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<td><strong>Other Contributor(s)</strong></td>
<td>University of Hong Kong</td>
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<td><strong>Author(s)</strong></td>
<td>Yuen, Yuen-har, Harriet; 袁婉霞</td>
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The repair strategies of Cantonese-speaking children
in response to clarification requests

A dissertation submitted in partial fulfilment of the requirements for the Bachelor of Science (Speech and Hearing Sciences), The University of Hong Kong, April 30, 1997.
Abstract

This study investigated the conversational repair strategies of 72 children aged 3;6 to 8;9. Stacked sequence of three different neutral clarification requests, namely "어요?" (Huh?), "咩咩咩" (What?), and "我唔明咩!" (I didn't understand!) were used to elicit repairs in a picture description task. The repair strategies were categorized as repetition, revision, elaboration, cue, inappropriateness, specification and correction. The results showed that there were age-related differences for the use of repair strategies. Specifically, older children were more responsive to the requests; they normally demonstrated a wider range of repair strategies as the sequence progressed, and made better use of complex repair responses such as cue responses. Amongst all age groups, repetition was the most frequently used repair strategy, and it was the only strategy to decrease in frequency as the requests were progressed. The developmental pattern of the use of repair strategies and their implications were discussed.
Introduction

Repair is a conversational means to make good a real or an imagined deficiency in the conversation in order to avoid a communication breakdown. For example, in the situation of unintelligible articulation, improper loudness, or absence of relevance, repair by selecting appropriate words, repeating the utterances, etc., is needed. Repair may be self-initiated or other-initiated. For other-initiated repair, one stimulus is contingent clarification request, in which the listener signals the speaker that his utterance is not understood and that he should repair it to keep the flow of conversation going. The clarification request often indicates what repair is needed in where. Examples of clarification requests identified by Garvey (1975), Corasro (1977), and Gallagher (1981) are given as follows:

1. Neutral or non-specific request for clarification,

   e.g. Speaker 1: “我去昨晚去舞會.” (I went to a party last night.)
   Speaker 2: “下?” (Huh?)
   Speaker 1: “我去昨晚去舞會.” (I went to a party last night.)

2. Specific request for confirmation,

   e.g. Speaker 1: “我去昨晚去舞會.” (I went to a party last night.)
   Speaker 2: “昨晚?” (Last night?)
   Speaker 1: “係呀.” (Yes.)

3. Specific request for specific constituent repetition,

   e.g. Speaker 1: “我去昨晚去舞會.” (I went to a party last night.)
   Speaker 2: “去邊個舞會?” (To which party?)
   Speaker 1: “莎莉去邊個呢”, (The one which Sally went too.)

The linguistic skills required to respond appropriately to these clarification requests are very
different. Numerous studies (Gallagher, 1981; Garvey, 1984; Brinton et al, 1986) show that children do respond to cues in order to repair an utterance, but different cues elicit different response types, and children vary in their abilities to respond to these types of invitations to repair.

In real life conversation, it is very common to make a sequence of clarification requests as a message may not be understood within a single repair. This repair sequence behavior provides a rich source of information about how children adapt to their listeners’ needs and provide efforts to communicate their successive approximations to reach an understanding (Brinton, Fujiki, and Sonnenberg, 1988). However, how do children learn to use repairs as they grow up?

In adult-child interaction, conversational repair is a natural and common phenomenon. Adults often ask children to repeat or clarify their utterances when they are not clear. When facing with clarification requests, children need to function as speakers and to take their listeners’ perspectives to regulate and modify messages simultaneously (Roth and Spekman, 1984). Taking an accurate role taking can increase the effectiveness of communication as the speaker constructs or selects message which is appropriate to the listener’s need (Peterson, Danner, Flavell, 1972). Therefore, the repair behaviors among children in respect of production, comprehension and metalinguistic awareness (Garvey, 1975) provide rich source of information on their communicative competence. It means that children need to master both the linguistic structure and the pragmatic aspect of conversational rule in order to repair their utterances.

Moreover, according to Shonerd (1994), repair is a kind of higher mental function which involves cognitive processing and language awareness to monitor one’s speech production. In order to repair an utterance, children have to interpret the prompt as a clarification request.
Then, they need to recall what they have just said, and to detect critical error in order to make correction. Therefore, by investigating how children repair their utterances, we can know more about children's cognitive development.

Within the broad range of verbal repair strategies used by children, Roth & Spekman (1984), pointed out that there are two major categories. One is utilized by Clark & Andersen (1979) and Gallagher & Darnton (1978), which focuses on the linguistic structure of the strategy used, and divides verbal repair strategies into categories of phonology, morphology, lexicon and syntax. The other one is proposed by Garvey (1977), which looks at the content or the nature of the information provided, and divides repair strategies into broad categories of repetition, specification, confirmation and elaboration. According to Roth & Spekman (1984), any one repair strategy may be coded for form and/or content without causing contradiction.

