed to the languages by their parents. Many studies on early biligualism (e.g. Ruke-Dravina, 1967; Berman, 1979) have shown the positive aspects of early bilingualism, both for the ease with which it can be achieved and the superior level of attainment when compared with late bilingualism (Lenneberg, 1967; Doyle et. al, 1977). However, documented cases of the negative consequences of early bilingualism do exist (Lebrin and Hasquin, 1971; Skutnabb-Kangas and Toukamaa, 1976).

According to Titone (1972), although two languages can be acquired from the onset of language development, the optimal age for the introduction of early bilingualism would appear to be between four and five years, particularly when the parents themselves are not bilingual.

Research findings (Segalowitz, 1981) show that interference between two languages varies greatly in extent and kind, depending on the degree to which the two languages are used in the same or different environments and the degree to which the child's exposure to each is evenly or unevenly balanced. Madrid and Torres (1986) conducted a study on negation training with four-year-old children and the findings suggest that training in the second language may inhibit first language production when young children are not yet proficient in their first language.Chang (1986) found that the correlations between English and Second Language tasks were mostly negative for the pre-schoolers especially between the English and Chinese tasks. This may not be unexpected as English is phonics based while Chinese is logographic. The abysmal difference between the two languages is further compounded by the fact that both languages may be foreign to the children.

DATA COLLECTIONS

Data were collected on four occasions with a six months interval between them (between July 1987 and January 1989). But the attrition rate of subjects on the last test occasion was too severe for the data to be useful. Hence only the data of three Data Collections would be analysed and discussed in this paper.

Assessment was carried out by specially trained research assistants. Twenty pupils in each class taught by the participating teachers were tested on the English tasks. Of these twenty subjects, five were randomly picked to be tested on their second language. As most of the subjects were Chinese, the Second Language examined would be Chinese in this paper. Experimental classes were either Kindergarten One or Kindergarten Two classes.

Besides Group 2 (teachers trained by IE-BvLF staff) and Group 3 (teachers trained by their own centre supervisors) there was also a Control Group comprising four centres (three Non-Private and one Private Kindergartens). Like the experimental groups, 20 pupils in each control class were tested in English and five in the second language. But pupils in the Control Group were not tested on all four occasions, only during Data Collections 1 and 3. The Control teachers were ignorant of the Intervention Project and were not exposed to any form of training.

RESULTS

The results are analysed in the following sequence:

1) Gains made by Group 2, Group 3 and Control Group on the English Tasks.

2) Comparison of gains made by Group 2, Group 3 and Control Group on the English Tasks.

3) Comparison of gains made by Group 2 and Group 3 on the Chinese Tasks.

4) Comparison of performance on English Tasks and that on Chinese Tasks by Group 2 and Group 3.

ENGLISH TASKS (Refer to Tables 1a and 1b)

Group 2

For the first Data Collection, the mean score in Word Knowledge was a low 44.9 (maximum score = 84). Improvement was evident from the gains made in the second and third Data Collections. The final mean score was a respectable 63.1, a total gain of 18.2 points over the first test. All gains were statistically significant.

Subjects in Group 2 also showed improvement in their ability to understand Commands to be carried out. From an initial mean score of 15.6, they were able to move up to 19.5 (maximum score = 24). The gains made were also significant except for that between the second and third collections.

Results of the Listening Comprehension task supported the findings on Commands, showing steady improvement over the three Data Collections. There was a significant gain of 2.2 points between the first and third tests, from a mean score of 7.8 to 10 (maximum score = 12).

Though the performance of the group in ROL was rather poor, the improvement was significant over the three tests from 2 to 3.6 (maximum score = 9).

Compared to the tasks on Listening, the results on the production tasks were much less exciting. Though gains were also made, they were small. For the Interview task, there was a move from a score of 2.3 in the first test to 2.5 in the third test. Picture Talk and Picture Narrative involved getting the participants to describe a photograph and to narrate a story respectively. Subjects were not able to progress far in Picture Talk and were still making single utterances (Level 2). The picture of progress for Picture Narrative was not any rosier. However, the small gains in both tasks were statistically significant.

It is evident that the pupils in this group were not too fluent in their productive English but some progress was perceivable.

Group 3

Group 3 started on a higher baseline score in Word Knowledge, compared to Group 2. It had a mean score of 50.8 in the first Data Collection. Through the gain from the first to the third tests was less than Group 2 (14.5 vs 18.2), it is not unexpected as the ceiling effect would affect Group 3 with a initial higher score.

The improvement made by Group 3 in the listening tasks was very encouraging. There was a gain of 6.2 points in the Commands tasks by the third test over the first test. The gains were progressive and significant.

The results of the Listening Comprehension task indicate that the Group 3 pupils were indeed making progress in their listening skills (8.1, 9.8, 10.3), comparable to their Group 2 counterparts.

Between the first two Data Collections, with a time gap of six months, the pupils showed a leap in their ability to imitate and repeat English statements (ROL task). But the unexpected progress came to a halt by Data Collection 3 when there was a loss of 0.1 point. Taken as a whole, there was significant improvement made but the pupils were generally weak in this task.

In terms of their production skills, Group 3 subjects showed impressive improvement. For the Interview, the subjects moved up from 2.3 points, the start of Level 2, to 2.9 points in the Third Data Collection. Similar progress was also evident in the Picture Talk task, with the subjects scoring an average of 3.1 points in the Third Data Collection. This indicates that after a year of English Language intervention, most of these pre-schools were able to progress from single word utterances to high content word phrases.

The Picture Narrative task allows participants to fantasize and exercise their imagination. The pupils invariably performed better in this task. By Data Collection 3, the mean score has moved from 2.6 to 3.4, an unexpected feat for children from non-English speaking families. At this stage, most subjects were able to use phrases to communicate their needs and feelings.

Control Group

The Control Group was tested for Data Collection 1 and Data Collection 3. After a year, improvement was minimal for most tasks and none for some. A quick check would reveal that the initial scores for the Control Group were much better than Group 2 and Group 3. Moreover, the subjects in this Group included pupils from

a Private Kindergarten where most pupils come from high socio-economic and English-speaking families.

Comparison between Group 2, Group 3 and Control Group on the English Tasks (Table 1b, Fig. 1)

With the aid of Intervention, both Group 2 and Group 3 made impressive gains in Word Knowledge, compared to the Control Group (18.2, 14.5 vs 1.0). Group 2 showed the highest gain among the three groups.

For the tasks on Commands and Listening Comprehension which assess the listening skills of the subjects, significant improvement was also evident for the two groups with intervention. Group 3 appeared to be ahead of Group 2 in the Commands task. While the Control Group showed some gain in the task on Commands it was not statistically significant.

The Record of Oral Language proved to be the most "difficult" task as progress appeared to be slow. Nevertheless, both intervention groups were able to make significant improvement over the year, compared to the Control Group. The Control Groups had actually regressed slightly, as there was a loss of 0.1 point.

It was in the productive skills that the differences between the three groups became apparent. Group 3 whose experimenting teachers were trained by their own supervisors forged ahead and topped the tasks on Interview, Picture Talk and Picture Narrative in Data Collections 2 and 3. Initially, Group 2 subjects were comparable to Group 3 subjects but by the third Data Collection, the gains made by Group 3 were double those of Group 2. The Control Group had a comfortable lead in the first tests but did not show any outstanding gain in the re-test a year later.

Comparison of gains made by Group 2 and Group 3 on the Chinese Tasks (Tables 2a and 2b, Fig. 2)

Intervention in English had shown positive results for both Group 2 and Group 3. But is there any effect of this intervention on the mother tongue, Chinese, of most of the subjects?

Both groups started with respectable scores of over 60 in their Word Knowledge task but improvement made over the year was not significant for Group 2 and only significant for Group 3 for Tests 1 and 2. There was actually a loss for both groups between Data Collections 2 and 3.

For the listening skills, there were small but significant gains by both groups in the Listening Comprehension task, with Group 2 emerging with a higher gain (1.2 vs 0.9). Similarly, Group 2 managed to make greater improvement in the Commands task compared to Group 3. But it must be noted that Group 3 started with higher baseline scores.

Group 2 seemed to be better off initially in the ROL task but lost ground to Group 3 in the ensuing tests. But it was noted that both groups regressed in the third Data Collection though there was a general gain over the first test.

Startling differences were observed between the two groups in the tasks on Interview, Picture Talk and Picture Narrative. For all the three Chinese tasks, there were significant losses for Group 2 but significant gains for Group 3. Both groups started with a language competency score of Level 3 in the production skills. By Data Collection 3, Group 3 had moved up closer to Level 4 which indicated that the subjects were in control of a number of basic grammatical structures and had no difficulty in communicating their ideas. On the other hand, Group 2 had regressed down to Level 2 (single word utterances, simple verbal routines).

Comparison between performance on English and Chinese Tasks
(Figs 3 and 4)

In all the tasks, the subjects in both Groups 2 and 3 were more conversant with Chinese than English, thus achieving higher scores in all the Chinese tasks initially. But with the aid of intervention in English, both groups caught up in most skills except Oral Record of Language.

