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<td><strong>Author(s)</strong></td>
<td>Siu, Chi-yuet; 蕭志囮</td>
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Assessing Narrative Comprehension
in Young Pre-school Children

Siu Chi Yuet, Beracah

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Assessing Narrative Comprehension in Young Pre-school Children

Siu Chi Yuet, Beracah

Abstract

The assessment of narrative comprehension among young pre-school children is important for early identification of children with language impairment. However, such narrative comprehension assessment tools are currently unavailable in Hong Kong. This study aimed to develop an oral narrative comprehension measure, the Chinese Joint Story Retell test (CJSR), for young pre-school children by adapting the Joint Story Retell test originally developed in Canada. Results showed that performance of CJSR was age-sensitive to the younger population of pre-school children and displayed convergent validity with a traditional comprehension measure. Although further investigation on the measure is necessary, this study suggested that CJSR is a potentially valid and appropriate measure for assessing narrative comprehension of younger pre-school children.
Assessing Narrative Comprehension in Young Pre-school Children

The importance of assessing language comprehension in children has been well-established in the literature (see Miller & Paul, 1995 for review). Although most children learn to speak and understand in predictable time and patterns, the development of language production and comprehension may not always correspond to each other perfectly (Shulum & Capone, 2010). This gap in development should not be taken lightly, as it is a significant predicting factor in the prognosis of children with language disorders (Dempsey & Skarakis-Doyle, 2001; Olswang & Bain, 1996). Children with deficits in both language modalities are usually more severely impaired and associated with a poorer prognosis than those with expressive language disorder only (Paul, 2007). In addition, a growing emphasis is placed on the early diagnosis and intervention of pre-school children with language impairment. Early identification can allow prompt intervention to be provided to these children, and helps to minimize future negative emotional and social consequences that are associated with an impaired language development. Hence, in consideration of this increasing emphasis of early identification of pre-school children with language impairment, as well as the important role of assessing comprehension in language impaired children, valid measures which can accurately assess pre-school children’s receptive language are deemed crucial.

Despite the discussed need for valid tools for assessing receptive language in pre-school children, the current availability of such tools for Cantonese-speaking pre-school children (below 6;0) is limited, especially when the different levels of receptive language (i.e. vocabulary, syntactic, and discourse levels) are taken into consideration. In a recent review on the diagnostic tests available in Hong Kong (Klee, Wong, Stokes, Fletcher, & Leonard, 2009), four language tests which are most commonly used by Hong Kong’s speech therapists were listed, i.e. the Cantonese Expressive Language Scales (CELS), Hong Kong Cantonese Oral Language Assessment Scale (HKCOLAS), Hong Kong Cantonese Receptive Vocabulary Test (HKCRVT), and Reynell Developmental Language Scales-Cantonese Hong Kong version.
(RDLS-C). Among the four tests, two of them (i.e. HKCRVT and RDLS-C) can be used to evaluate receptive language in children below the age of 6. The HKCRVT tests a single item of receptive vocabulary; while RDLS-C allows the assessment of comprehension at both vocabulary and sentence levels. However, neither of the tests addresses comprehension of young children at the discourse level. According to Miller & Paul (1995), comprehension of vocabulary and syntax involves ‘identifying the referents of single words and decoding the meaning relations within sentences’ (p.7); while comprehension of discourse requires the understanding of social, textual, scriptal, and other forms of prior knowledge during the interpretation of meaning. Since different specific skills are required at each level of language comprehension, vocabulary and syntactic competence should not be generalized to the broader domain of comprehension (Dempsey & Skarakis-Doyle, 2001). Therefore, the current standardized assessment tools available in Hong Kong are inadequate in terms of representing a comprehensive profile of receptive language among pre-school children.

