Effective Learning: A Deaf Sign Language Perspective

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Introduction

What is the most effective mode for developing deaf literacy? This issue is not new and has been the subject of much heated debate. Previous research showed that oral communication (OC) (i.e. speech only) or simultaneous communication (SC) (i.e. speak and sign simultaneously) is not necessarily effective enough in resolving the problem of low reading abilities among deaf children (Nicholas and Geers, 2003). Recently, the emergence of sign linguistics research has led educators to reassess the language of communication in deaf classroom learning situations, in particular, the role of natural sign language in developing deaf literacy in a written, spoken language. Researchers who support this view claim that this is the most effective means to achieve a higher level of deaf literacy and curriculum knowledge (Wilbur, 2000). In fact, it goes without doubt that the context for deaf learners to develop language is unique. Factors like the difference in the modality of communication, aural-oral vs visual-gestural, the lack of a written form of sign language, and an inadequate access to face-to-face interaction in the spoken mode, make the research on bilingual language development and deaf literacy a challenging issue.

In this paper, we attempt to explore the role of natural Hong Kong Sign Language (HKSL) in deaf education in Hong Kong, in particular, to what extent it influences deaf children in developing literacy in spoken Chinese. We focus on the issue of 'comprehensible input' in the language learning environment of the deaf. Our subjects came from a deaf school with students mostly with moderate to profound hearing loss, hearing teachers and deaf instructors. The paper summarizes an ongoing deaf literacy programme[1] which explores the pros and cons of adopting natural sign language as the mode of communication. It adopts a classroom process approach as methodology. The scope of investigation involves an analysis of a) the patterns of classroom interactions; b) the acceptance of sign language as the mode of communication among hearing teachers, deaf students and parents, as well as deaf instructors, and lastly; c) constraints of implementing natural sign language in the school situation.

The Rise of Sign Linguistics Research

Sign linguistics research has a short history for about forty years. Before its emergence, the primary goal of deaf education programmes was the acquisition of speech and lip-reading. Other academic abilities, such as general knowledge, were considered less important than oral skills. In the late nineteenth century, sign language was devalued and discredited, to the extent that not only did schools prohibit sign language among deaf children, but scholars lost interest in it (Baynton, 2002). This point was even well illustrated by Edward Sapir (1921), who stated that 'speech as dominant'. As a result, linguists and educators for deaf children generally believed that sign languages were not a true language, and that sign languages would not be a suitable tool for helping deaf children in achieving their educational goals. Sign languages were viewed as a pictorial, gestural language, which is inferior to speech.

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With the work of William C. Stokoe from the early 1960s, understanding and attitude towards sign languages started to change throughout the U.S. Linguists started to ask questions on: 1) whether sign language is a natural language, 2) whether sign language is analyzable (i.e. able to be broken down into smaller units), 3) whether sign language has grammar different from that of spoken languages, and 4) whether deaf children can acquire sign language in the way hearing children do to spoken languages. Stokoe's works illustrated that sign languages could be analyzed linguistically scientifically, and that signs are composed of smaller units, namely, handshape, location and movement. He had convinced the linguistic circle that sign languages had internal structure, but not merely a visual code for spoken languages (Klima et al. 1979). His work also invited research into sign language acquisition by deaf children (Collins-Ahlgren, Marianne 1975, Nickerson 1978, Schlesinger 1978, Volterra 1983). The findings showed that, given the abundance of natural sign language input, deaf children develop knowledge of sign language with the same quality and quantity as hearing children acquire spoken languages.

An impact of sign linguistics research is that natural language does not necessarily imply the use of speech. The only difference between sign and spoken languages is the modality in which language is being transmitted (Wilbur 2003). With sign language, transmission of language involves the hands and other articulators (i.e. facial expressions) and messages are perceived by eyes. In fact, brain images show that deaf signers and hearing people share the same cognitive functioning whether they sign or talk.