The gains made in the English Word Knowledge were exceptionally encouraging, a leap from the 40s to the 60s for both groups. In contrast, the gains made in the Chinese Word Knowledge were negligible.

Both Groups also made advancement in their listening skills in English, making significant gains in both the Commands and Listening Comprehension tasks. Though small gains were still evident in the Chinese tasks, it could be seen that there was some regression from the Second to the Third Data Collections.

For the production skills, Group 3 were making advancement in both English and Chinese but more so in English (in terms of gain scores) than in Chinese. In the case of Group 3, there was no apparent negative effect from the English Intervention on the acquisition of the Chinese Language.

The results were more disturbing for Group 2, especially in the area of production skills. The subjects undergoing the intervention in English had lost their fluency in Chinese. What has happened to this group whose teachers were directly trained by the IE-BvLF instructors? The same negative effect was absent from Group 3 whose teachers' training was handled by their own supervisors.

DISCUSSION

Comparison between the performance of the Experimental Groups and that of the Control Group on the English tasks indicates quite clearly that the English Intervention through training the teachers has achieved its objective in improving the proficiency of language skills in the subjects. Both the listening and spoken skills have shown significant improvement. Direct intervention on the pupils would probably have produced similar results. But equipping teachers with better communicative skills in English would have long term effects on elevating the quality of English teaching in these experimental pre-schools. From the feedback questionnaire, both teachers and supervisors claimed to have benefitted from attending the workshops. The participating teachers were now more confident in teaching English and their own spoken English. Similarly, the supervisors responded that they were now better able to interact with their teachers.

It came as a surprise that Group 3 out-performed Group 2, especially in the English production tasks on Interview, Picture Talk and Picture Narrative. The results confirmed the English findings that Group 3 pupils seemed to have benefitted more from the English Intervention. It is comforting to know that the Intervention had no drastic adverse effects on the learning of Chinese in Group 3. Group 3 pupils had actually shown improvement in their spoken Chinese during the period of English Intervention.

Group 2 was most adversely affected in their spoken Chinese during the English Intervention. The regression shown in this important aspect of language skills is quite disconcerting. However, no deliberate effort was made to investigate the reason underlying this decrease in the scores of the production tasks. There was no clear evidence to suggest that the English Intervention was the direct cause of this decline in Chinese spoken fluency. But we cannot dismiss the possibility that it could be one of the factors affecting the Chinese results.

Here are some plausible reasons why Group 3 turned in results superior to those of Group 2. For most English as well as Chinese tasks, Group 3 started with higher initial scores, pointing to a crucial fact that the subjects in Group 3 were probably better pupils. Having a firmer grounding in Chinese may have helped the Group 3 subjects to be better immuned to possible proactive or retroactive interference from the two languages.

Loper and Murphy (1985) have pointed out that there is a need to match intervention strategies to population. The supervisors were in a better position to understand the needs and concerns of the kindergartens under their charge than the IE-BvLF instructors. Hence they could adapt what was taught to them to suit the teachers and the pupils in Group 3.

It has also been found in an earlier study (Segalowitz, 1981) that interference between two languages depends on the extent of the child's exposure to each of the languages. It is highly probable that the Group 2 teachers were very zealous in their attempt to implement the intervention, giving their pupils' greater exposure time to English. The improvement in Word Knowledge, Commands and Listening Comprehension was indeed commendable. Being weaker pupils, the uneven balance in the opportunities to use the two languages could have led to the subjects becoming less fluent in their spoken Chinese.

The Hawthorne Effect could also be a factor to consider in Group 3. The supervisors who are "bosses" to the participating teachers would play a more significant role in the career development of these teachers than the IE-BvLF instructors. They would be supportive and encouraging to the teachers in their attempt to implement changes in class. On the other hand, some teachers in Group 2 had to contend with uncooperative head teachers who the teachers alleged were envious of them. They had to work with great constraints and little support.

CONCLUSION

Assessment of experimental pupils' progress in listening and spoken language skills shows that the English Language Intervention has achieved its objective remarkably well in improving the pre-schooler's basic language skills.

Centre-based Intervention through training teachers and supervisors has proven to be effective too in terms of staff development. IE-BvLF instructors trained 20 teachers and 20 supervisors. The supervisors in turn trained 126 teachers. The multiplier effect scheme makes the intervention more cost-effective.

Some other important factors affecting the success of an intervention have emerged from this study. The first factor which needs to be considered would be the ability level of the subjects. The subjects' level of receptivity and ability would determine the rate of progress and level of success of the Intervention. The tailoring of an intervention package to suit the teachers' characteristics and pupils' strengths and weaknesses would better insure the chances of success in the attempt. Implementers must also be alert to and able to monitor the possible side and negative effects from an intervention on other learnings. The relationship between the trainer and the teachers and the rapport between the teachers and their pupils must also be taken into consideration in the interpretation of the data.

The results of the intervention on the whole are promising and with some fine-tuning, we may be able to help other centres whose children are not doing too well in English!

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APPENDIX A

1.	INTERVIEW	--	° How old are you?
2.	COMMANDS	--	° Walk to the door ° Put the small book on top of big book
3.	WORKS KNOWLEDGE	--	° Animals, dog, mouse, cat ° Utensils: spoon, chopsticks, bowl ° Shapes: circle, triangle, square
4.	LISTENING COMPREHENSION	--	° Put a cross (x) on the picture ° with three boys ° that shows the Tan family waiting for the bus. Mr and Mrs Tan, and their children are going to the market. Mr Tan is carrying two bage.
5.	RECORD OF ORAL LANGUAGE (ROL)	--	° Siew Ling is drinking some milk ° 1 played in the park, then 1 went home.
6.	PICTURE NARRATIVE	--	° Waking up ° Gold Fish Bowl
7.	PICTURE TALK	--	° Fruit stall ° Watching TV

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APPENDIX B

. . . Hierarchy and Rationale of Revised and new Tasks in Phase 2.

Tasks	Rationale
° Interview	The interview provides a meaningful way to meet the child for the first time as well as a task around which language can be elicited. The language gathered in this task draws upon experiences familier to the child. Sample item: How old are you?
° Listening Commands	Based on Asher's theory of Total Physical Response, a child's understanding of speech/language precedes production. Understanding can be demonstrated through carrying out directions. The commands are sequenced according to length and number of directions. Sample items: 1. Walk to the door 2. Put the small book on top of the big book.
° Word Knowledge	This task is designed to assess the child's receptive and/or productive comprehension of common pre-school vocabulary items. It is useful to determine a child's range of vocabulary. Items have been carefully selected, based on cultural context. Fourteen groups of 6 items per group, making a total of 84 vocabulary items are found in this task. The original task had only 16 items. Sample groups and items: 1. Animals : dog, mouse, cat 2. Utensils: spoon, chopsticks, bowl 3. Shapes : circle, triangle, square

Tasks	Rationale
° Listening Comprehension	Rationale is the same as above. This task can be administered to a small group and hence allows for a more extensive range of listening comprehension items. Unlike the listening comprehension task in Phase 1, it does not involve production skills. Sample items Put a cross(x) on the picture 1. with three boys. 2. that shows the Tan family waiting for the bus. Mr and Mrs Tan, and their chi iren are going to the market. Mr Tan is carrying two bags.
° Record of oral language (ROL)	The rationale for using this task is based on the notion that during Language Acquisition, children go through a phase of language imitation. Research on language imitation suggests that while imitation is a part of language acquisition, true language learning only occurs when children begin to make generalization about the language, thus changing from imitation to self generated structures (one word/phrases). Sample items: 1. Siew Ling is drinking some milk. 2. I played in the park, then I went home.
° Picture Narrative	It assesses a child's ability to narrate a story based on a sequence of picture stimuli (4 pictures per story). The task provides a set of question prompts for the test to guide the child's story telling if the child is unable to generate his or her own narrative. Two sets of story cards are developed. Sample: 1. Waking up 2. Gold Fish Bowl
° Picture Talk	This is a more difficult task than Picture Narrative. The child is required to select and talk about what she or he sees in a photograph. The type of language expected from this task would be descripted. This is a modification of the original task in Phase 1. Two colour and two black/white photos are provided. Sample: 1. Fruit Stall (colour) 2. Watching TV

TABLE 1a: SCORES OF ENGLISH TASKS FOR 3 DATA COLLECTIONS

TASKS	DC I			DC II			DC III		
	Grp 2	Grp 3	Control Grp	Grp 2	Grp 3	Control Grp	Grp 2	Grp 3	Control Grp
WORK KNOWELDGE (max. score = 84)	44.9	50.8	58.0	54.4	60.1	-	62.1	65.3	59.0
COMMANDS (max. score = 24)	15.6	14.5	16.9	18.0	18.1	-	19.5	20.7	18.6
LISTENING COMPREHENSION (max. score = 12)	7.8	8.1	9.3	8.6	9.8	-	10.0	10.3	9.3
RECORD OF ORAL LANGUAGE (ROL) (max. score = 9)	2.0	2.3	3.4	2.6	3.8	-	3.6	3.7	3.3
INTERVIEW (max. score = 5)	2.3	2.3	2.6	2.4	2.6	-	2.5	2.9	2.7
PICTURE TALK (max. score = 5)	2.4	2.5	2.8	2.7	2.7	-	2.7	3.1	2.8
PICTURE NARRATIVE (max. score = 5)	2.5	2.6	2.8	2.8	2.9	-	3.0	3.4	3.0