It is found that the repair ability of children is an integral part of the language acquisition process (Brinton et al. 1986). Developmental studies on repairs of English-speaking children (Garvey, 1977; Gallagher, 1977; Brinton et al., 1986) have reported that repair sequence is an early developing mechanism and is functional to conversation. Gallagher (1977) reported that children as young as 1;6 are able to repair by repeating or revising their original utterances in response to neutral requests, even though they are not entirely accurate, and they can distinguish the clarification request from a simple comment in declarative form. Garvey (1977) also reported that 3- to 5-year-old children respond appropriately to several types of clarification requests. Moreover, Brinton et al. (1986) reported that younger children respond to initial clarification requests appropriately.

Previous studies mainly investigate the repair strategies used by English-speaking children. There is a lack of studies on the developmental pattern of repair strategies and on
the relationship between the clarification request type and position in Cantonese. Although
the developmental pattern of pragmatic skills in Chinese children and Western children is
similar (Zhu, 1990), the pragmatic strategies employed by children from different cultures
may be different as the social structure of the speech community constraints the
communicative behavior of the members of that community (Gumpert, 1975). Therefore,
whether the Cantonese speaking-children follow the similar developmental pattern and
demonstrate same repair repertoire are far from clear. The present study aimed to fill this
gap by investigating the developmental pattern of how Cantonese children use repair
strategies.

The aim of this study was to examine the repair strategies used by aged 3;6 to 8;9
normally developing children in response to a sequence of stacked neutral clarification
requests in a structured task. It aimed to answer the following questions:
1. What are the frequency and types of children’s repair strategies in response to a sequence
   of stacked neutral clarification requests?
2. How do types of repair strategies differ according to different age?
3. How do types of repair strategies differ according to the type and position of the stacked
   clarification requests within the sequence?

Method

Subjects

A total of 72 Cantonese-speaking children aged 3;6 to 8;9, who were native Cantonese
speakers and born in middle-class families, participated in this study. They were divided into
four different age groups with equal number of males and females. All children were
selected randomly from kindergartens and primary schools. All of them were with no reported speech and language, sensory, physical, emotional and cognitive deficits. The age range, mean chronological age and sex distribution of the children in each group are presented in Table 1.

Table 1. Age range, mean chronological age and sex distribution of children in each age group

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number</th>
<th>Mean Chronological Age</th>
<th>S.D.</th>
<th>Age Range</th>
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<tbody>
<tr>
<td>3;6-4;3</td>
<td>18</td>
<td>4;0</td>
<td>2.8</td>
<td>3;8-4;3</td>
</tr>
<tr>
<td>5;0-5;9</td>
<td>18</td>
<td>5;4</td>
<td>3.2</td>
<td>5;0-5;9</td>
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<tr>
<td>6;6-7;3</td>
<td>18</td>
<td>6;9</td>
<td>3.2</td>
<td>6;6-7;3</td>
</tr>
<tr>
<td>8;0-8;9</td>
<td>18</td>
<td>8;2</td>
<td>3.2</td>
<td>8;0-8;9</td>
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</tbody>
</table>

Materials

Totally 16 sets of action pictures, 4 per set, for a total of 64 pictures, which contain similar attributes, were used as the stimuli to elicit children’s use of repair strategies. Action pictures were used in order to get specific description rather than an identification of common objects (Scudder and Tremain, 1992). The experimenter had 16 sets of picture cards, one set for each trial, while the child had 16 picture cards, one for each trial. A cardboard screen was used to place between the experimenter and the child so as to eliminate visual but not auditory cue. The child and the experimenter sat at a small table, using the above set of materials. This experiment was conducted and audiotaped in the children’s schools.

Procedure

The procedure of this experiment was a modification of that used by Brinton et al. (1986) and Scudder & Tremain (1992). Each child was examined individually in a quiet room. A picture description and matching game with a cardboard barrier between the child and the experimenter was served as the context in which the child’s repair behaviors were evoked. The experimenter instructed the child to describe his or her picture so that the experimenter could match the correct picture out of the experimenter’s picture sets. The child was
instructed not to let the experimenter look at the target pictures. A trial item was administered first to get the child familiar with the experiment.

In 10 out of 16 trials, the experimenter requested clarification of the description randomly. The use of clarification requests did not necessarily mean that the children had produced some unintelligible utterance. Three different neutral clarification requests were used in each trial in an attempt to preserve the naturalness of the sequence. They were chosen from Gallagher (1981) and Garvey (1977)'s classification and were translated into Cantonese, with the following request sequence:

Child : “xxxxx.” (child's initial description)
Experimenter : “ⁿ/generated” (Huh?) (first clarification request)
Child : “xxxxx.” (response to first clarification request - repair)
Experimenter : “咩話?” (What?) (second clarification request)
Child : “xxxxx.” (response to second clarification request - repair)
Experimenter : “我唔明呀!” (third clarification request)
(I didn't understand!)
Child : “xxxxx.” (response to third clarification request - repair)
Experimenter : “啊!我明啦!” (Oh, I see!)