Another impact of sign linguistics research is a better understanding of the various manual systems of communication, i.e. natural sign language as against other forms of manual communication system like signed Chinese language or simultaneous communication. It is well understood that not all deaf people use natural sign language such as HKSL. Deaf children of deaf parents only account for 5-10% of all deaf children (Wilbur 2000). Those deaf children who have hearing parents have limited access to natural sign language and they communicate in other forms of signs. One form is a signed spoken language, an artificially created signing system to accommodate speech articulated in a way which is different from a natural language system. For example, the Chinese for 'happy' is 開心 which literally means 'open-heart'. Signed spoken Chinese follows this word order with individual signs for 'open' and 'heart'. At the sentence level, signed spoken Chinese for '我是男人' would be 'I BE MALE PERSON', which is different from natural HKSL which will be glossed as 'I MAN'. A comparison shows that an artificially created sign '是' and a redundant sign PERSON have to be in place.

Another form of manual communication system is simultaneous communication. Simultaneous communication is composed of two parts, signed Chinese and spoken Chinese. This communication mode is also called 'sign-supported Chinese'. The rationale of adoption is that deaf children who are exposed to speech and signs at the same time would develop their speech and lip-reading naturally, so extra speech training can be avoided. Hence, simultaneous communication has similar word order of the spoken language. However, observations are that signs tend to be dropped when there are mismatches between the phonological systems of spoken Chinese and sign language, or when no sign equivalents are identified.

Implications on Deaf Literacy Research

Researchers who worked on deaf literacy reported that deaf children's reading ability is significantly below their hearing counterparts (King & Quigley 1985, Paul & Quigley 1994; Quigley and Kretschmer 1982, Quigley and Paul 1984, Wilbur 1979, 1987). How to enhance language development has always been the task of a lot of educators. From a linguistic perspective, it is known that for successful language acquisition, one must be exposed to natural linguistic input that is communicatively, meaning oriented, and comprehensible in nature (VanPatten 1995, 1996). VanPatten listed three essential criteria: 1) the learner must interact with the input to maximize language acquisition, 2) the input must not only be comprehensible, it must be comprehended with ease, 3) the degree and quality of language acquisition is partially determined by degree and quality of input received. Vernon and Koh (1970)

reported that deaf children of deaf parents, who have early exposure to ASL as first language, were superior to deaf children of hearing parents in the aspects of reading, vocabulary and written language. Newport and Meier (1985) reported that a fully developed language provides normal cognitive development within children's critical period.

This perspective of language acquisition research provides a challenge to signed spoken language or simultaneous communication due to the absence of a natural linguistic representation. Wilbur and Petersen (1998) reported that in simultaneous production, speech duration increases, and speech is even distorted because of the interruption of the signing system.

These studies reveal that natural sign language could be a stronger, supporting language for deaf children's development of cognitive, conversational and social skills; and more importantly, for the development of reading and writing skills in a spoken language. In a reading process, deaf students are expected to make use of a set of skills such as word identification skills, word knowledge, sentence structure, background knowledge, and the reading text itself. Various researches have been reported on the positive effects of natural sign language on the development of reading skills in a spoken language (Hirsh-Pasek & Treiman 1982; Miller 2002; King & Quigley 1985; Paul 1998).

Cummins' Linguistic Interdependence Theory

Cummins' Linguistic Interdependence Theory (1981, 1986) argues that 'a common underlying proficiency across languages allows for positive transfer to occur, if there is adequate exposure to the second language and motivation to learn it.' In other words, achieving a high level of proficiency in natural sign language encourages positive transfer of common proficiency to a second language, which may ultimately support the development of second language literacy. Another advantage of natural sign language is that deaf children should be able to use sign language not only as a means for basic personal communication, but also as a tool for classroom, academic discussions among students and teachers, activation of background knowledge, setting up inferences in reading comprehension, and other high-order skills that are needed to learn a second language.

However, high proficiency in natural sign language does not guarantee success in second language literacy. It is the quality of communication that counts. Cummins(1988) suggested that proficiency in a second language is not simply a by-product of time spent on the target language; in order to develop conversational and academic second language skills, learners must be exposed to sufficient comprehensible input in the target language. In other words, linguistic input must be comprehensible, meaning-oriented, and interesting enough to motivate learning.