Note:

DC1

n (Grp 2) = 106
n (Grp 3) = 154
n (Control) = 81

DC 2

n (Grp 2) = 87
n (Grp 3) = 177

DC 3

n (Grp 2) = 86
n (Grp 3) = 177
n (Control) = 100

TABLE 1b: GAINS IN ENGLISH TASK SCORES OVER 3 DATA COLLECTIONS

TASK		GROUP 2		GROUP 3		CONTROL	
	DATA COLLECTION	SCORE	GAIN	SCORE	GAIN	SCORE	GAIN
WORK KNOWLEDGE (max. score = 84)	1	44.9		50.8		58.0	
		(2-1)	3* 9.5	(2-1)	4* 9.3		
	2	54.4		60.1		-	
		(3-2)	2* 8.7	(3-2)	2* 5.2		
	3	63.1		65.3		59.0	
		(3-1)	4* 18.2	(3-1)	4* 14.5	(3-1)	1.0
COMMANDS (max. score = 24)	1	15.6		14.5		16.9	
		(2-1)	2* 2.4	(2-1)	4* 3.6		
	2	18.0		18.1		-	
		(3-2)	1.5	(3-2)	4* 2.6		
	3	19.5		20.7		18.6	
		(3-1)	4* 3.9	(3-1)	4* 6.2	(3-1)	1.7
LISTENING COMPREHENSION (max. score = 12)	1	7.8		8.1		9.3	
		(2-1)	2* 0.8	(2-1)	4* 1.7		
	2	8.6		9.8		-	
		(3-2)	4* 1.4	(3-2)	2* 0.5		
	3	10.0		10.3		9.3	
		(3-1)	4* 2.2	(3-1)	4* 2.2	(3-1)	0
RECORD OF ORAL LANGUAGE (max. score = 9)	1	2.0		2.3		3.4	
		(2-1)	* 0.6	(2-1)	4* 1.5		
	2	2.6		3.8		-	
		(3-2)	3* 1.0	(3-2)	-0.1		
	3	3.6		3.7		3.3	
		(3-1)	4* 1.6	(3-1)	4* 1.4	(3-1)	-0.1
INTERVIEW (max. score = 5)	1	2.3		2.3		2.6	
		(2-1)	0.1	(2-1)	2* 0.3		
	2	2.4		2.6		-	
		(3-2)	0.1	(3-2)	4* 0.3		
	3	2.5		2.9		2.7	
		(3-1)	* 0.2	(3-1)	4* 0.6	(3-1)	0.1

TASK		GROUP 2		GROUP 3		CONTROL	
	DATA COLLECTION	SCORE	GAIN	SCORE	GAIN	SCORE	GAIN
PICTURE TALK (max. score = 5)	1	2.4		2.5		2.8	
		(2-1)	2* 0.3	(2-1)	2* 0.2		
	2	2.7		2.7		-	
		(3-2)	0	(3-2)	4* 0.4		
	3	2.7		3.1		2.8	
		(3-1)	3* 0.3	(3-1)	4* 0.6	(3-1)	0
PICTURE NARRATIVE (max. score = 5)	1	2.5		2.6		2.8	
		(2-1)	* 0.1	(2-1)	4* 0.3		
	2	2.6		2.9		-	
		(3-2)	0.2	(3-2)	4* 0.5		
	3	2.8		3.4		3.0	
		(3-1)	4* 0.3	(3-1)	4* 0.8	(3-1)	0.2