The assessment of narrative discourse comprehension among young pre-school children is especially important for two reasons. Firstly, narrative forms a fundamental part of children’s earliest language experience and hence assessment of narrative discourse demonstrates ecological validity (Botting, 2002). Narratives can be found interwoven in many of the young children’s daily experiences at home and at school. Children’s communication with their caregivers and teachers normally involves narratives, such as the re-telling of daily routines or events, telling of personal or fictional stories, and construction of plots in thematic and symbolic play (Pelligrini, 1985). According to Paris & Paris (2003), children begin to develop a rich repertoire of narrative knowledge since the early age of 2 or 3. With this growing knowledge, young children are able to produce and comprehend narrative stories to communicate and participate more fully at home as well as school. Deficits in narrative comprehension at this early stage not only affect children’s development of language, but also limit their participation in social communication (Dempsey & Skarakis-Doyle, 2001). With
the availability of early narrative comprehension assessment, young children who are not fully participating in their current daily settings due to narrative comprehension deficits can be identified and hence receive intervention if necessary.

Secondly, apart from being linked to pre-school children’s current social communication, competence in narrative discourse is also associated with their early reading development (Liu, McBride-Chang, Wong, Tardif, Stokes, Fletcher, & Shu, 2010; Lynch, van den Broek, Kremer, Kendeou, White, & Lorch, 2008). As reported by Skarakis-Doyle & Dempsey (2008), a growing number of studies have found that oral language comprehension skills indeed contribute to the acquisition of literacy skills. It was stated that the cognitive skills required for narrative thinking, such as the knowledge of conceptual, semantic, and narrative relations can facilitate children in understanding texts when they first start to read. Children can enjoy the advantage of being more readily to comprehend words and text if they possess the stated cognitive skills. A valid narrative comprehension assessment tools especially designed for pre-schoolers may therefore help to identify those who are at risk of future problems in literacy development at an earliest possible stage.

It was discussed earlier that there is a relative neglect among standardized measures on the comprehension of young children’s oral narrative ability. Despite this inadequacy among formal tests, certain traditional procedures are present to meet the need for identifying young children with narrative comprehension deficits. However, the widely used traditional measures are not without limitations. The two most widely used story comprehension measures are comprehension questions (CQs) and story retells (Skarakis-Doyle & Dempsey, 2008). In CQs, children are required to respond to questions concerning a given story; while in story retells, children are asked to produce a story narrative on their own after being told the story. In both tasks, there is a fair amount of demand imposed on the children’s memory (Morris-Friehe & Sanger, 1992). The children must continuously form representations in their memory, hold them through the entire story-telling, and retrieve all the needed details upon
their turns to respond. Because what was understood might not be successfully recalled in the tests, there is a possible risk to underestimate children’s comprehension ability. Apart from the demand on memory, both tests typically demand children to produce multiword combination in their responses. It is likely that, since development of production and comprehension abilities in children might not correspond perfectly, some children might not be able to express what was already understood. Children who are very young, or are identified with expressive language impairment, are especially prone to the underestimation of abilities (Feagans & Farran, 1981). Therefore, in interpreting results from CQs and story retells, there is a potential risk of underestimating the children’s comprehension abilities due to the confounding factors of memory and expressive language proficiency. A further challenge in assessing young pre-school children is the level of behavioral compliance required in conducting comprehension tasks. According to Bates (1993), compliance in the forms of paying attention, following instruction, and carrying out tasks, was not very readily observed among pre-school children, yet was essential in the implementation of comprehension tests. Despite the above discussed challenges in measuring the comprehension of young pre-school children, Paris & Paris (2003) reasoned that comprehension of story narrative in pre-school children ought to be and could be measured. A valid measurement tool is possible when the test format and materials are carefully crafted to reveal the young children’s emerging comprehension competence. (Skarakis-Doyle & Dempsey, 2008; Stein & Albro, 1996).

In response to the challenges in assessing story narrative comprehension in pre-school children, research has been done by Skarakis-Doyle and Wootton (as cited in Dempsey & Skarakis-Doyle, 2001) in Canada to develop a test suitable for this population. The test, named Joint Story Retell (JSR), is an oral adaptation of the traditional written cloze test. In a cloze test, words from the story are deleted in a systematic fashion (Dempsey, 1999). Participants are required to provide the missing words from the passage. The appropriateness of responses would be dependent on the surrounding context. A basic principle that JRS draws
from the cloze test is that participants with better story comprehension would demonstrate a better chance of recovering the missing words (Dempsey & Skarakis-Doyle, 2001). In contrast to the traditional assessment for narrative comprehension such as CQs and story retells, the JSR possesses several strengths which make it an appropriate comprehension test for young preschool children.