A Brief Introduction to Deaf Education in Hong Kong

Deaf education in Hong Kong tends to adopt an oral mode of communication although schools are free to choose the medium of instruction. There is a heavy emphasis on speech training and manual signing in whatever forms tend to be prohibited in the classroom. However, sign communication among deaf students during recess, lunch and after school period is common.

Hong Kong deaf children have low reading proficiency than that of hearing children. According to observation and comments from schools, deaf students lack motivation to process written texts while they enjoy graphics, pictures and comic books. Generally speaking, parents and teachers of deaf students hold a negative attitude towards natural sign language. Misconceptions about natural sign language such as 'sign language has no grammar'; 'sign language is merely gesture' are common. Most teachers reject the use of sign language in communicating with deaf students. Deaf teachers are rare because they can do little to promote deaf students' speech development.

The Project

In September 2002, a pilot study that attempted to examine the effect of using HKSL to support the development of deaf literacy commenced in a local deaf school. A second goal of the project was to promote the use of natural sign language in deaf education. The project was the joint effort of the local deaf school, the Audiological Services of the Education and Manpower Bureau (EMB), HKSAR and a team of sign language researchers from the Chinese University of Hong Kong.

The research project aims:

1) to help deaf students develop an interest in reading Chinese text;
2) to explore the effect of adopting Hong Kong sign language in reading activities;
3) to raise the school's awareness regarding natural sign language in deaf children's learning process, and,
4) to nurture the concept of partnership between deaf adults and hearing deaf school teachers.

The research project has the following components:

1) A sign-supported reading period, once a week, for all grades in the deaf school;
2) Workshops for deaf instructors;
3) HKSL training for deaf school students, parents, teachers, as well as hearing secondary school students from the neighbourhood schools;
4) Seminars on HKSL and its role in deaf education for deaf school teachers and parents; and,
5) The adoption of HKSL as the medium of instruction in regular Chinese classes for primary 3 and 4.

Throughout the three-year research period, a HKSL supported reading programme, deaf awareness seminars for deaf school teachers and seminars on skills for enhancing reading for deaf instructors were implemented. In the second year, the programme was extended to implementing HKSL training for hearing parents of deaf children. In the third year, HKSL training was also arranged for deaf students, hearing teachers and hearing students from the neighbourhood. Experimental Chinese lessons using HKSL as the medium of instruction were conducted in year 3. At the end of each year, an evaluation was conducted in order to collect opinions from teachers, deaf instructors, parents, and students.

Evaluation

The project took various forms of evaluation. In this paper, we will focus on the results of year 1 and 2 based on the questionnaire surveys on the attitudes of deaf students, teachers and deaf instructors towards the adoption of HKSL in the reading activities. A 5-point rating scale was used in the questionnaires. In the following graphs, scores ranging between 5 and 1, 5 being 'strongly agree', 1 being 'strongly disagree'.