t-tests

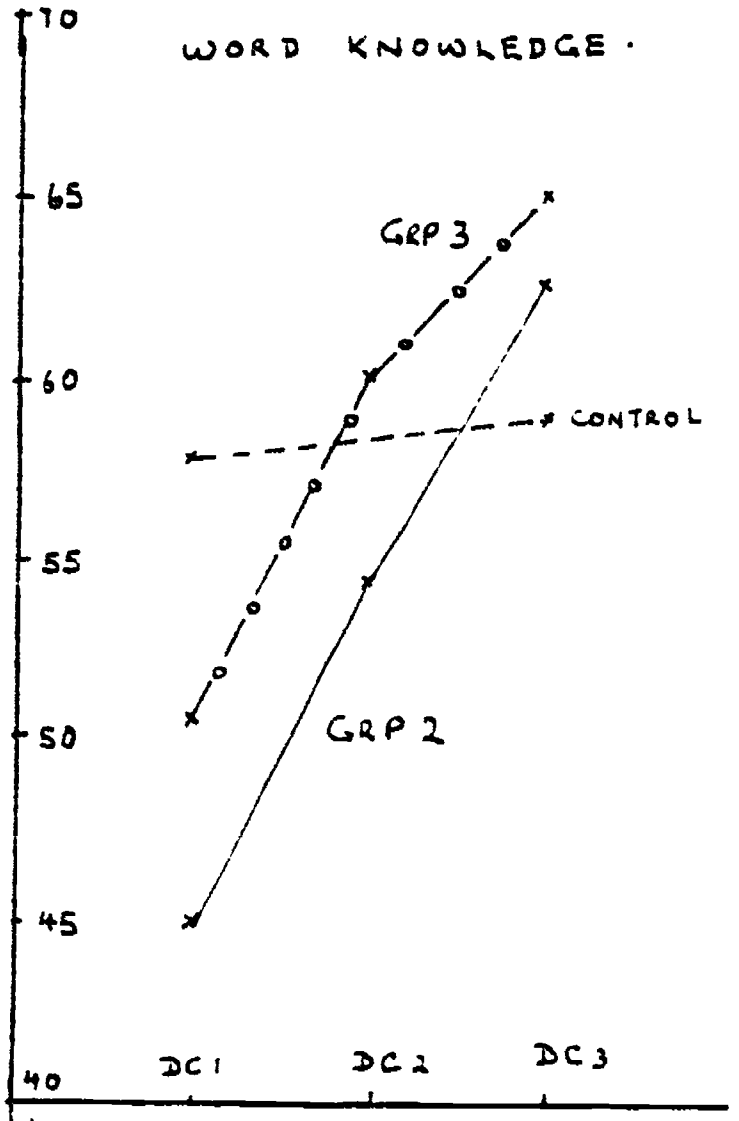
* <.05

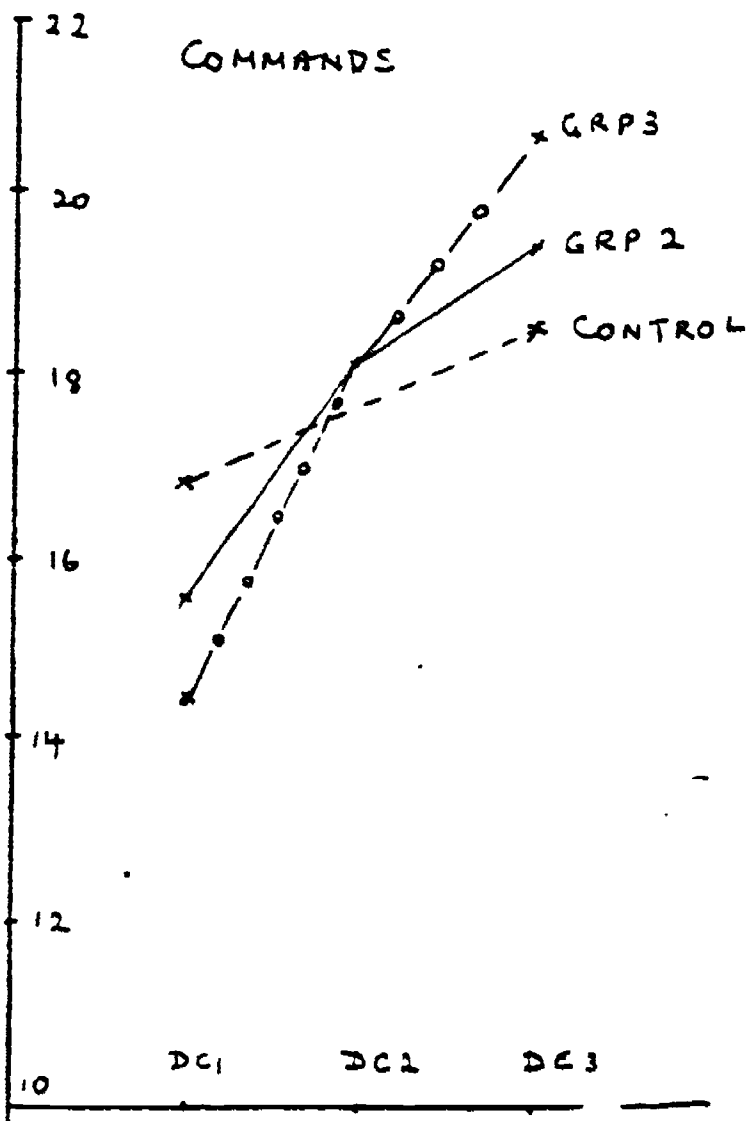
2* <.01

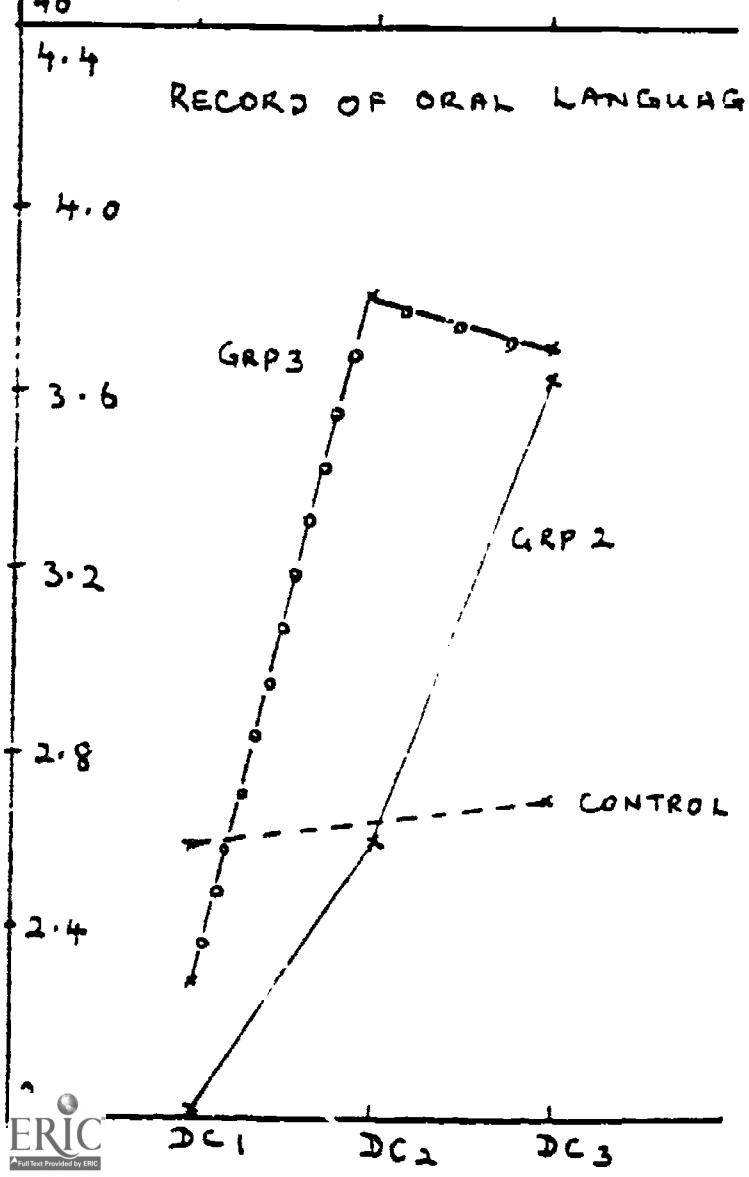
3* <.001

4* <.0001

FIG 1 : SCORES OF ENGLISH TASKS FOR 3 DATA COLLECTIONS







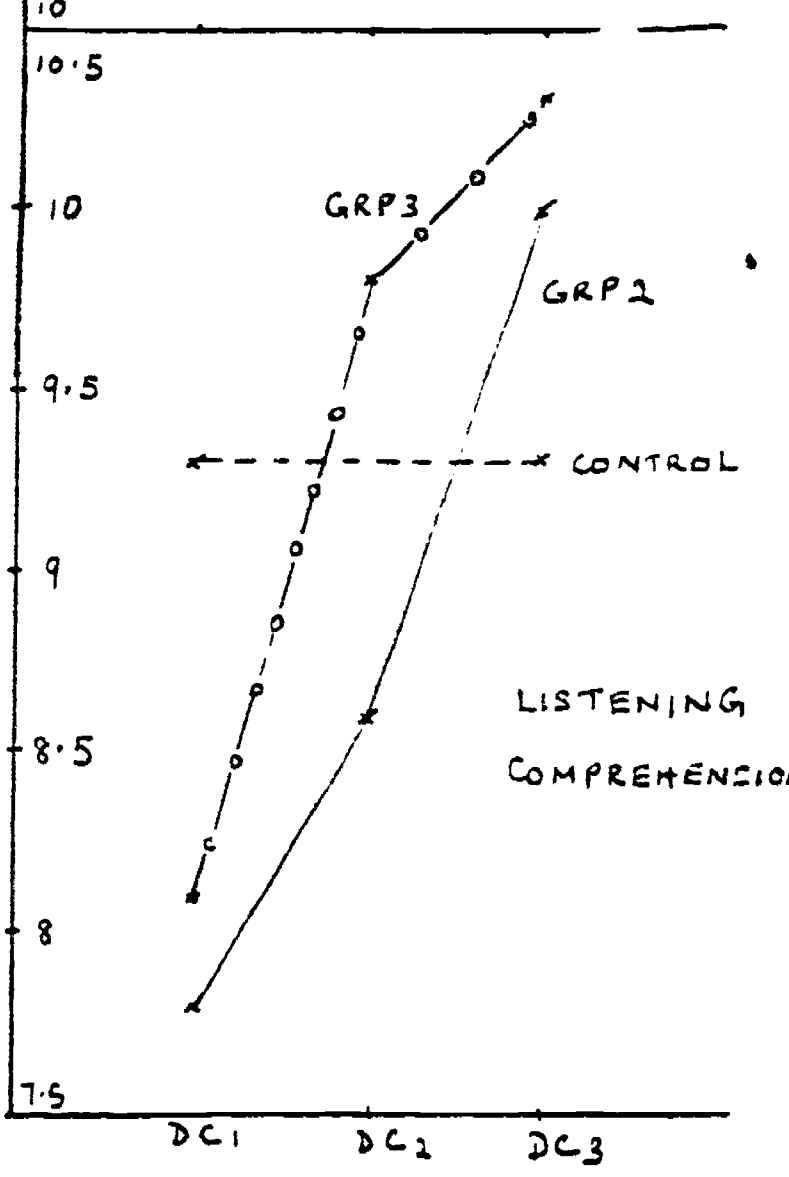
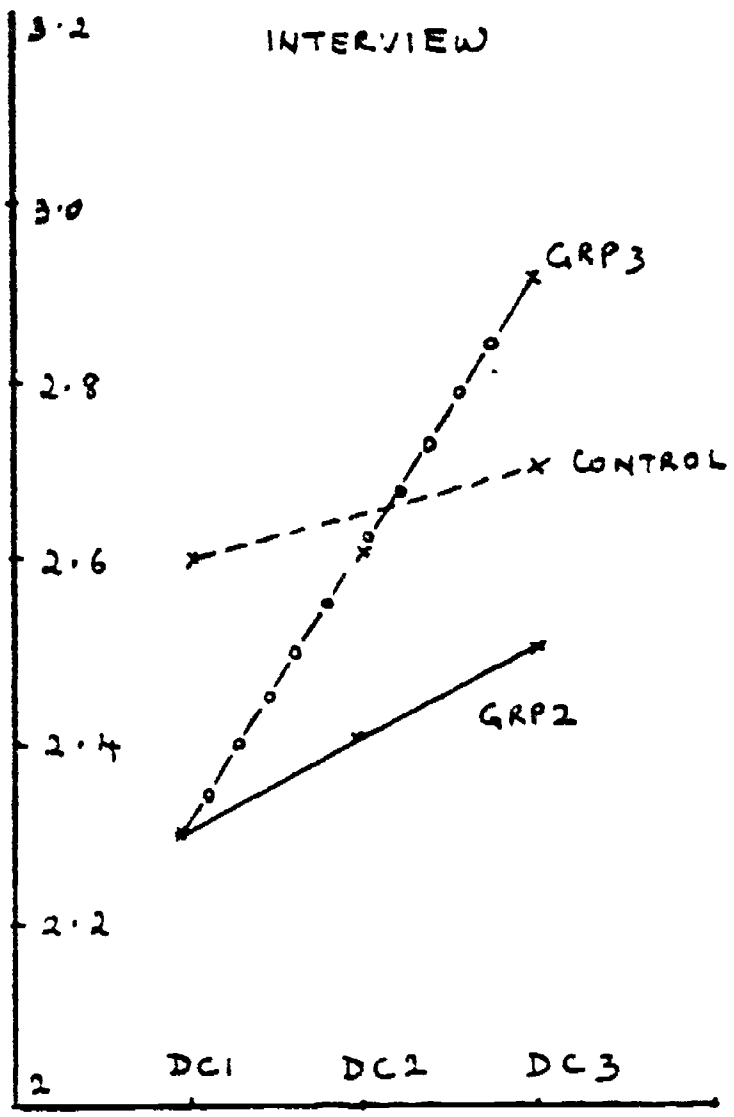