The experimenter responded to the control picture description with statements of acknowledgments such as “uh huh”. In the event of child ignored the first request, the experimenter would wait for a 5-s interval before initiating the next request. Thus, the full protocol consisted of 10 trials of each clarification request type for each subject made a total of 30 separate repairs.

Data analysis
All audiotapes were transcribed by the experimenter. In order to estimate intra-rater agreement, the experimenter re-transcribed and re-classified all subjects' responses after a week. All the transcription and classification were with 100% agreement among all the responses. Each repair was evaluated according to its relationship to the child's original utterance. The repair strategies were categorized according to the classification of Garvey (1977) and Brinton et al. (1986) with some modifications as showed in table 2.

Table 2. Categorization of repair strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>1. Repetition</strong></td>
<td>Children repeated all or part of his original utterance. No information was added.</td>
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<td>e.g.</td>
<td>Child’s original utterance: “隻狗跑得好快呀!” (&quot;The dog ran fast.&quot;)</td>
</tr>
<tr>
<td>Clarification request</td>
<td>“什么?” (&quot;What?&quot;)</td>
</tr>
<tr>
<td>Child’s response</td>
<td>“隻狗跑得好快呀!” (&quot;The dog ran fast.&quot;)</td>
</tr>
<tr>
<td><strong>2. Revision</strong></td>
<td>Children used alternate labels or different syntactic structure without adding meaning. Those repairs in which children revised form and also added new element are considered as an elaboration.</td>
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<td>e.g.</td>
<td>Child’s original utterance: “有 D 細路仔係度玩碌!” (&quot;Some children are playing.&quot;)</td>
</tr>
<tr>
<td>Clarification request</td>
<td>“什么?” (&quot;What?&quot;)</td>
</tr>
<tr>
<td>Child’s response</td>
<td>“有 D 小朋友係度玩碌!” (&quot;Some kids are playing.&quot;)</td>
</tr>
<tr>
<td><strong>3. Elaboration</strong></td>
<td>Children added specific information to the original utterance with either lexical structure or linguistic content, or both.</td>
</tr>
<tr>
<td>e.g.</td>
<td>Child’s original utterance: “隻狗游緊水!” (&quot;The dog is swimming.&quot;)</td>
</tr>
<tr>
<td>Clarification request</td>
<td>“什么?” (&quot;What?&quot;)</td>
</tr>
<tr>
<td>Child’s response</td>
<td>“隻狗係海度游緊水!” (&quot;The dog is swimming in the sea.&quot;)</td>
</tr>
<tr>
<td><strong>4. Cue</strong></td>
<td>Children defined special terms in the original utterances, or provided background context that could precede the original message, or talked about repairs which called formulation.</td>
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</table>

--- defining term
e.g. Child’s original utterance: "他们正在吃饺子！" ("They are eating dumplings.")
Clarification request: "what?" ("Huh?")
Child’s response: "他们正在吃饺子, 里面是肉, 用饺子皮包裹的饺子。!"
("They are eating dumplings, the food that has meat inside, and is wrapped by dumpling sheets.")

-- providing background content:
e.g. Child’s original utterance: "他正在吃饼干！" ("He is getting cookies.")
Clarification request: "what?" ("Huh?")
Child’s response: "有一个厨房, 有一个男孩, 他正在吃饼干。!"
("There’s a kitchen and there’s a boy, He is getting cookies.")

-- formulations

e.g. Child’s original utterance: "一个女孩正在吃东西！" ("A girl is eating.")
Clarification request: "what?" ("I didn’t understand.")
Child’s response: "我也不知道要怎么说好。!
("I don’t know how to say it better.")

5. Inappropriateness

Children did not respond or reply with an utterance unrelated to the original utterance.
e.g. Child’s original utterance: "一个女孩正在追赶一个男孩！" ("A girl is chasing a boy.")
Clarification request: "什么?" ("Huh?")
Child’s response: "有一只狗正在吃鱼。!" ("A dog is eating fish.")
e.g. Child’s original utterance: "两个男孩正在游泳！" ("Two boys are swimming.")
Clarification request: "什么?" ("Huh?")
Child’s response: "我也不知道。
("I don’t know.")

6. Specification

Children specified or substituted a word or group of words which were within the same semantic categories of the original one, and their relationship were not inter-changeable; for example, hyponymy. The major grammatical and syntactic components did not change at all. Example includes children specified deictic term.
e.g. Child’s original utterance: "这朵花很漂亮！" ("The flower is beautiful.")
Clarification request: "什么?" ("Huh?")
Child's response: "一朵玫瑰花好靓!" ("The rose is beautiful.")

E.g. Child's original utterance: "佢買雪糕." ("She buys ice-cream.")
Clarification request: "咩呀?" ("Huh?")
Child's response: "係咪買雪糕." ("Mother buys ice-cream.")

7. Correction

Children replaced a word or group of words with a different meaning to those in the original utterance, with the major grammatical and syntactic components did not change.

E.g. Child's original utterance: "隻狗係度跑緊!" ("The dog is running.")
Clarification request: "咩呀?" ("Huh?")
Child's response: "隻貓係度跑緊!" ("The cat is running.")

