Participation of Deaf and Hard of Hearing Students in a Co-enrollment Program: An Exploratory Study in Hong Kong

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Acknowledgement

賽馬會手語雙語共融教育計劃
JOCKEY CLUB SIGN BILINGUALISM AND
CO-ENROLMENT IN DEAF EDUCATION PROGRAMME

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To investigate the extend of integration of the deaf and heard of hearing (D/HH) and hearing students in the sign bilingual and co-enrolled classroom in Hong Kong
Methodology

The extend of integration of the D/HH students in the sign bilingual and co-enrolled classroom

Social

Language

Academic

Behavioral
Programme Components

- Baby Sign Language Programme
- Saturday Sign-Supported Reading Programme
- Kindergarten Programme
- Primary School Programme

Materials Production

- Chinese/English Literacy Programme for Deaf Adults
Participants

Kindergarten (K3)

2007-2008:
- 15 hearing students, 6 Deaf students
- 2 hearing teachers, 1 Deaf teacher

Primary School (P1-6)

2008-2013:
- 24 hearing students, 6 Deaf students
- 1-2 hearing teachers, 1 Deaf teacher
Main Research Components

- **Interaction**
  - Teacher-student
  - Teacher-teacher
  - Student-student

- **Language**
  - Spoken
  - Signed
  - Written

Language choice
Language competence
T-S interaction pattern
Co-teaching practice
Peer interaction
Literature Review Outline

Classroom Setting
- Deaf Education Models
- Sign Bilingualism
- Co-enrolment

Theoretical orientation
- Origin and development of the sociocultural Perspective
- Origin and development of the classroom interaction research
- Interdisciplinary study of interaction in classrooms using sociocultural perspective
## Deaf Education Models

<table>
<thead>
<tr>
<th>Models</th>
<th>Degree of Sign Modality Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deaf Schools</strong></td>
<td></td>
</tr>
<tr>
<td>• Oralist approach</td>
<td>• No signing is allowed</td>
</tr>
<tr>
<td>• Total Communication</td>
<td>• All modalities</td>
</tr>
<tr>
<td>• Sign Bilingualism</td>
<td>• Natural sign language</td>
</tr>
<tr>
<td><strong>Mainstream Education</strong></td>
<td></td>
</tr>
<tr>
<td>• No Sign Language Interpretation</td>
<td>• No signing is allowed</td>
</tr>
<tr>
<td>• With Sign Language Interpretation</td>
<td>• Natural sign language</td>
</tr>
<tr>
<td>• Total Communication</td>
<td>• All modalities</td>
</tr>
<tr>
<td>• Sign Bilingualism</td>
<td>• Natural sign language</td>
</tr>
<tr>
<td>• Co-enrolment</td>
<td>• Natural sign language</td>
</tr>
</tbody>
</table>
Sign Bilingualism

- Sign Languages are natural languages

- Two languages involved: sign language and the written form of an oral language

- **Cummins’ (1989) Linguistics Interdependence Theory**: Positive transfer from the 1st to the 2nd language, provided that there is adequate exposure to the second language and motivation to learn it

- Sign Language is not necessary the first language for most of the deaf children, but the one they could fully access

- The acquisition of a sign language has proved to be effective in assisting deaf children to build up a good foundation for academic learning and development of literacy skills
  
  (Mayberry, Lock, & Kazmi, 2002; Stewart, 1992)
## Co-enrollment (Kirchner 2000)

### Combination of Benefits
- Deaf students exposed to a natural sign language as the 1st language
- As members of a co-enrollment classroom, D/hh students study the same academic curriculum as their hearing peers (Van Lier, 1988)

### The Model
- Deaf and hearing students are placed in a single classroom
- Instruction facilitated through a collaborative teaching approach: a regular teacher and a Deaf teacher as a role model

### Advantage
- Allow direct communication
- Personal/Social Growth

### Expectation
- Both the hearing and Deaf students are able to use both sign and spoken languages
Sign Bilingualism and Co-enrollment Classroom Research


- Social-cultural perspective: Callaway (1999), Antia et al. (2002), etc

- Researches had proved under a naturalistic acquisition immersion, sign language could help the spoken language development of the deaf children (Taeschner, 1983, 1991)

- With equips from a first language, deaf children will have a better idea of how to communicate using spoken language (Toe, Beattie, & Barr, 2007)

- There is a research gap for sign bilingual and co-enrolment classroom to investigate the role of natural signing and the impact of the presence of a Deaf teacher in the classroom
The socio-cultural approach of learning deals with interconnections between the individual and the (social) environment and may help us in our concerns to understand the occurring processes at work in a science-based way.