FIG 1 : SCORES OF ENGLISH TASKS FOR 3 DATA COLLECTIONS



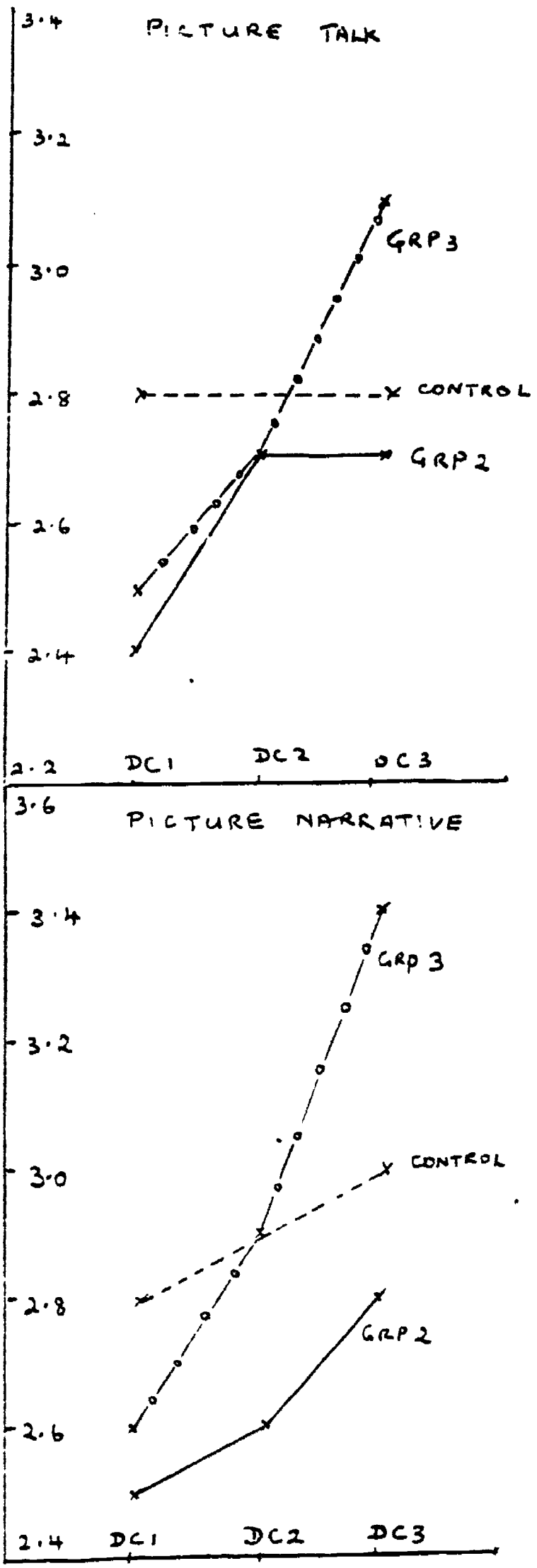


TABLE 2a: SCORES OF CHINESE TASKS FOR 3 DATA COLLECTIONS

TASK	DC I		DC II		DC III	
	Grp 2	Grp 3	Grp 2	Grp 3	Grp 2	Grp 3
WORK KNOWLEDGE (max. score = 84)	62.4	63.3	67.2	68.8	65.6	65.2
COMMANDS (max. score = 24)	20.4	21.1	21.9	22.2	22.0	22.2
LISTENING COMPREHENSION (max. score = 12)	9.1	9.8	9.7	10.9	10.3	10.7
RECORD OF ORAL LANGUAGE (ROL) (max. score = 9)	4.9	4.3	5.8	5.6	5.4	5.6
INTERVIEW (max. score = 5)	3.2	3.0	3.2	3.1	2.8	3.4
PICTURE NARRATIVE (max. score = 5)	3.4	3.3	3.5	3.3	2.9	3.9

Note:

DC1	DC 2	DC 3
n (Grp 2) = 60	n (Grp 2) = 25	n (Grp 2) = 44
n (Grp 3) = 68	n (Grp 3) = 60	n (Grp 3) = 89

TABLE 2b: GAINS IN CHINESE TASK SCORES OVER 3 DATA COLLECTIONS

TASK	DATA COLLECTION	GROUP 2		GROUP 3	
		SCORE	GAIN	SCORE	GAIN
WORK KNOWLEDGE (max. score = 84)	1	62.4		63.3	
		(2-1)	4.8	(2-1)	5.5*
	2	67.2		68.8	
		(3-2)	-1.6	(3-2)	-3.6
	3	65.6		65.2	
		(3-1)	3.2	(3-1)	1.9
COMMANDS (max. score = 24)	1	20.4		21.1	
		(2-1)	1.5*	(2-1)	1.1
	2	21.9		22.2	
		(3-2)	0.1	(3-2)	0
	3	22.0		22.2	
		(3-1)	1.6*	(3-2)	1.1
LISTENING COMPREHENSION (max. score = 12)	1	9.1		9.8	
		(2-1)	0.6	(2-1)	1.1*
	2	9.7		10.9	
		(3-2)	0.6	(3-2)	-0.2
	3	10.3		10.7	
		(3-1)	1.2*	(3-1)	0.9*
RECORD OF ORAL LANGUAGE (ROL) (max. score = 9)	1	4.9		4.3	
		(2-1)	0.9	(2-1)	1.3*
	2	5.8		5.6	
		(3-2)	-0.4	(3-2)	-0.2
	3	5.4		5.6	
		(3-1)	0.5	(3-1)	1.1*
INTERVIEW (max. score = 5)	1	3.2		3.0	
		(2-1)	0	(2-1)	0.1*
	2	3.2		3.1	
		(3-2)	-0.4	(3-2)	0.3*
	3	2.8		3.4	
		(3-1)	-0.4	(3-1)	0.4*

TASK	DATA COLLECTION	GROUP 2		GROUP 3	
		SCORE	GAIN	SCORE	GAIN
PICTURE TALK (max. score = 5)	1	3.4 (2-1)	4* 0.1	3.2 (2-1)	0
	2	3.5 (3-2)	4* -0.7	3.2 (3-2)	4* 0.4
	3	2.8	3* -0.6	3.6 (3-1)	3* 0.4
PICTURE NARRATIVE (max. score = 5)	1	3.4 (2-1)	2* 0.1	3.3 (2-1)	0
	2	3.5 (3-2)	2* -0.6	3.3 (3-2)	4* 0.6
	3	2.9 (3-1)	* -0.5	3.9 (3-1)	4* 0.6