In order to estimate the inter-rater agreement, an undergraduate student of the Department of Speech and Hearing Sciences was invited as an independent judge to classify four children's responses from each group. A 100% agreement was made.

Results

Seven different types of repair strategies were identified. The result of repairs were presented in the format of: comparison between response types (request strategies); comparison between ages; and comparison between request types.

In order to determine whether there were any differences between and within different age groups in the use of repair strategies, the number of repair strategies of each type was analyzed by using the Kruskal-Wallis ANOVA by ranks and Wilcoxon Matched Pair Tests respectively. The results of repair strategies used by each age group were summarized in figures 1 to 5.
Figure 1. Percentage of repetition responses to clarification requests

Figure 1 revealed that the repetition response decreased across all age groups from 3;6 to 8;9 and the changes were statistically significant, with $H (3, N=72)=16.29 \ p<0.01$, $H (3, N=72)=26.6 \ p<0.01$, and $H (3, N=72)=27.59 \ p<0.01$. Also, there were great differences of responses between request types. More repetitions were produced in response to the first clarification request "言って？" ("Huh?") than to the second clarification request "何？" ("What?") across age groups. In addition, a greater number of repetitions were produced in response to each of the requests "言って？" ("Huh?") and "何？" ("What?") than to "えええ！（I didn't understand!）". Each age group demonstrated this pattern.

Figure 2. Percentage of revision responses to clarification requests

Figure 2 revealed the use of revision strategy. No age group depended heavily on this
strategy and no significant age-related differences was found. However, there were
decreases in use across request types from first clarification request "ه؟" ("Huh?") to the
third clarification request "ش وا؟ّ!" ("I didn't understand!").

![Figure 3: Percentage of elaboration responses to clarification requests](image)

Figure 3 revealed that the use of elaboration strategy increased across all age groups
from 3;6 to 8;9 and the changes were statistically significant, with $H(3, N=72) = 12.36$
p<0.01, $H(3, N=72) = 11.34$ p<0.01, and $H(3, N=72) = 11.36$ p<0.01. Also, there was a
great differences between the request types. More elaboration were produced in response to
the second clarification request "ش وا؟ّ?" ("What?") and third clarification request "ش وا؟ّ!" ("I didn't understand!").

![Figure 4: Percentage of cue responses to clarification requests](image)
Figure 4 showed that the use of cue strategy increased significantly across all age groups from 3;6 to 8;9, with $H (3, N=72)=20.57 \ p<0.05$, $H (3, N=72)=21.01 \ p<0.05$, and $H (3, N=72)=23.94 \ p<0.05$, especially centered in the two oldest age groups of 6;6 and 8;8. Cue was rarely used by the youngest age group in all request conditions. Also, there was an increase in use across from the first clarification requests to the third clarification requests in all age groups, with an increase especially in response to the third clarification requests.

Figure 5 illustrated the inappropriate response of the children. No age differences reached significant. There was an increase of inappropriate response with regard to the third request condition than to the first and second request conditions progressively.
Figures 6 and 7 illustrated the use of specification and correction strategies. Although there were no significant age differences in both strategies, the older age groups (5;5, 6;6, 8;0) tended to use more specification than the 3;6 age group; and the oldest age group used correction more than age groups 5;0 and 6;6. In considering the differences between request types, there was a decrease in the use of specification from in response to second clarification request "What?" ("What?") to third clarification request "I didn't understand!") in all age groups. The use of correction increased when in response to third clarification request "I didn't understand!") in all age groups.

Wilcoxon Matched Pair tests were used to determine the significant differences between each repair strategies among other repair strategies within each age group. The results were summarized in figure 8 and in tables 3 to 6.
Table 3. Wilcoxon Matched Pair Test results of 3;6 to 4;3 children.

<table>
<thead>
<tr>
<th>Forms</th>
<th>Repetition</th>
<th>Revision</th>
<th>Elaboration</th>
<th>Specification</th>
<th>Correction</th>
<th>Cue</th>
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* - significant level p<0.05, n.s. - insignificant

Table 3 revealed that there were many significant differences at the p<0.05 level. Within aged 3;6 to 4;3 children, 46% of their responses were repetition, which was used significantly more often than all other repair strategies. Revision and elaboration were used less frequently, and the cue response was used least with only 1.1%.

Table 4. Wilcoxon Matched Pair Test results of 5;0 to 5;9 children.

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<tr>
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* - significant level p<0.05, n.s. - insignificant

Table 4 revealed that within aged 5;0 to 5;9 children, repetition, elaboration and revision were the repair strategies used most with 27.2%, 24.9% and 19.3% respectively. Repetition was used significantly more often. Specification, cue and correction were used least in this age group.

Table 5. Wilcoxon Matched Pair Test results of 6;6 to 7;3 children.