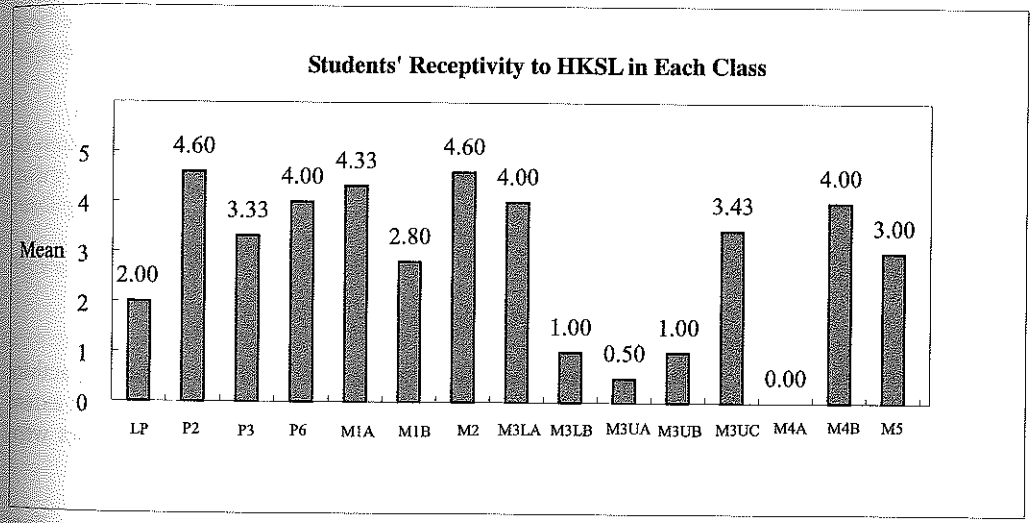
For the students, we focused on their interest in reading and their preferred reading materials, their receptivity to the reading activities and perception of using HKSL as a tool for comprehending written Chinese and communication in a classroom context. For the hearing teachers and deaf instructors, we focused on the planning and design of the reading activities. A second survey was conducted at the end of the second year to evaluate the effectiveness of using HKSL in raising deaf students' interest in reading and supporting reading comprehension.

Results and Discussion

During the first year of the project, questionnaires and interviews were conducted with deaf students, teachers and deaf instructors to collect their views and attitudes towards the adoption of HKSL in a deaf school setting.

Deaf students' attitudes were important for examining whether the classroom activities suited the HKSL context. From the classroom observation, students' comprehension of HKSL as a medium of communication in the reading activities was generally high (Tang and Lam 2003). 99.47% of the tokens were student talk in HKSL. When we examined the students' response through the questionnaire survey, we found that the degree of HKSL comprehension varied among the groups of students. Figure 1 shows that students of primary two and secondary two could comprehend HKSL well in the reading lessons while students from secondary 3 and 4 showed a low degree of understanding of HKSL. An interview aftermath revealed that some of the students were joining the deaf school only at secondary three, and they came from mainstream hearing and oral education with no exposure to sign language.

Figure 1. Students' comprehension of HKSL



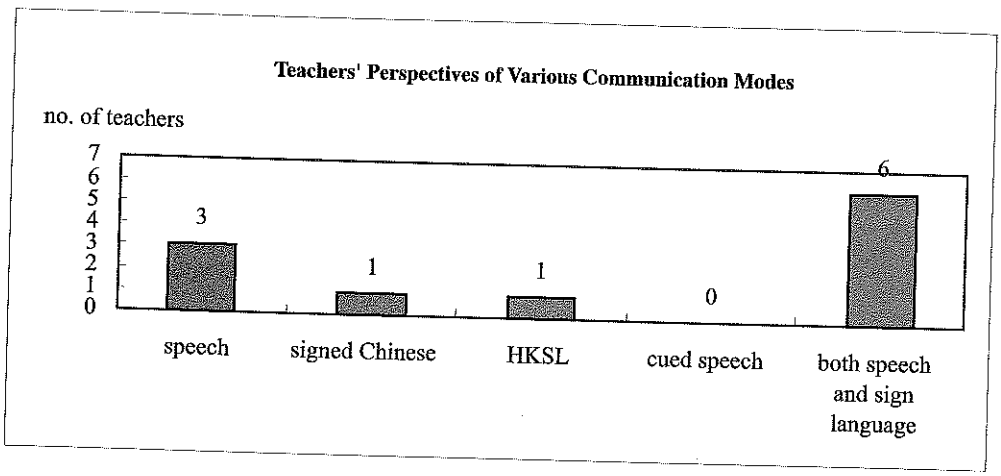
When asked which modes of communication they found most comfortable in the interim survey of year 1, a large portion of students (57.69%) indicated that they preferred using both speech and signed Chinese in the lessons. 21.79% preferred using HKSL and 20.51% preferred speech in the lessons. In the year-end survey, students' attitudes towards the communication modes changed slightly. Only 4.55% of students preferred speech and signed Chinese, 4.55% preferred speech and HKSL, 23.86% preferred speech only, 23.86% preferred signed Chinese only, and 22.73% preferred HKSL only. The results show that the deaf students' preference was quite diverse. However, it is worth noting that the majority of deaf students preferred the teachers to use either speech, signed Chinese or HKSL alone. Only a small portion of students preferred the teachers to a combination of communication modes simultaneously. In addition, some students pointed out that they chose speech for the teacher because they thought that the teacher was good at speech rather than signing. When the teacher spoke and signed at the same time, they still lipread the teachers' speech because they could not comprehend the teachers' signing. So the students thought that it was better for the teachers to speak rather than sign.