t-tests

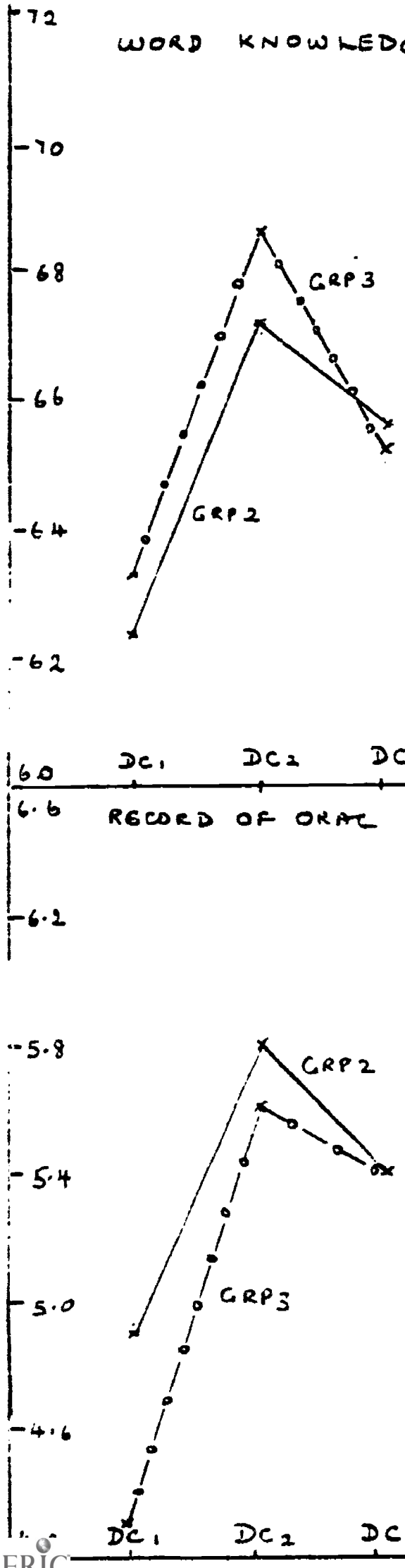
* <.05

2* <.01

3* <.001

4* <.0001

FIG 2 : SCORES OF CHINESE TAKS FOR 3 DATA COLLECTIONS



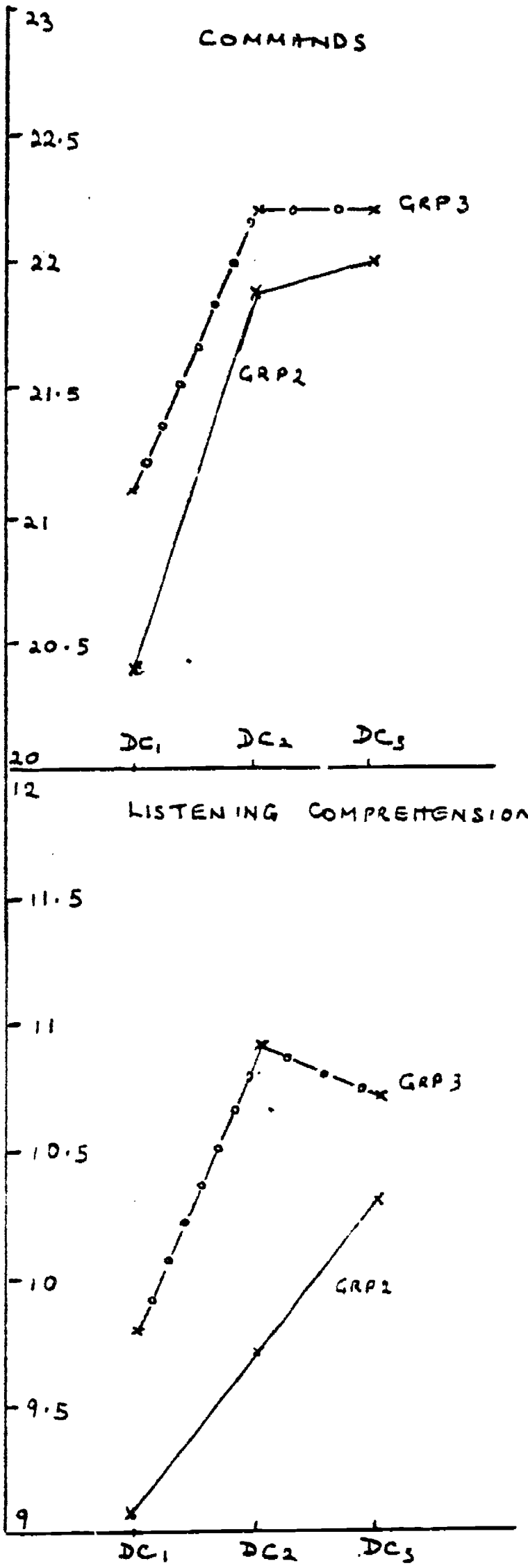
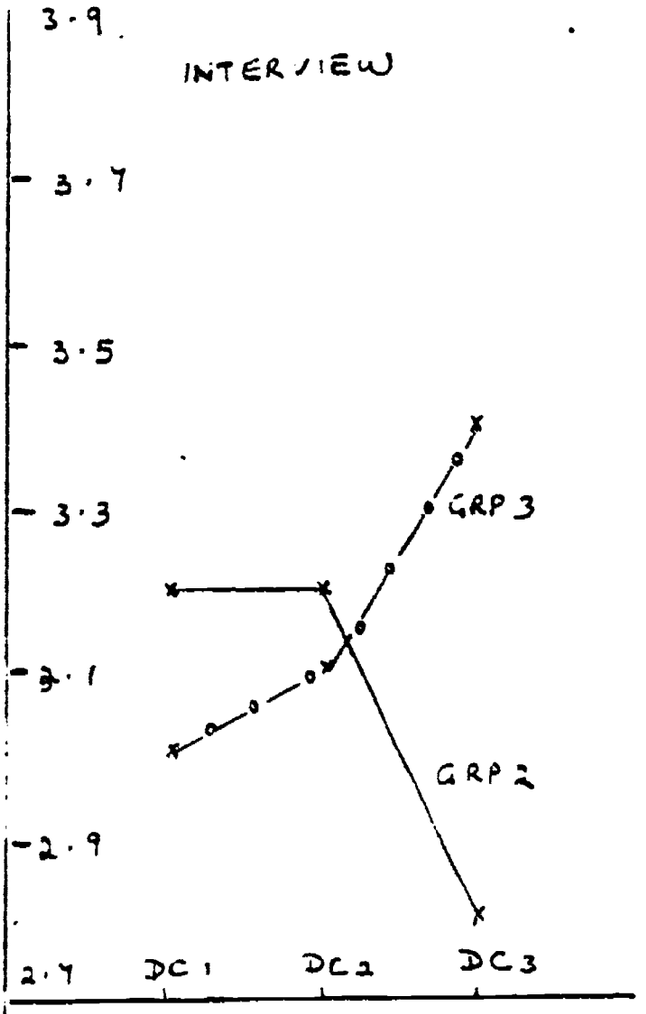
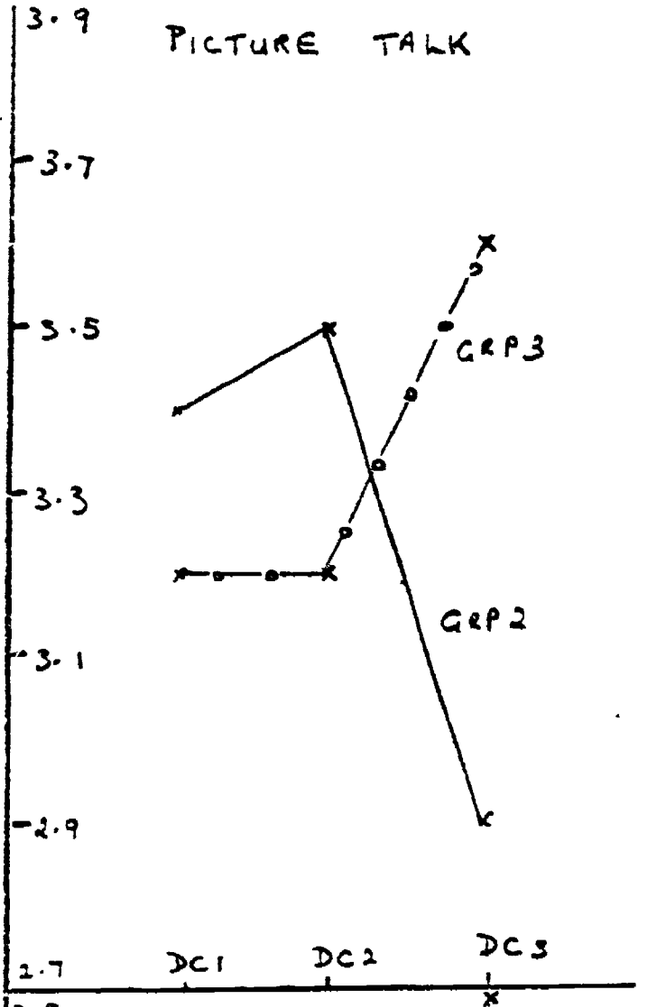