Firstly, the JSR limits the memory demand of the comprehension task by making use of a patterned story book with repetitive episodes, syntax, and vocabulary. In addition, children are not required to re-tell or retrieve information from the entire story at the end. Instead, the children and the examiner will reconstruct the story together after the telling of story, so that the working memory of the children will not be over-burdened with mental representations of the story content. The framework of the retold story therefore scaffolds the memory of the children. Secondly, while traditional CWs and story retells cast great demand on the children’s abilities to construct verbal responses, the JSR diminishes the demand by requiring the children to complete the cloze item with one to two words only. The increased independence from expressive language ability enables the test to be a more valid tool for assessing language comprehension. Thirdly, the patterned story book JSR used is often based on daily events familiar to young children (e.g. bath time). Therefore poor performance in JSR is more likely to be attributed to poor narrative comprehension instead of a lack of world knowledge. Fourthly, JSR demonstrates ecological validity by simulating the common parent-child story retelling scenarios in the task. Lastly, the validity and reliability of JSR as a comprehension measure have been reported (Skarakis-Doyle & Dempsey, 2008). It was shown to be a developmentally sensitive test for children between 2½ and 5 years of age, displaying a significant and moderately strong correlation with age. Convergent validity with traditional comprehension assessment and divergent validity with expressive language tests were displayed. A strong test-retest reliability and good internal consistency were also established. Further research has also demonstrated the usefulness of JSR in a battery of comprehension
assessments. Children with language impairment were reported to perform significantly poorer than typically developing children (Skarakis-Doyle, Dempsey, & Lee, 2008).

The JSR has been established as a valid oral narrative discourse measure in the English-speaking pre-school population. However, similar tools have not been available to the Cantonese-speaking population in Hong Kong. This study hence aimed at putting forth a Cantonese Joint Story Retell task (CJSR) for young pre-school children. The procedures of the original JSR were kept, and children were required to supply the deleted story elements from a story after repeated exposure to the story; but a new story script was developed specifically for the CJSR. A different story script was required because of the cultural and linguistic differences between English and Cantonese. According to Westby (1994), narratives are affected by cultural and language differences. Individuals comprehend narrative stories by using their personal schemas, which are the organized mental representations of knowledge developed through encountering daily events and experiences of their own cultures. A mismatch between the personal schema and the story text schema would imply increased challenges in the understanding of the story narrative. For instance, the story used in the original JSR involved a child playing with mud in the backyard of the house. However, a backyard setting is not a common play place for Hong Kong’s young children, and playing with mud is hardly a familiar play event in the densely urbanized Hong Kong. In addition, the differences between English and Cantonese with respect of their morphology and syntax also help to justify the need to establish a Cantonese version of JSR task.

Hence, the purpose of this research study is to develop a Cantonese version of Joint Story Retell test (CJSR). The developmental sensitivity and convergent validity of the CJSR will be tested through its correlation with age and a traditional comprehension assessment measure. By establishing it as a valid oral narrative comprehension measure for Cantonese-speaking pre-school children, the test would be able to fill the current clinical need for such an assessment tool. The following predictions are made:
1. The CJSR will demonstrate developmental sensitivity by showing a significant correlation between the test scores and age, as well as significant differences among three age groups of pre-school children on their scores of CJSR.

2. Convergent validity of the test will be demonstrated by a significant correlation between the CJSR scores and the scores of a traditional comprehension measure, the Cantonese version of the Reynell Developmental Language Scales (RDLS-C) – Receptive Scale.

METHOD

Participants

Children from four Hong Kong kindergartens, which are located in North Point, Fortress Hill, Mei Fu, and Hung Fa Chuen, were invited to participate in the study. Letters containing the purpose of the research study, parent consent forms, and case history questionnaires were distributed to the caregivers via the kindergartens. One-hundred-and-sixty-five completed reply slips were than collected. Among the 150 pre-school children with parent’s consents to participate in the study, a total of 60 children were selected to be the participants. The age and gender distribution of the participants was shown in Table 1. The children selected were distributed fairly among the four kindergartens, ranging from 14 to 16 children per kindergarten. Children in each school were selected basing on the following criteria:

(1) Fell in a designated age range of each year of the class,

   i.e. Nursery class: 2;6-3;0; K1 class: 3;6-4;0; K2 class: 4;6-5;0;

(2) Spoke Cantonese as their mother tongue;

(3) No history of cognitive, physical and language impairments;

(4) Demonstrated the understanding of the experimental task CJSR by showing at least one self-initiated correct response in the pre-experimental test administered one day prior to the testing day.