The deep origins of the socio-cultural perspective on educational and psychological phenomena go back to three important Soviet Researchers in the early 20th century: they founded a socio-historical school of psychological processes: Alexander R. Luria, Lev S. Vygotsky and Alexei N. Leont’ev.
Vygotsky suggests learning as a process that occurs any time in everyday life and that isn’t just an external phenomenon.

Children learn all the time and through people who are more capable in doing a specific kind of action. So learning becomes the essential process and is necessary for development.
Criticism (Wertsch 1985)

- Vygotsky did no empirical research on talk in classroom, he appears to have been firmly attached to an experimental methodology.

- So, how could his concept apply to a classroom setting with a group of 20-35 children and a teacher, in which most learning activity is parallel or jointly?
Emergence of Interdisciplinary study of interaction in classrooms using sociocultural perspective

- Vygotsky influenced a number of psychologists and anthropologists e.g. Bruner, M. Cole, S. Scribner, J. Lave and B. Rogoff

- They started several studies to investigate socio-cultural influences on cognitive development and the role of social communities on learning activities
Teacher supported Learning

Talk of Student collaborative learning:

These concepts were taken further in work by Mercer (1995) who developed a Neo-Vygotskyan approach to the analysis of classroom talk

Mercer’s approach highlights the social nature of interaction and foregrounds the role of talk between learners and between teachers and learners in the construction of knowledge (Giraldo, 2008)
Research Framework of Interactional Analysis

(Bellack et al. (1966), Sinclair and Coulthard (1975), Mehan (1979))

- There is an IRF pattern in teacher-student talk
  Initiation (I) = Initiation by the teacher or student
  e.g. Teacher: What does 'slippery' mean?
  Response (R) = response by students or teacher
  e.g. Pupil: That you can fall, because the floor is polished.
  Follow-up (F) = follow-up by the teacher or student
  e.g. Teacher: Yes, you can fall, you can slip, good.

- The three acts appear in predictable repeated patterns in class

- A few studies (Tsui, 1985; Heap, 1990; Moll, 1992; Cullen, 1998; Nassaji & Wells, 2000; Tsui, 2004; Lin, 2007) had been done down the line, but no comprehensive study (using both qualitative and quantitative methods) concerning sign bilingual co-enrolment classroom
Methodology

The extent of integration of the D/HH students in the sign bilingual and co-enrolled classroom.
Methodology

• Classroom-based research

• Mixed Method Research: Qualitative and Quantitative
Methodology

- **Video tape** the typical school days and code them using observation schemes (10 full lessons, 2 times/year)

- **Naturalistic observation** in the classroom by researchers

- **Open-ended interviews** (include: Principals, Parents, Teachers, Students, Programme Administrators)
What’s Happening in the Kindergarten Classroom?

Clips from 21st May 2008 (K3 Integrated Teaching)
What’s Happening in the Primary School Classroom?

Clips from 12th March 2008 (P1 Chinese)
## Research Instruments

### Lesson Observation Scheme

For Naturalistic Classroom Observations

<table>
<thead>
<tr>
<th>Language Choice in Different Pedagogical Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students' Reaction</td>
</tr>
<tr>
<td>General Interactions</td>
</tr>
</tbody>
</table>

### Language

#### Modes of Co-teaching

#### Students' Reaction

#### General Interactions

<table>
<thead>
<tr>
<th>語言運用</th>
<th>DT</th>
<th>HT</th>
<th>RIO</th>
<th>DS</th>
<th>HS</th>
<th>檢討及備註</th>
</tr>
</thead>
<tbody>
<tr>
<td>佔用課堂時間</td>
<td>SL</td>
<td>SL</td>
<td>SP</td>
<td>SS</td>
<td>SL</td>
<td>SP</td>
</tr>
<tr>
<td>授課</td>
<td></td>
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<tr>
<td>読讀</td>
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<tr>
<td>角色扮演</td>
<td></td>
<td></td>
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<tr>
<td>講話(包括提问,啟發,要求回答)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>應答</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>後裔跟進應答</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>其他(請註明)</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>教學模式及成效</th>
<th>DT</th>
<th>HT</th>
<th>RIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>協作教學模式(百分比)</td>
<td>主輔教學</td>
<td>教學站</td>
<td>主輔教學</td>
</tr>
<tr>
<td>老師分工(請注明:主教,輔助,協同,等)</td>
<td>DT</td>
<td>HT</td>
<td>RIO</td>
</tr>
<tr>
<td>學生成反應及教學成效</td>
<td>互動模式(請用文字記錄大概情況,如DT--&gt;HT, HT--&gt; whole class, HS--&gt; DS)</td>
<td>檢討及備註</td>
<td></td>
</tr>
</tbody>
</table>
### Research Instruments