FIG 2 : SCORES OF CHINESE TASKS FOR 3 DATA COLLECTIONS





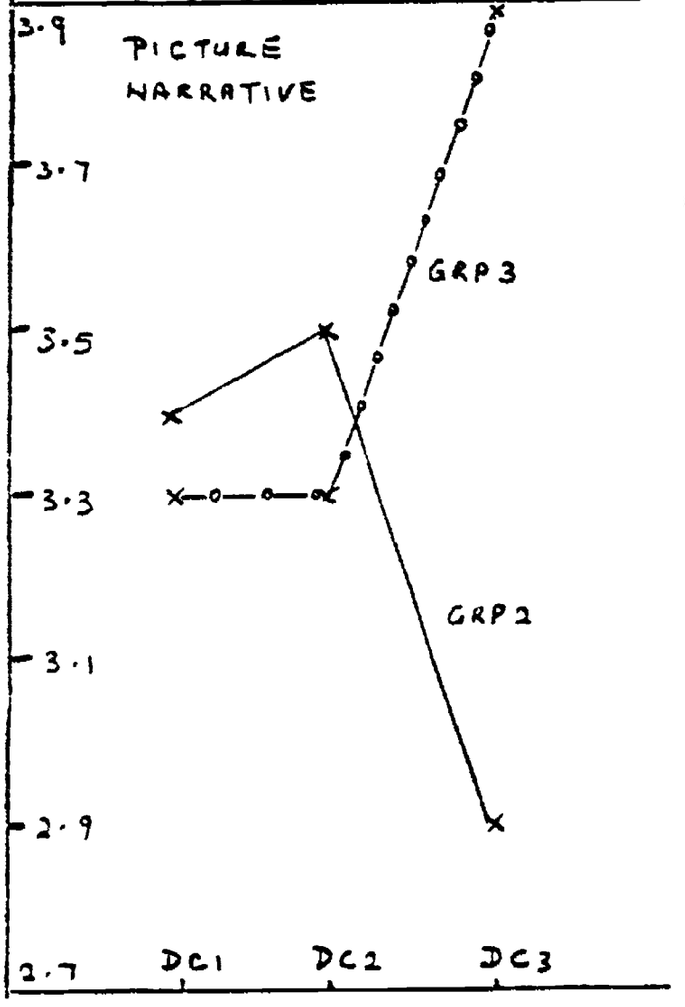
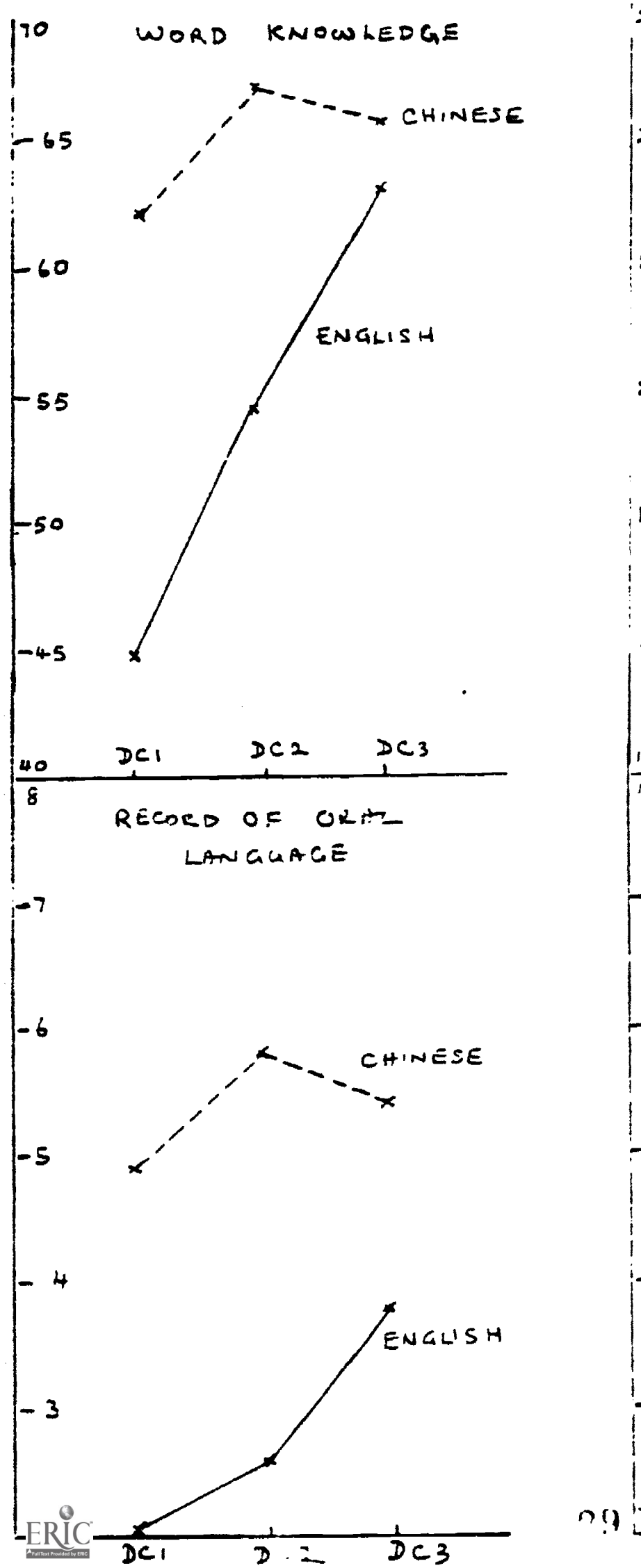


FIG 3 : GROUP 2 SCORES OF ENGLISH AND CHINESE TASKS FOR 3 DATA COLLECTIONS



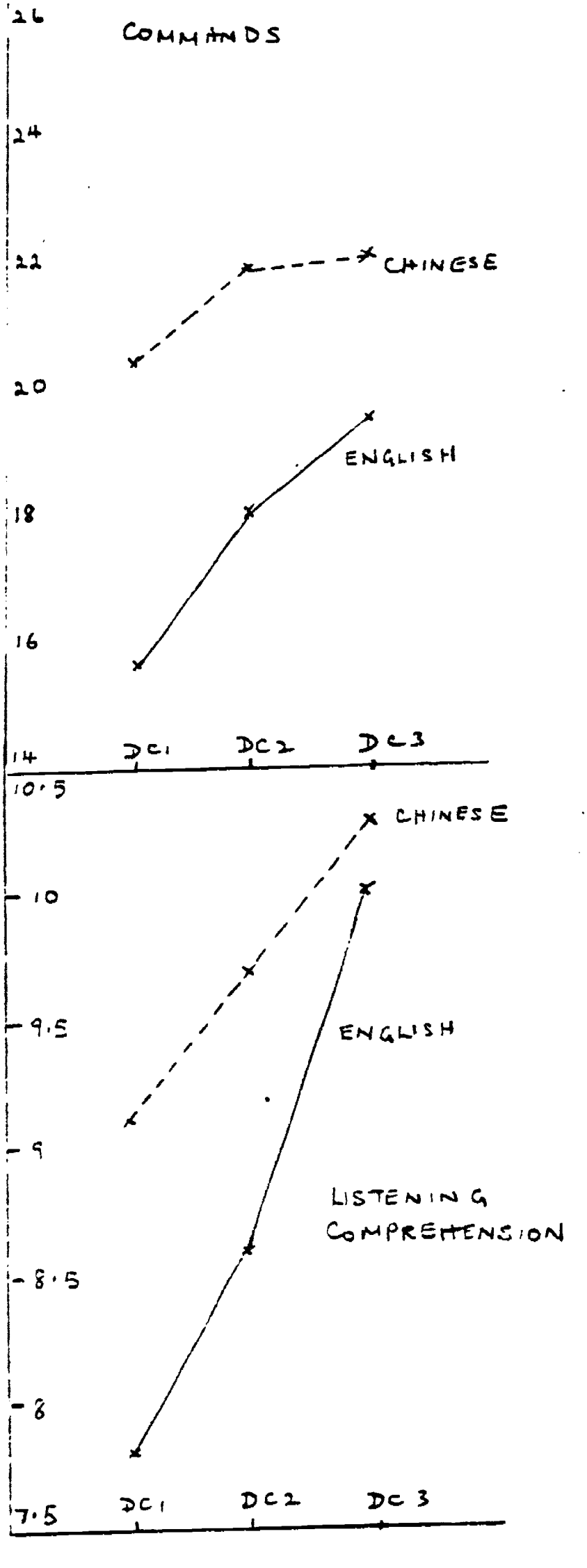
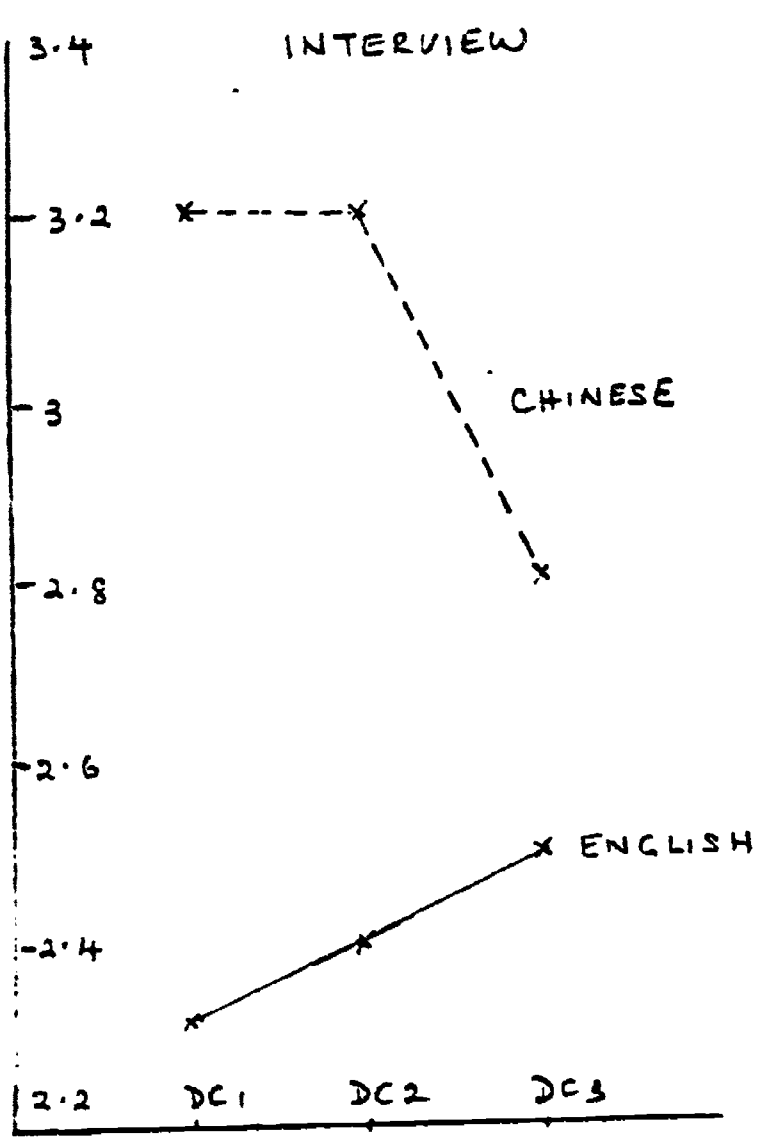