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<thead>
<tr>
<th>Forms</th>
<th>Repetition</th>
<th>Revision</th>
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* - significant level p<0.05, n.s. - insignificant

Table 5 revealed that within aged 6;6 to 7;3 children, elaboration and revision were the strategies used most, with 28% and 22.3% respectively, although they were not reach significant. Correction, specification and inappropriate responses were least occurred with 5.9%, 5.2% and 6.9% respectively.
Table 6. Wilcoxon Matched Pair Test results of 6;6 to 7;3 children

<table>
<thead>
<tr>
<th>Forms</th>
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* - significant level p<0.05, n.s.- insignificant

Table 6 revealed that within age 8;0 to 8;9 children, elaboration and revision were the repair strategies used most, with 30.3% and 26% respectively. Specification, correction, and inappropriate were least occurred. Moreover, repetition was used less frequently.

Figure 9 revealed that when in response to the first clarification request “Huh?” (“Huh?”), children frequently responded with repetition with 36%. The use of cue strategy and inappropriate response were least occurred with 0.3% ad 2.3% respectively.

In response to the second clarification request “What?” (“What?”), figure 9 revealed that elaboration, revision and repetition were used most with 28.7%, 25.5% and 5% respectively. Cue, specification and correction were least occurred. There was a decrease use of repetition and an increase use of elaboration and cue as compared with the response to first clarification request condition “Huh?” (“Huh?”).

In response to the third clarification request “I didn’t understand!” (“I didn’t understand!”), figure
9 revealed that children mainly responded by elaboration and inappropriateness with 20.4% and 19.7% respectively. Specification and correction were least occurred. There was an increase cueing and inappropriate responses. At the same time, the use of repetition, elaboration and revision strategies decreased.

Discussion

The present study revealed that subjects in all age groups responded to the majority of the clarification requests by providing some types of conversational repairs. The younger Cantonese-speaking children predominately used repetition, but older children reduced using this form and tended to use more elaboration, revision and cue. What are the reasons for this developmental trend? Are there any differences in the use of these strategies amongst children of different ages? What are the underlying reasons for using different repair strategies in response to different clarification requests? The following discussion provides some plausible explanations for these questions.

The developmental trend of children's use of repair strategies

As far as a developmental perspective is concerned, the results agree with those of similar studies on English speaking children which have either reported age differences or developmental changes (Gallagher, 1981; Garvey, 1977; Brinton et al., 1986). Repetition is used frequently by younger children, but their uses decline with increasing age. Cue and elaboration are employed more frequently when children grow up.

Over the years, numerous researchers (Gallagher, 1977; Garvey, 1984; Brinton et al. 1986) claimed that the major contributing factors that determine children's capabilities in using different repair strategies are the linguistic knowledge development, cognitive development and conversational abilities change.
**Linguistic knowledge development**

In order to repair, children need to have their linguistic or grammatical knowledge to help segment surface strings of their original utterances and produce semantically, functionally or formally equivalent phrases (Garvey, 1977). According to Gallagher (1977), children's repair behaviors are consistent within but differ across language stages. This means that children's strategies for handling a particular type of communication interaction are related to their structural knowledge (Gallagher, 1977). Therefore, as children's knowledge of language develop with increasing age, the ease with which they can employ any one of the repair strategies available to them increase.

**Cognitive development**

Repair is a kind of behavior which requires cognitive processing. According to Shonerd (1994), the cognitive process in which children employed to repair is to interpret the prompt as a clarification request, and to recall what they have just said. They have to classify the particular clarification request before narrowing down the range of possible responses. Children then turn to draw on their knowledge of possible structures and to compare their original utterances with these possibilities. Then, they are guided by various options. Therefore, successful repairing requires children to have enough memory apart from retaining the original utterances, but also basic propositional memory for event knowledge and repair rules, and the complex cognitive processing. This ability increases with increasing age.

Moreover, conversation is an activity which requires the mutual efforts of both speaker and listener to successfully negotiate the meaning of the message being transmitted. When communication breakdown, in order to repair, children need the cognitive ability to help take listener's perspectives, facilitate listener's comprehension by using appropriate repair types,
and to adapt messages to different listener's needs. According to Piaget (1959), younger children are egocentric in nature and they believe that most of their interpretation of events were identical and shared by listeners (Levin & Rubin, 1983). Therefore, they may use less effective repair strategies. Only with increasing age children are able to use more effective repair strategies.

Moreover, according to Clark (1982), repair is a kind of metacognitive process to monitor one's speech production. There is a monitoring system working to co-ordinate between children's mismatched comprehension and production development (Clark, 1982), and to carry out repair whenever necessary. The spotlight nature of it enables children to focus only on areas which are on their course of mastery, and only limited areas at a time. This regulatory function therefore presumably changes with age. Relatively little to coordinate when children have limited language knowledge, but increase across their language stages. When doing a repair, area which children have increased certainty would not be realized that they need repair, but not for the aspects that the children are not sure of. It is not until children have worked out much or most of a particular system before shifting to new area.

