Assessment of Mandarin Receptive Vocabulary in Hong Kong Children

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Angel Chan

Angel’s Angel

Tse Sam Ming Audrey
Outline

- HK children’s exposure to Mandarin in kindergartens
- Mandarin Receptive Vocabulary Test
- Pilot study and results
- Summary and significance
HK Kindergartens with Mandarin exposure

- Total no. of kindergartens: 965
- No. of kindergartens
  - with Mandarin exposure = 831
  - without Mandarin exposure = 46
  - information unavailable = 88

- With Mandarin Exposure: 86.1% (n=831)
- Without Mandarin Exposure: 4.8% (n=46)
- Information Unavailable: 9.1% (n=88)
Children’s Mandarin exposure in Hong Kong kindergartens
Growing importance of Mandarin in Hong Kong kindergartens

- Over 80% of HK kindergartens provide regular exposure to Mandarin, though with varying amounts of input.
- There is a lack of research-based understanding of HK children’s developmental profiles in Mandarin.
Available tools to assess early Mandarin vocabulary

Based on *native* Mandarin-speaking children in Taiwan:


Based on *native* Mandarin-speaking children in Beijing:

Lack of assessment tools

- No standardized tools to assess the Mandarin proficiency of Hong Kong preschool children.
- Lack of assessment tools even for monolingual Mandarin children in China and Taiwan.
Mandarin Receptive Vocabulary Test for Hong Kong Children

- Early vocabulary inventory for Mandarin Chinese (Hao et al. 2008)
  
  Early vocabulary inventory for Mandarin Chinese

  MEILING HAO  
  Beijing Language and Culture University, Beijing, China

  HUA SHU and AIILING XING  
  Beijing Normal University, Beijing, China

  AND

  PING LI  
  Pennsylvania State University, University Park, Pennsylvania

  and National Science Foundation, Arlington, Virginia

  http://brm.psychonomic-journals.org/content/40/3/728/suppl/DC1

- Data from 884 Chinese families in Beijing
- Infants and toddlers from 12 to 30 months
- Checklist and norms a/v via the internet
- Words with 90th percentiles of comprehension vocabulary found at 30 month olds were chosen for item construction
Mandarin Receptive Vocabulary Test for Hong Kong Children

98 target words belonging to 14 semantic categories

Target children:
  • Phase One: preschool age
  • Phase Two: P1-P3

Quick to administer: 10-20 minutes

Easy to administer: Each child is shown four pictures at a time, and asked to point to the named picture
- Target: 香蕉 /xiang\textsubscript{1} jiao\textsubscript{1}/ ‘banana’
- Phonological distracter: 睡覺 /shui\textsubscript{4} jiao\textsubscript{4}/ ‘sleep’
- Semantic distracter: 梨 /li\textsubscript{2}/ ‘pear’
- Unrelated distractor: 起床 /qi\textsubscript{3} chuang\textsubscript{2}/ ‘get up’
Scores of children with average exposure
(21-60 min per week at school, 174 children from 10 schools)

(23 children in China aged 5;9-6;5)
Scores of children with high exposure
(120–150 min per week at school, 36 children from 1 school)
Scores of children with very high exposure
(> 150min per week at school, 35 children from 1 school)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>% of Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>3;0 - 3;6</td>
<td>60.00</td>
</tr>
<tr>
<td>3;6 - 4;0</td>
<td>80.00</td>
</tr>
<tr>
<td>4;0 - 4;6</td>
<td>90.00</td>
</tr>
<tr>
<td>4;6 - 5;0</td>
<td>95.00</td>
</tr>
<tr>
<td>5;0 - 5;6</td>
<td>95.00</td>
</tr>
<tr>
<td>5;6 - 6;0</td>
<td>95.00</td>
</tr>
</tbody>
</table>

Mandarin
(23 children in China aged 5;9-6;5)
Median scores of children with average vs high exposure

![Graph showing the median scores of children with average vs high exposure across different age groups. The x-axis represents age groups (3;0 - 3;6, 3;6 - 4;0, 4;0 - 4;6, 4;6 - 5;0, 5;0 - 5;6, 5;6 - 6;0) and the y-axis represents the % of Accuracy. The graph shows an upward trend in accuracy with increasing age groups.]