**Lesson Coding Scheme**

For Coding of the Video Data

#### Classroom Setting

- **Date/Time:** 2nd Feb (10:30-11:30)
- **School:** Peace Evangelical Center Kindergarten (Ngau Tau Kok)
- **Teacher:** Ms Lee Sau Yung, Ms Lisa Lau
- **Observer:** Fay Wong
- **Student:** 8 Hearing students, 6 d/hh students
- **Physical setting:** Music Room with white board

#### Coding the Language Choice

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>Lesson Stage</th>
<th>Focus</th>
<th>Activity</th>
<th>Speech event</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&lt;sub&gt;1&lt;/sub&gt;</td>
<td>W S&lt;sub&gt;1&lt;/sub&gt; S&lt;sub&gt;2&lt;/sub&gt; I T&lt;sub&gt;2&lt;/sub&gt; W S&lt;sub&gt;3&lt;/sub&gt; S&lt;sub&gt;4&lt;/sub&gt; I T&lt;sub&gt;3&lt;/sub&gt; W S&lt;sub&gt;5&lt;/sub&gt; S&lt;sub&gt;6&lt;/sub&gt; I T&lt;sub&gt;4&lt;/sub&gt; W S&lt;sub&gt;7&lt;/sub&gt; S&lt;sub&gt;8&lt;/sub&gt; I T&lt;sub&gt;5&lt;/sub&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Introducing Chinese</td>
<td>Topic</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>2</td>
<td>Traditional Paper</td>
<td>introduction</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>3</td>
<td>Cutting</td>
<td>explaining the term: 'paper cutting'</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>demonstration</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>S</td>
<td>S</td>
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<td>6</td>
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<tr>
<td>12</td>
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</tr>
</tbody>
</table>

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### Research Instruments

#### Lesson Coding Scheme

For Coding of the Video Data (Con't)

<table>
<thead>
<tr>
<th>Comprehensible input</th>
<th>Interactional pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Th</td>
<td>Td</td>
</tr>
<tr>
<td>TL TL TR TF TL TL TR TF SI SR SF SI SR SF SF P I X dd hh dh dd dh dd dh hh hh W M</td>
<td>S</td>
</tr>
<tr>
<td>S S S C S S S C C</td>
<td>S S C C S S S S S S</td>
</tr>
<tr>
<td>S S S S S S S S C</td>
<td>S S C C, C C, S S S S</td>
</tr>
<tr>
<td>S S S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
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<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
<tr>
<td>S S S S S</td>
<td>S S C C, S S S S S S</td>
</tr>
</tbody>
</table>
The Mainstream Version of the Code for Instructional Structure and Student Academic Response (MS-CISSAR; Greenwood & Reynolds, 2011)

Computer-based systematic observation instrument supported by the EcoBehavioral Assessment System Software (EBASS) 3.0

Focused on classroom ecology and student behavior
Highlights of the Study
The general patterns of language choice in kindergarten and primary school are similar.

Generally spoken language is more dominant than sign language in teacher-centered context.

There is an increase both code-mixing and sign language near the end of the school term each year.

The token of using spoken language decreased slightly for kindergarten setting and increased in primary school setting.
Deaf Students’ Language Choice

- The use of both languages increases near the end of the school year in the primary school setting, whereas in kindergarten setting the Deaf students tend to choose code-mixing.
- The dominant Language for the Deaf students is sign language.
The general patterns of language use of the hearing students in kindergarten and primary school settings are similar. Code-switching of the two languages increases marginally near the end of the school year. The use of sign language of the hearing students increases near the end of the school year.
In Kindergarten Setting

- The general patterns of language use of between groups in kindergarten and primary school settings are similar.
- In the both setting the teachers and students are interacting with each other within the group using their dominant language, however, when they interact across groups they are using both languages.
- The use of sign language is more dominant in across group interactions.

In Primary Setting

- The general patterns of language use of between groups in kindergarten and primary school settings are similar.
- In the both setting the teachers and students are interacting with each other within the group using their dominant language, however, when they interact across groups they are using both languages.
- The use of sign language is more dominant in across group interactions.
• The total tokens of interactions increase a lot for the primary school setting.

• In the both setting the hearing-hearing interaction tokens are more than the other two types of interaction tokens, it is due to the difference in number of participants.