Conversational abilities development

According to Shatz & O'Reilly (1990), children's abilities to respond to clarification requests are the consequence of their growing abilities to participate in conventional sequences of discourse. In order to repair, children need to have the turn-taking rule in mind upon clarification request, and to respond to it. They need to know that the clarification request is an invitation from the listener to furnish the utterance by themselves (Garvey, 1984). Moreover, they need to respond appropriately upon different types of clarification requests. Therefore, with increasing age and experience in conversation participation, children do have
more effective conversational ability to deal with this kind of conversation phenomenon.

After reviewing the contributing factors for children to repair, clear explanation to their uses of different repair strategies can be given. Researchers (Gallagher, 1977, Brinton et al., 1986) claim that younger children have limited linguistic abilities. In order to master the appropriate use of cue strategy, for example, a more complex grammatical formulation of sentences is required in providing background information and definition, and hence, this is not expected to appear at the children aged 3;6 to 4;3. Moreover, although a high percentage (21%) of repairs were made by revision, a close inspection of it revealed that 70% of them involved in alternating words, rather than revising the syntactic structure. As reported from previous studies (Konefal & Fokes, 1984; Clark, 1982), younger children lack the advanced syntactic abilities for formulating sentence structure. Therefore, children aged 3;6 to 4;3 resorted to use repetition (46%) and elaboration (14.9%), which are consistent with prior studies (Gallagher, 1977; Garvey, 1977; Brinton et al., 1986).

In addition, children aged 3;6 to 4;3 are in developing their languages, therefore, their spotlight nature of the monitoring systems are working in areas that they are on the course of mastery. Therefore, these children mainly repaired by alternating labels and less repaired by revising the syntactic structures since they are not yet fully get developed.

Moreover, according to Piaget (1959), as mentioned before, the egocentrism of younger children make them less able to perceive from their listeners' perspectives. Therefore, they may not be able to assess listener's knowledge and therefore using less sufficient repairs. Children aged 3;6 to 4;3 were less willing to repair in the repair sequence. They felt particular difficult as there were more inappropriate responses when in response to the third clarification request although the overall rate of inappropriateness was low.

As age increases, children's linguistic knowledge, cognitive knowledge and
conversational skills improved. Children aged 5;0 to 5;9 reduced their use of repetition, at the same time increased the use of revision and elaboration, indicating a more sophisticated mastering of the linguistic structures which enable them to revise the sentence structures.

Moreover, with increasing amount of vocabulary acquired by these ages, they have more varieties of word available to repair. However, this increasing amount of vocabulary would also encounter more problem in usage, and require massive organizational efforts (Clark, 1982). According to Clark (1982), the greater specificity of reference of the lexicon would arise problem for children because of the multiple access routes are needed in storing and retrieving word with related meanings. As children’s lexicon is not yet fully organized semantically, morphologically, and phonologically, their monitoring systems operated at this stage so that more lexical repairs by alternate label, correcting and specifying are found within these ages.

Besides, children aged 5;0 to 5;9 employed more varieties of repair strategies, contrasted with children aged 3;6 to 4;3 who concentrated their use on repetition. This may be due to the fact that children aged 5;0 to 5;9 have better linguistic mastering and conversational skills, and are more willing to find out the problem source. Therefore, they are more able to use different strategies to provide an understanding to their listeners.

In considering children aged 6;6 to 7;3, their performance indicate that their linguistic, cognitive and their conversational abilities all developed. There was an increase use of elaboration, reflecting that the massive organizational efforts these children have to make with the increasing numbers of words acquired, with 14000 by age six (Clark, 1982). The most striking difference of the aged 6;6 to 7;3 children when compared with the younger children, was an increase use of cue strategy. Cue strategy is considered to be the most difficult strategy (Brinton et al, 1986), because it requires the mastery of better linguistic abilities to
form longer sentences and to formulate questions. According to Brinton et al. (1986), the use of cue strategies indicate that children attempt to find out the source of misunderstanding, and therefore, by providing some explanations, definitions to unfamiliar terms, and more efforts in order to enhance conversation and to let listeners understand the message. Moreover, certain amount of propositional event knowledge is required in providing background information. Therefore, the use of cueing appears in children with increasing age.

The increasing use of cue, elaboration and revision strategies of children aged 8;0 to 8;9 further reflect a more advanced development of their linguistic, cognitive and conversational abilities, and enable them to have their repair repertoire expanded. Older children tend to have a rather sophisticated linguistic repertoire. They can produce longer sentence, compose more ideas in their utterances and reformulate questions about the source of communication breakdown. Therefore, the aged 8;0 to 8;9 children repaired more by revising to the syntactic structure in order to present their utterances in an organized fashion (Clark, 1982), as also be reported by previous researches (Clark, 1982; Gallagher, 1977). In addition, their revision to the syntactic structures of sentence also reflects their monitoring system are determining to work in this area which children are mastering with.