Average (20-60min)
Median scores of children with average vs high exposure
**Statistical comparison children with average vs high exposure**

<table>
<thead>
<tr>
<th>Exp. Group</th>
<th>Average (N=174)</th>
<th>High exposure (N=36)</th>
<th>Statistical Comparison (by Mann-Whitney test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td>Median</td>
<td>N</td>
<td>Median</td>
</tr>
<tr>
<td>Overall</td>
<td>53.57</td>
<td>174</td>
<td>53.06</td>
</tr>
</tbody>
</table>
Medians scores of children with average vs very high exposure

![Chart showing medians scores of children with average vs very high exposure.](chart-image-url)
Medians scores of children with average vs very high exposure

![Graph showing medians scores of children with average vs very high exposure]
Statistical comparison
Children with average vs very high exposure

<table>
<thead>
<tr>
<th>Exp. Group</th>
<th>Average (N=174)</th>
<th>Median</th>
<th>N</th>
<th>Very high exposure (N=35)</th>
<th>Median</th>
<th>N</th>
<th>Statistical Comparison (by Mann-Whitney test)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td>53.57</td>
<td>174</td>
<td></td>
<td>74.49</td>
<td>35</td>
<td></td>
<td>0.000*</td>
</tr>
</tbody>
</table>

* denotes statistical significance at 0.05 level of significance
Error types: Average percentage of errors

Average Exposure KGs (20-60min)

High Exposure KGs (120-150min)

Very High Exposure KGs (>150min)

- Phonological Distractor
- Semantic Distractor
- Unrelated Distractor
Discussion
Target: 手
(Correct: 65%)

Mandarin: /shou₃/

Cantonese: /sau₂/

Phonological similarity
Target: 蛋糕
(Correct: 63%)

Mandarin: /dan₄ gao₁/

Cantonese: /daan₆ gou₁/
Target: 樹
Correct: 52.2%, 50% of the errors are phonological (書)

Mandarin: shu₄
Cantonese: syu₆

Target

Distracter

Tone Similarity

Error
Target: 菜
Correct: 45.2%, 57.8% of the errors are phonological (踩)

Mandarin: cai₄
Cantonese: coi₃

Vowel Similarity
Tone Similarity

Error
Summary of findings

- HK children with very high exposure to Mandarin at school (more than 150 mins per week) scored higher than their age peers who have only average exposure of Mandarin at school (21-60 mins per week).

- Distribution of error types changes across stages of acquisition:
  - Younger children: Semantic and phonological errors are both frequent
  - Older children: semantic errors diminish but certain phonological errors (especially tone errors) still persist at age 5 & 6
Summary of findings

- Influence of L1 on L2 can be positive or negative:
  - L1 Cantonese plays both facilitative and interfering roles in the acquisition of Mandarin vocabulary.
    - Positive transfer from Cantonese to Mandarin gives children an advantage: e.g. 手 sau2 vs shou3
    - Negative transfer from Cantonese to Mandarin results in non-target forms:
      - Mandarin 樹 shu4 is misidentified as shu1書 which is similar to Cantonese syu1書
      - In Cantonese, high level and high falling are assigned to the same Tone 1. Cantonese learners have trouble distinguishing Tone 1 (high level) and Tone 4 (high falling) in Mandarin
Significance of findings

• For researchers:
  ▪ What are the optimal input conditions for acquisition in terms of quantity and quality of input?
  ▪ What are the common semantic and phonological errors?
  ▪ What do these errors tell us about the child’s developing semantic and phonological systems?
Significance of findings

- For clinical & educational practitioners and parents:
  - How to create optimal input conditions in terms of the quantity and quality of input to support balanced bilingual/trilingual development?
  - A baseline profile for typically developing bilingual children needs to be established for comparison with the atypically developing counterparts
  - How to attend to semantic distinctions and phonological distinctions in therapy and pedagogy?
References


Acknowledgments

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- We thank Angela He, Jacqueline Lai, Sunny Park, Kelly Shum, Alice Tse, Eunice Wong, Hinny Wong, Reace Wong, Zhu Xin, Wang Jiao and Joffee Lam for their participation.
Thank you
Target: 關鍵
Correct: 49.2%, 40.6% of the errors are semantic (開)
Target: 開
Correct: 55.5%, 43.8% of the errors are semantic (閉)

Target
Open

Distracter
Close
Error
Target: 男孩
Correct: 53.5%, 41.9% of the errors are semantic (女人)
Target: 被子
Correct: 55.2%, 42.2% of the errors are semantic (枕頭)
Target: 打電話
(Correct: 67%)

Mandarin: 
/da₃ dian₄ hua₄/

Cantonese: 
/daa₂ din₆ waa₂/
Mandarin Receptive Vocabulary Test for Hong Kong Children

Contains 98 target words belonging to 14 semantic categories:
(1) action words (2) animals (3) body part (4) clothing (5) vehicles
(6) food and drink (7) furniture (8) people (9) descriptive words
(10) games and routines (11) outside things (12) places to go
(13) quantifiers and articles (14) small household items

Target children:
• Phase One: preschool age
• Phase Two: P1-P3

Quick to administer: 10-20 minutes

Easy to administer: Each child is shown four pictures at a time on a computer screen, and asked to point to the named picture