Out of the 150 children with parent’s consent to participate in the study, 76 were excluded
as they did not fit in the designated age requirement. 6 children were excluded for not speaking Cantonese as their mother tongue, while 5 were not included as certain developmental impairments were reported. 3 children were invited to the pre-experimental test but were excluded as participants as they failed to show spontaneous participation in the initial joint story retell.

Table 1.

<table>
<thead>
<tr>
<th>Group</th>
<th>Age Range</th>
<th>Mean age</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Males</td>
</tr>
<tr>
<td>Nursery Class</td>
<td>2;6-3;0</td>
<td>34.0 months (2;10)</td>
<td>8</td>
</tr>
<tr>
<td>K1 Class</td>
<td>3;6-4;0</td>
<td>45.9 months (3;10)</td>
<td>12</td>
</tr>
<tr>
<td>K2 Class</td>
<td>4;6-5;0</td>
<td>56.9 months (4;9)</td>
<td>11</td>
</tr>
</tbody>
</table>

Materials and experimental test stimuli

Dempsey & Skarakis-Doyle (2001) employed a story involving a child’s bath routine in their original Joint Story Retell test (JSR). To better engage the age groups under investigation, the story took the form of a patterned story. A patterned story featured a familiar story setting to the children, an incorporation of a rhythmic refrain at several intervals of the story, and the repetitiveness of story events, vocabulary words and sentence patterns. To ensure resemblance to the original test, these features were also included in the development of the Cantonese version of the Joint Story Retell test (CJSR). A patterned wordless storybook named “戴黃色帽的小輝” (‘Siu Fai in the Yellow Hat’) was developed for this study. The story took place at an outdoor playground, a setting familiar to most Hong Kong children. The theme of the story was about a little boy playing in the playground with his mother. Throughout the story, the
little boy repeatedly requested to play with different playground facilities such as the see-saw, swing, and slide. During his play with each of the facility, his hat was blown away by the wind, which eventually led to similar consequences of hat-retrieving. The recurrent story events thus allowed the repetitive use of sentence patterns and vocabulary words, which provided an expectable story framework for the children to perform the joint story retell task. A recurring rhythmic refrain was also incorporated to enhance the story engagement among children, e.g. 媽咪媽咪陪我玩，陪我玩搖搖板 (‘Mommy mommy, play with me. Play the see-saw with me!’) The story was 539 Chinese characters in total length, and was presented with ten fully colored pictorial illustrations in total [See Appendix 1 for the full story plot and the black and white version of the illustrations]. The colored illustrations were printed and bound as a typical storybook, allowing the investigator to present the story to the young pre-school children in a more naturalistic manner. In developing the cloze test version of CJSR, the construction of the original JSR was adapted and used. Fifteen elements drawn from seven story element categories (i.e. object, agent, action, location, reaction, adjective, and goal) were omitted in the story [See Appendix 2 for the list of omitted elements]. To minimize direct visual cues of the omitted elements, the illustrations were carefully constructed. Ten out of the fifteen omitted elements could not be seen directly on the illustrations (e.g. Action: ‘sat on the swing’), but were inferable from the setting presented in the pictures. Nonetheless, five other omitted elements (i.e. four ‘objects’ and one ‘location’) were associated with direct pictorial cues due to their essential roles in picture presentation (e.g. Object: ‘see-saw’).

Procedure

Similar to the study of Dempsey & Skarakis-Doyle (2001), the procedure of this research study was divided into two phases. Phase I of the study involved story familiarization and pre-experimental testing, while phase II involved the administration of experimental test
procedures, which included both the CJSR and RDLS-C (receptive scale). The two phases of procedure were administered in two consecutive days for each child.