The result here may therefore reflect students' assessment of teachers' use of communication modes rather than their genuine preference.

However, the teachers' views towards HKSL were different. At the beginning of year 1, almost half of the teachers (45.45%) thought that the current project did not fit the deaf school because students needed to know oral language as well. In the interim survey, one teacher observed that students could express more in HKSL. Yet, more teachers focused on the role of HKSL in improving deaf students' Chinese ability. They thought that HKSL could not be a means to improve Chinese proficiency and therefore teachers should adopt simultaneous communication. Some teachers also suggested the deaf instructors to use signed Chinese.

In order to examine further deaf school teachers' acceptance of HKSL as a means of deaf communication, a survey was conducted at the end of the first year.

Figure 2. Teachers' attitudes towards the modes of communication



Teachers' attitudes towards HKSL were crucial in defining the role of HKSL in reading activity. From the deaf students' results, HKSL could play a role in promoting reading. However, to what extent could HKSL help students in the reading process? Deaf students, teachers and deaf instructors were therefore asked whether HKSL could help comprehend vocabulary and sentences in Chinese.

Students generally thought that HKSL could help them to comprehend Chinese vocabularies. They thought that HKSL played a less important role in the comprehension of Chinese sentences.

Figure 3. HKSL in

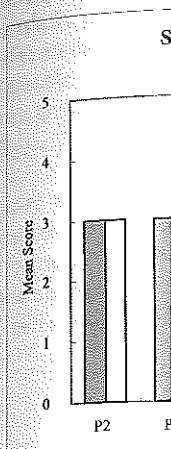


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Figure 4. Interest

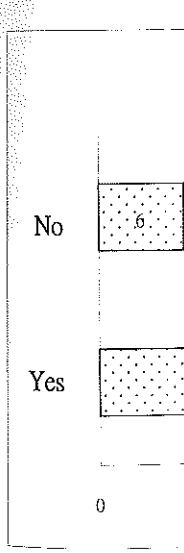

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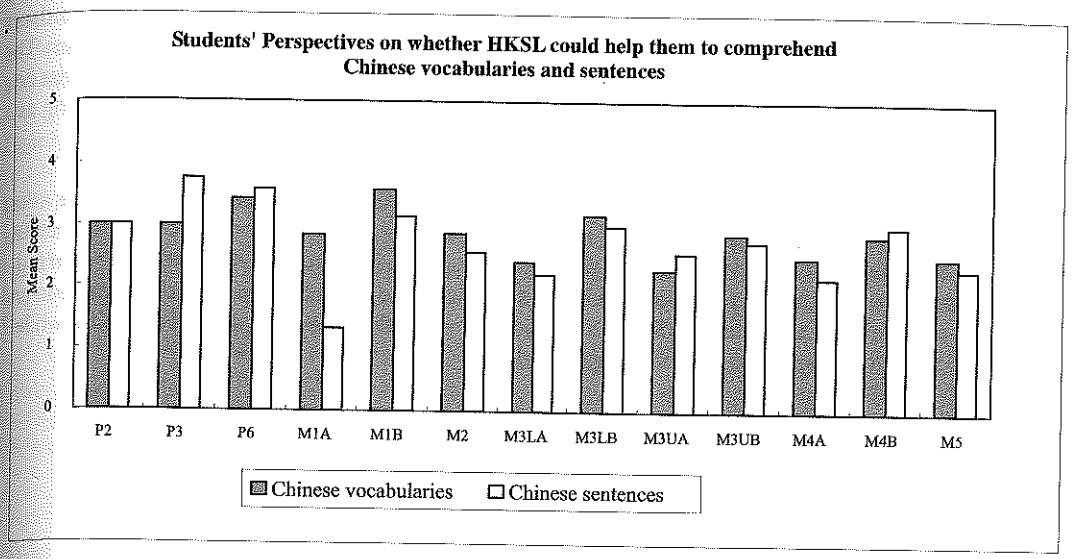
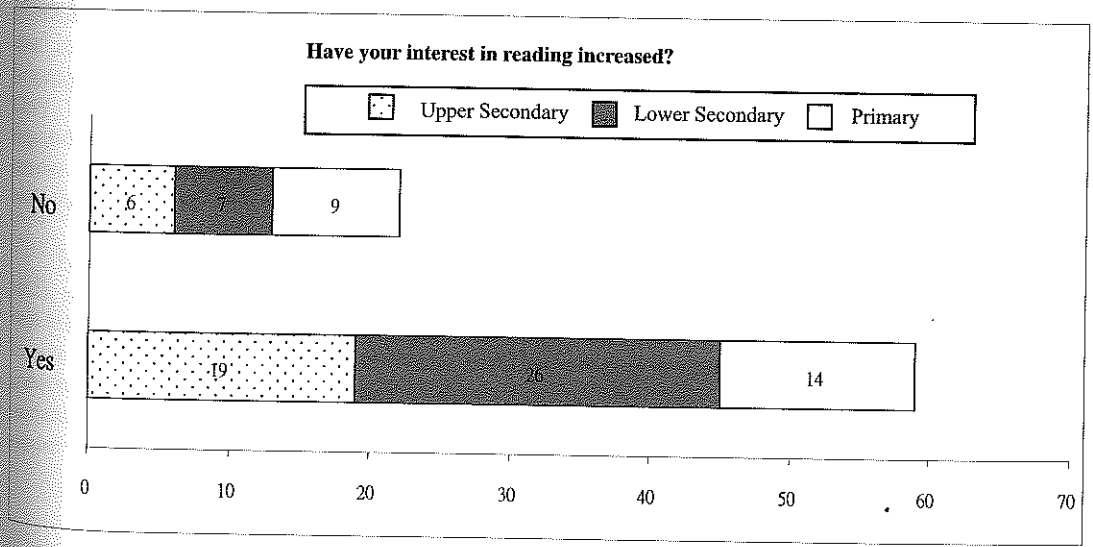
Figure 3. HKSL in comprehending Chinese sentences and vocabularies (students)



In year 2, a questionnaire survey and interviews were conducted to evaluate deaf students, teachers and deaf instructors' perception of the reading programme, and to examine whether the objectives of the reading activity have been reached.

Among the 73 deaf students questioned, 57 of them rated 3 or above. It showed that, according to most students, the reading activities were successful in arousing their interest in reading. The same query was raised again in the second survey. 72.8% of the students reported an increase of interest in reading

Figure 4. Interest in reading in Chinese

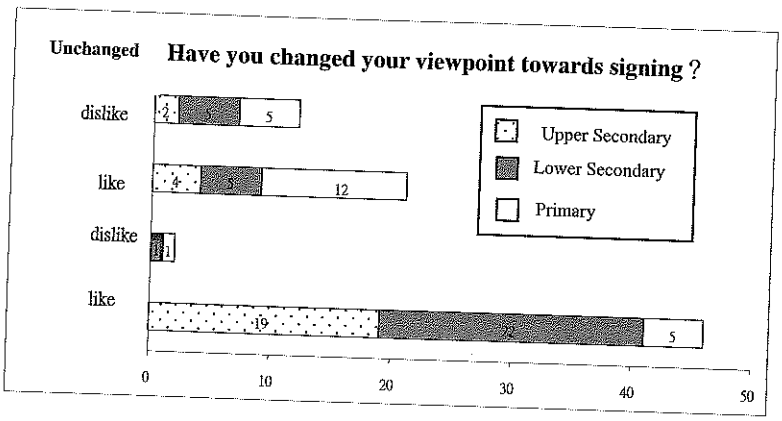


When asked whether they liked the content of the reading materials, in the first survey, most of the students agreed that the texts introduced in the activities appealed to their interest (78% of the