Moreover, the repair process requires to recall what they have just said. The memory for discourse depends on factors such as task demands and the knowledge that the communicator has of the topic of discourse, these all have powerful effects on how well can children to recall a stretch of discourse (Carroll, 1986). The older children have a longer memory span and more propositional event knowledge of the past event in the topic of discourse, therefore, they are more likely to provide background information when misunderstanding occurred.
Results of this study indicated that younger children used more repetition but less cueing in repairing utterances. Therefore, the developmental pattern of the use of repair strategies is similar to that of English-speaking children. It implied that the order of acquisition in terms of production is determined by their the integration of the development of their linguistic, cognitive and conversational abilities. Neither factors contributed independently in determining the proficiency of using repair strategies, since human development is an integrated process.

The effect of type and position of clarification request to children’s use of repair strategies

Previous studies suggest that frequency and type of repair also vary with the type of clarification requests (Gallagher, 1977; Brinton et al. 1986; Garvey, 1977). Different clarification requests elicit different response types, then, require different linguistic skills to respond appropriately to. According to Garvey’s (1984) analysis, for example, neutral clarification requests are mainly responded by repetition. In order to interpret the specific clarification requests, according to Anselmi, Tomasello & Acunzo (1986), children need to comprehend the verbal material in order to identify the problem source, and employ the pragmatic rule to respond by repeating of a constituent which are the only asked for information. Although only neutral clarification requests were used in this study, however, different responses patterns were seen apart from repetition, for example, there were the use of elaboration and revision.

Children in all age groups responded to the first clarification request by providing some types of conversational repairs. This indicate that they all recognize the obligatory nature of neutral clarification request. Many researches claim that neutral request is a general
indicator to indicate some repair is needed (Clark, 1982), without specific information being requested. According to Garvey (1977) and Shatz & O'Reilly (1990), neutral clarification request signals two possible sources of communication failure: cannot be heard or cannot be understood. They suggest that young children mainly interpret neutral clarification request as an inaudible problem and therefore responded by repetition. Different view is held by Langford (1981) in which he claims that neutral request is mostly used to indicate some parts of message are not understood even though it is heard. However, according to Shatz & O'Reilly (1990), children's interpretation of the clarification request may be related to the parental style of using clarification requests. They point out that parental clarification requests are implicit in nature, which is ill-suited to teach children the importance of sending clear messages, therefore, children interpret the clarification requests are only to signal a lack of hearing on the part of the listener. This reflected in this study as children tended to repair by repeating to the first clarification request "What?" ("Huh?"); and similar response is reported from previous studies (Anselmi et al., 1986 Gallagher, 1977). Therefore, the easiest way to for children to respond to is mainly to repeat the utterance, although other strategies may be more effective. All age groups in this study demonstrated this pattern.

When faced with second clarification request "What?" ("What?"); different response pattern arise. In general, children used more revision and elaboration in this condition. Although clarification request "What?" ("What?") is also natural in nature, there is a decrease in use of repetition. According to Brinton et al (1986), this indicate that children may aware that some reasons other than inaudible that make the first repairs do not meet satisfactory. In this study, children were then pressed to provide clarification by using different strategies. It was especially the case of older subjects as they could continue to repair by resorting to more
varieties of repairs, while younger subjects faced difficulty to carry on repairing.

In facing with the third neutral clarification request “I didn’t understand!” ("I didn't understand!"); children tended to repair by using more elaboration and cue strategy. According to Peterson, Danner, and Flavell (1972), this clarification request is neutral and implicit in nature with spelling out the listener's internal state. Their study showed that children could correctly infer that implicit demands were being placed on them, but different response result in different age group children. In this study, older children repaired by elaboration. Besides, in the third request condition, there was an increase in inappropriate response. As suggested by Brinton et al.(1986), this may be due to children lack the persistence and flexibility in responding to clarification request as it is the third request within the sequences. Two age groups in this study, 5;0 to 5;9 and 8;8 to 8;9 produced more inappropriate response to this third request condition. These subjects do have a rather rich repair repertoire in response to the previous two request conditions. As claim by Prather, Kenalyn, and Kenney (1989), by comparing the repair abilities of language normal and language impaired children, normal subjects are less persistence than the impaired children to repair. Older children may think that their previous two repairs are enough to provide sufficient information to the listener. In this study, some children recommended the experimenter to find out the picture by herself as they claimed that they have already repaired the unclear messages.

The results of this study indicated that the use of repair strategies differs according to the position of the request type, as all three neutral and non-specific clarification requests are used. Children tend to repeat their original utterances when first faced with a clarification request. But as request sequence continues, they may shift to use other strategies to repair in order to
achieve success communication. Children may try to find out the source of breakdown as reflected in different strategies used. Different responses are related to their abilities and course of development as discussed above.

Clinical implication

The results of the present study can act as a preliminary developmental pattern of normal Cantonese-speaking children's use of repair strategies. The age and order of acquisition of different repair strategies can act as a reference for assessment and treatment, as children's linguistic ability, cognitive ability and conversational skills and their stage of development as are reflected in the repair process. Children with increasing age are more efficient in the use of repair strategies. In addition, repair behaviors reflect children's ability in perspective-taking and the application of pragmatic-discourse rules, these also have direct clinical implications for the assessment and intervention of children's language ability.