• Generally Deaf and hearing teacher and students are interacting together.
Tokens of Peer Interactions

- P1 Observation Period I
- P1 Observation Period II
- P2 Observation Period I
- P2 Observation Period II
- P3 Observation Period I
- P3 Observation Period II
- Kindergarten Observation Period I
- Kindergarten Observation Period II

- Deaf-Hearing Students Interaction
- Hearing-Hearing Students Interaction
Tokens of Students Initiations in the Classroom
Hearing Students’ IRF Pattern

<table>
<thead>
<tr>
<th>Hearing Students’ Use</th>
<th>Language</th>
<th>Phase 1 (Tokens)</th>
<th>Phase 2 (Tokens)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tokens</td>
<td></td>
</tr>
<tr>
<td><strong>Initiation</strong></td>
<td>Sign</td>
<td>42</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Spoken</td>
<td>298</td>
<td>217</td>
</tr>
<tr>
<td></td>
<td>Code-Mixing</td>
<td>12</td>
<td>45</td>
</tr>
<tr>
<td><strong>Response</strong></td>
<td>Sign</td>
<td>11</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Spoken</td>
<td>192</td>
<td>259</td>
</tr>
<tr>
<td></td>
<td>Code-Mixing</td>
<td>22</td>
<td>29</td>
</tr>
<tr>
<td><strong>Follow-up</strong></td>
<td>Sign</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Spoken</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Code-Mixing</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Hearing Students tend to respond to teachers’ questions rather than taking the initiation
- They seldom follow up the responses from others
## Deaf Students’ IRF Pattern

<table>
<thead>
<tr>
<th>Deaf Students’ Use</th>
<th>Language Use</th>
<th>Phase 1 (Tokens)</th>
<th>Phase 2 (Tokens)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation</td>
<td>Sign</td>
<td>141 80.39%</td>
<td>147 69.11%</td>
</tr>
<tr>
<td></td>
<td>Spoken</td>
<td>16 11.76%</td>
<td>33 19.11%</td>
</tr>
<tr>
<td></td>
<td>Code-Mixing</td>
<td>14 7.84%</td>
<td>28 11.76%</td>
</tr>
<tr>
<td>Response</td>
<td>Sign</td>
<td>32 33.33%</td>
<td>35 18.96%</td>
</tr>
<tr>
<td></td>
<td>Spoken</td>
<td>55 53.03%</td>
<td>106 62.06%</td>
</tr>
<tr>
<td></td>
<td>Code-Mixing</td>
<td>19 13.63%</td>
<td>35 18.96%</td>
</tr>
<tr>
<td>Follow-up</td>
<td>Sign</td>
<td>56 100.00%</td>
<td>42 100.00%</td>
</tr>
<tr>
<td></td>
<td>Spoken</td>
<td>0 -</td>
<td>0 -</td>
</tr>
<tr>
<td></td>
<td>Code-Mixing</td>
<td>0 -</td>
<td>0 -</td>
</tr>
</tbody>
</table>

- Deaf students tend to take the initiation move for asking questions by using sign language.
- Deaf students do follow up move more than Hearing students (these moves are mostly information checking and clarification).
Through paired-sample T-test:

- Although between the two phases the difference is not significant, the mean raise from 17.00 to 43.33
- A more interactive classroom is observed
Mean Token of D/hh Students’ Initiation Across Phases

Through paired-sample T-test:

• Although between the two phases the difference is not significant, the mean raise from 7.76 to 24.33

• A more interactive classroom is observed
Through paired-sample T-test:

This shows deaf-hearing student-teacher interaction with each other significantly more. The difference is statistically significant in observation period I but observation period II.

<table>
<thead>
<tr>
<th>Paired Samples Correlations</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>6</td>
<td>.892</td>
<td>.017</td>
</tr>
<tr>
<td>Pair 2</td>
<td>6</td>
<td>.623</td>
<td>.187</td>
</tr>
</tbody>
</table>
Average Academic Engagement on Task Time

D/HH Students
- Whole class ~86%
- Small group ~96%

Hearing Students
- Whole class ~96%
- Small group ~92%
Generally the language choice pattern is similar for both the kindergarten and primary school setting.

In both settings, neither D/HH students nor hearing students were underprivileged.

A more interactive classroom is observed in the kindergarten setting. This may due to the constrain of the class size and curriculum.

Sign language is observed as the dominate language of the D/HH students.

Sign Language functioned positively in facilitating both peer and teacher-student interactions.

Sign language support the communication of teachers and students in the classroom especially in teaching abstract concepts.
Limitations and restrictions

- As this is not a controlled experiment, there are no control groups, other D/HH children in Hong Kong are not directly compared with the D/HH children enrolled in the program.

- Since the co-enrollment program in Hong Kong is the only one in the region, the subject sample size is not large enough for any other quantitative comparison with other D/HH children in the region.

- The context of teaching is crucial for the language choice in particular lessons, thus further analyses of the video data collected could be done for teasing out the code-switching pattern and questioning pattern in the classroom.
Acknowledgement

- Prof. Gladys Tang
- Prof. Filiz Polat
- Dr. Patcy Yeung
- Prof. Antia Shirin
- Mr. Chris Yiu
References (Con’t)