students rated 3 or above). In both surveys, over 70% of the students reported that they gained new knowledge in the reading activities. Also, 68.5% of the students confirmed that they read more books than before (they rated 3 or above in the first survey). In the second survey, 58% of the students reported they read texts on topics/themes that had been introduced in the reading activities. The students may have read more books because they developed interest over certain topics that the teachers introduced to them during the reading activities or they recognized the value of reading as a source of new knowledge.

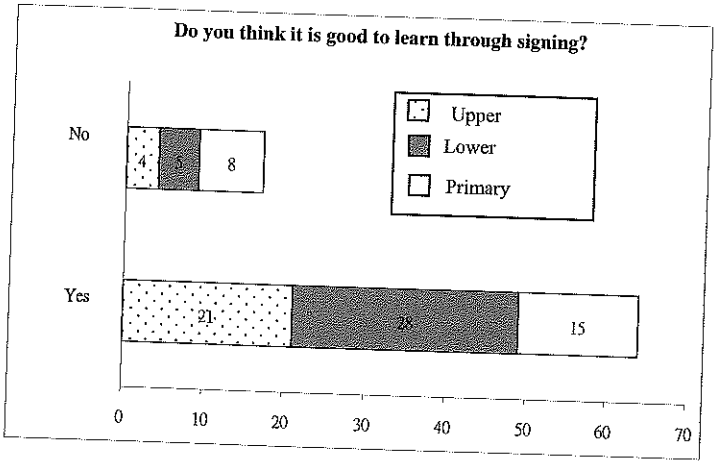
Regarding the attitude towards using HKSL to communicate in class, deaf students were asked whether their perception towards sign language had changed throughout the course of reading programme. The results are summarized in Figure 5. Among the 81 students, 46 students reported a change towards the use of HKSL positively while 21 students reported no change in their attitude and they still liked to communicate using HKSL. 12 students reported that they still didn't like HKSL while 2 students reported a negative attitude change against HKSL.

Figure 5. Change of attitudes towards HKSL



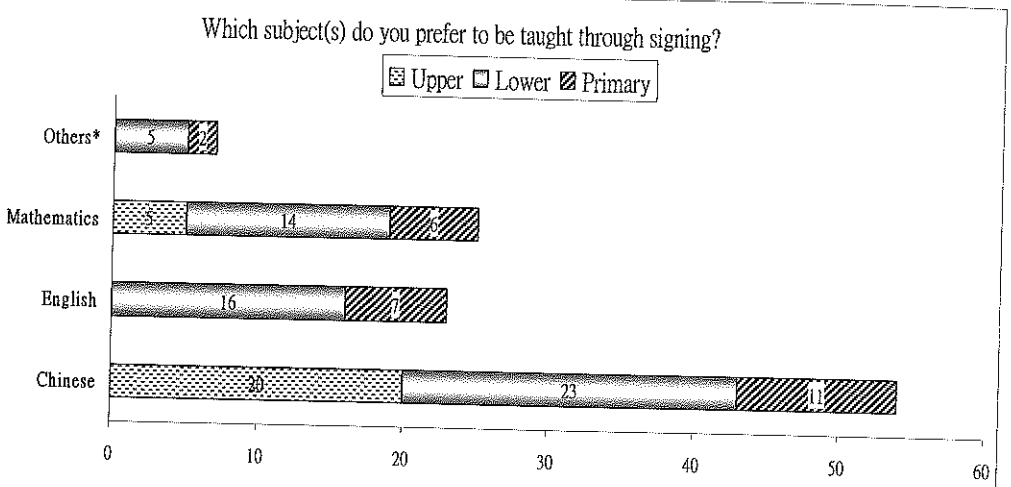
Deaf students were also questioned whether they liked to learn through the support of HKSL. As shown in Figure 6, 79% of the students considered that acquiring knowledge through HKSL was a good option for them.