Furthermore, from this study, the use of neutral clarification requests can elicit children's repair repertoire, e.g. elaboration and new information. Therefore, repair behaviors present the potentially powerful therapeutic technique to elicit children's response without restricting their range of answer.

Limitation and implication for further research

The present study mainly focused on the children's use of repair strategies when in response to neutral clarification requests. This other-initiated self repair behavior provides some developmental patterns of repair strategies usage. In the way that different age children in response to clarification request sequence. However, children's other repair behavior is not known. According to Clark (1982), self-initiated repair can provide much more information on the functioning of children's monitoring system and its role playing in the
language acquisition process. Therefore, further research is recommended to investigate other types of conversational repair mechanisms, e.g. self-initiated repair, and can have a comparison between them.

Only neutral requests were employed in this study. As mentioned before, the use of repair strategies are affected by the elicitation of clarification requests. Therefore, little is known and it is recommended to investigate children's repair response when in response to other types of clarification requests, request for confirmation.

In addition, in this study, children's repair behaviors were elicited in the format of structured tasks rather than in a naturalistic format, therefore, may restrict children's real performance. Moreover, only one experimenter conducted the experiment, however, there are studies show that children's verbal behavior differed from speakers to speakers. Therefore, further research is required to investigate the relationship of these two factors to children's use of repair strategies.

Conclusion

The finding of this study corresponded with that of Brinton et al. (1986). This study reviewed that the use of repair strategies differ according to the age of children and the position of the clarification request within the sequence. With increasing age, children have a better linguistic knowledge, cognitive and conversational skill development and greater interaction among them, are able to use more informative repair strategies. Children recognized the obligatory nature of neutral clarification request by employing some strategies to provide conversational repairs. However, the use of the repair strategies differed according to the position of the request as in this study. Children tended to repeat when in
response to the first neutral clarification request, and shifted to use other strategies when in response to other clarification request in the sequence. Younger children had increasing difficulty in providing repairs as the sequence progressed, while older children usually responded appropriately to all the request in the sequence. This result again confirmed that children's abilities and the course of their development contributed to their use of different strategies.

Acknowledgment

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Baptist Lui Ming Choi Primary School
Bondhi Siksa Anglo Chinese Kindergarten
City One Anglo Chinese Kindergarten & Nursery
Green Field English Kindergarten
Our Lady of China Catholic Primary School
Po Leung Kuk Fung Leung Kit Memorial Kindergarten
Salvation Army Kindergarten
SKH Holy Spirit Primary School
Tai Po Baptist Kindergarten

I would also like to acknowledge the valuable comments and contribution made by Professor Paul Fletcher and Dr. Samuel Leung. I would like to express thanks to Dr. Godfrey Harrison and other teacher staff for their supervisions and suggestion in preparing this discussion.

References


Appendix:
1. Pictures used in this study
2. Letters
Dear Ms. Tam,

Help in Seeking Participants in Research

I am writing to ask your permission to seek people who are willing to help in my research. I am a final year student on the speech therapy course at the University of Hong Kong. I am now looking for children aged between four and six years old. My study is to investigate the expressive ability in normal developing children when face with request for clarification. I believe the results of this study will contribute to the understanding on the use of language of children and give information to teachers in teaching.

I will work with each child for about fifteen minutes. A set of pictures will be presented to the children. The child will be asked to describe the pictures. Then, a set of clarification requests will be asked to see how they respond.

All information will be kept confidential and no children will be identifiable from any results recorded. I need ten to twenty children in all. I understand that it may not be possible to get enough children from your kindergarten but I would appreciate as much help as possible from you. I will be grateful if you would tell me the number of possible children I could work with in your kindergarten.

As we have compromised the suitable period on telephone, I will come on 27 January 1997 at 2:00 p.m. Should there be any changes please tell me as soon as possible. I will send copies of questionnaire which are about the selected child’s speech and language performance, please be filled in by the teachers. It would be grateful if you could give me the list of the selected child’s name and date of birth on that day.

If you want more details about my study, you are welcome to contact me on the pager number 71128932 a/c 8936.

Thank you for your kind assistance and I am looking forward to working with your school soon.

Yours sincerely,

[Signature]

Harriet Yuen Yiten Har
Dear Mr. Chow,

Enclosed is a request from Harriet Yuen, one of our final year students, for seeking participants to include in her final year research project.

All our final students will graduate at the end of this year as speech and language therapist. They will then work in the community with children and adults with communication disorders. As part of their degree, each student has to complete a research project on some aspect of normal or non-normal speech and language in Cantonese speakers. As well as being a degree requirement, and giving the student valuable skills, this work adds to the body of information that we need to develop on Cantonese: on children's development, on the speech and language of the hearing-impaired, and on language breakdown in adult via strokes or other brain injury.

We should be very grateful if you would be able to afford this student the facilities for collecting the information that is requested. The student has our full support in this project. If you have any queries at all, please do not hesitate to contact me immediately.

Yours sincerely,

Paul Fletcher
Professor and Head