FIG 3 : GROUP 2 SCORES OF ENGLISH AND CHINESE TASKS FOR 3 DATA COLLECTIONS



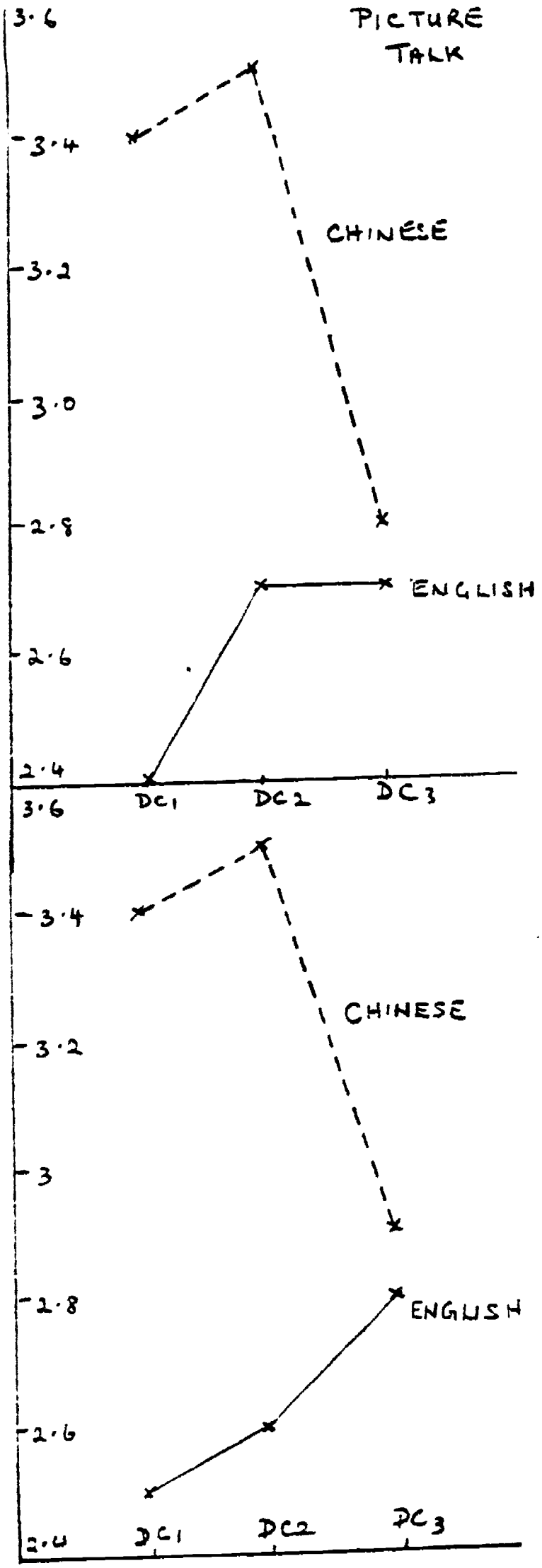
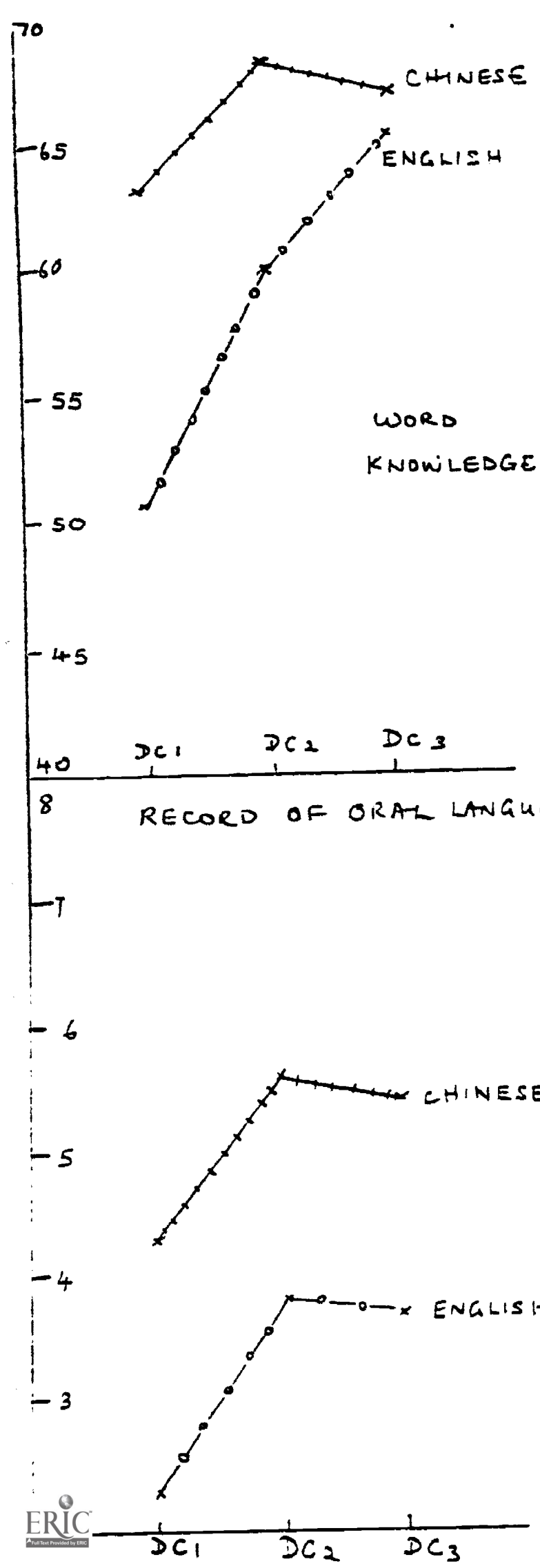


FIG 4: GROUP 3 SCORES OF ENGLISH AND CHINESE TASKS FOR 3 DATA COLLECTIONS



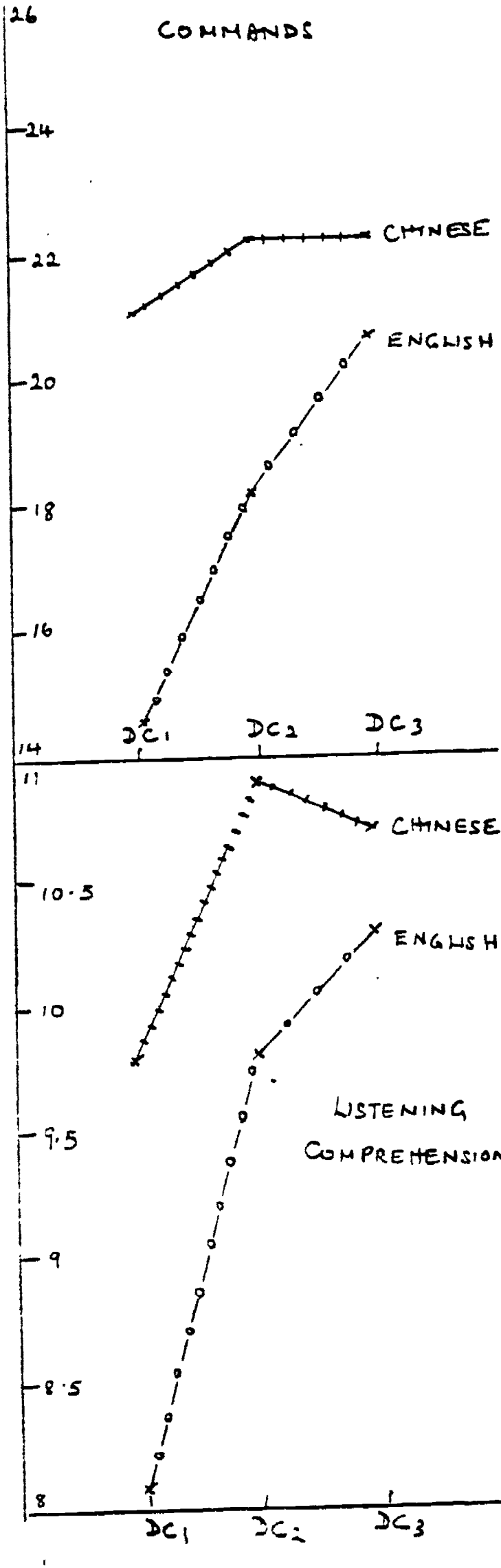


FIG 4: GROUP H SCORES OF ENGLISH AND CHINESE TASKS FOR 3 DATA COLLECTIONS