Figure 6. Learning through HKSL



For those students who claimed that using HKSL as a medium of instruction was a good option for them, we asked them which subjects they thought should be taught in HKSL (see Figure 7). 54 out of these 64 students identified Chinese. 23 students chose English. 25 students chose Mathematics. Only 7 students chose other subjects including physical education, computer, art, science and extra-curricula activities.

Figure 7. Subject preferences in using HKSL as a medium of instruction



*Others include physical education, computer, art, science or extra-curricula activities

One question focused on the modes of communication adopted by the hearing teachers in the classroom setting. Half of the teachers used a mixed mode of signing and Cantonese, i.e. simultaneous communication. 3 of them used signed Chinese. 1 teacher used simply sign language in the lessons, and 1 used speech only. Outside the classroom, the teachers would use a different mode to communicate with deaf students. 9 out of 10 reported to use simultaneous communication. None of them used sign language or Cantonese alone with their students and most of them preferred to use a mixed mode. Only 1 used signed Chinese. Therefore, the teacher adopted different modes of communication depending on their perceived language needs in these communication contexts. Among the different modes of communication, the mixed mode is the most preferred among the teachers when interacting with their students.

For all deaf instructors, the major mode of communication with the deaf students was HKSL. HKSL was used by the deaf instructors to communicate with the students in class and after class. When deaf instructors were asked what they had gained through the project, they replied that they had learnt how to interact with deaf students in the teaching process because deaf adults were more ready to understand the needs and difficulties of deaf students. They also observed some improvement in the students' reading ability, interest in natural sign language and reading comprehension through the support of sign language.

Conclusion

The results of the current investigation, however encouraging, must be interpreted with caution, because the project, being unprecedented in the history of sign language and deaf education research in Hong Kong, was highly exploratory, if not innovative. It was conducted against an understanding of the current development of sign bilingualism in linguistics and deaf literacy research elsewhere, with the hope of replicating a similar research philosophy in the Hong Kong situation. As mentioned, the project was the first of its kind ever conducted in the local territory and results are suggestive, but not conclusive.

This results suggest that a HKSL-supported reading program was feasible enough to arouse students' interest and involvement in the reading process. HKSL seems to have suggested an easier mode of communication between the teacher and the students, as such the students became more eager to learn and acquire new knowledge, as well as reading Chinese texts. Many deaf students expressed the opinions that the reading lessons were full of meaningful learning activities. Except for those who joined the deaf school at a senior level, deaf students generally accepted the adoption of HKSL in a classroom setting, to the extent that some of them reported an increase in interest of using HKSL to communicate with their teachers and schoolmates.

While most deaf students held a negative view towards simultaneous communication, their hearing teachers' opinion was that a mixed code of signs and spoken Chinese was the most effective means of communication inside and outside the classroom. Hearing teachers holding this view were worried that the grammar of natural sign language would interfere with the grammar of written Chinese. They were also concerned that deaf children would cease to lipread and talk once an easier communication channel, i.e. natural sign language, had been identified.

This mismatch between the teachers' and the students' view is our current concern. We suggest that, in order to clarify the hearing teachers' misunderstanding about HKSL, more seminars and open discussions are urgently needed, to help hearing parents understand more about the project and the linguistic philosophy behind it. These seminars are important not only for teachers, but also for hearing parents of deaf children.

The involvement of deaf instructors is crucial for future developments in deaf education. Deaf instructors provide a valuable source of natural sign language input to deaf children through formal and informal interactions in the school setting. It was also the first time in recent history of deaf education in Hong Kong that deaf people and their sign language were being employed in developing a deaf literacy programme. Their experience in co-teaching with different hearing teachers is of important value to their perception of self-value in a hearing community.

The results generated from this project are valuable for planning future deaf activities and programs so as to achieve the goal of promoting deaf literacy in a spoken language and of promoting public awareness on the role of using HKSL in deaf education in Hong Kong. The project is still on-going and it is hoped that more factors influencing the development of deaf literacy can be identified in the long run.

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