**Phase I: Story familiarization and pre-experimental testing.** In this phase, the investigator presented the story ‘Siu Fai in the Yellow Hat’ along with the storybook once to the subjects in groups of four to six. During the presentation of the story, pointing at the pictorial illustrations was prohibited to ensure the verbal comprehension of children was tested. Neutral acknowledgement from the investigator was given in response to the children’s spontaneous comments on the story, if any. Afterwards, the children all participated in a pre-experimental testing session of joint story retell. A published illustrated storybook titled ‘我愛上學’ *(I love school)* was presented to the children once. Then a cloze version of the story was presented, and the children were requested to jointly retell the story with the investigator. Children must supply at least one self-initiated accurate response to show their understanding of a cloze test procedure in order to proceed to Phase II of the procedure.

**Phase II: Experimental test procedures.** The next day following Phase I, each individual child was presented the story of ‘Siu Fai in the Yellow Hat’ again to refresh his or her memory of the story. The child then participated in the CJSR. The investigator read the cloze story while the child followed along in the storybook. Upon a missing story element, the investigator paused for a maximum of 5 seconds and waited for a response. The child had to provide the appropriate word(s) within the given time; otherwise the investigator filled in the desired target word(s) and continued with the story. An online recording of each child’s responses was made. Following the completion of CJSR, the Cantonese version of the Reynell Developmental Language Scale (RDLS-C) – Receptive Scale was administered to obtain the subjects’ verbal comprehension ability at the vocabulary and syntactic level.

**Scoring**

There were in total fifteen omitted items in the CJSR. Each omitted item in the CJSR
carried three scores, making up a total score of 45 for the entire task. Each response of the children must be both syntactically and semantically correct to be awarded full scores. No scores would be given if the children demonstrated nil response. Out of the three scores of each item, one score was given to a grammatically appropriate response; while the other two scores were given depending on the semantic accuracy of the responses, i.e. A highly accurate response was given two scores; a partially accurate response was given one score; and an irrelevant response scored nil. A highly accurate response was defined as the exact duplicate or slightly varied version of the modeled stimuli which retained the same meaning, e.g. target item: 捲 (‘take’), participant’s response: 執 (‘pick up’). A partially accurate response was defined as one which contained alterations in the wordings, resulting in an incomplete conveying of the original item meaning, e.g. target item: 公園 (‘park’), participant’s response: 搖搖板 (‘see-saw’). An irrelevant response was defined as one which served no purpose in the progression of story, e.g. target item: 熱 (‘hot’), participant’s response: 買雪糕 (‘buy ice-cream’). This scoring system helped to differentiate among subjects with varying degrees of comprehension ability. As for the calculation of scores in RDLS-C – receptive scale, guidelines from the official manual were strictly followed.

RESULT

Relation between CJSR and age

The summary statistics for CJSR of the three age groups of children are shown in Table 2. As no significant differences were found between males and females, $F(1,59)=0.000, p=0.998$, the subsequent analyses were performed without the differentiation of gender. The descriptive results revealed that the youngest N group scored the lowest in CJSR ($M=25.9; SD=9.95$). The K1 group scored substantially higher by about 10 points ($M=36.1; SD=5.63$), while the oldest K2 group scored slightly higher than the K1 group by about 4 points ($M=40.0, SD=2.44$). It was also observed that the standard deviation of scores was the greatest in the youngest N
group, but decreased with age in the groups of children.

Table 2.

Sample size, age (mean and range), and CJSR scores (mean, range, and standard deviation) of the three groups of children.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Age (months)</th>
<th>CJSR (max scores = 45)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>Range</td>
</tr>
<tr>
<td>N</td>
<td>18</td>
<td>34.0</td>
<td>30-36</td>
</tr>
<tr>
<td>K1</td>
<td>22</td>
<td>45.5</td>
<td>42-48</td>
</tr>
<tr>
<td>K2</td>
<td>20</td>
<td>57.0</td>
<td>54-60</td>
</tr>
</tbody>
</table>

These observed differences of CJSR results across the three age groups were then tested and analyzed using the one-way Analysis of Variance (ANOVA). The .05 level of significance was selected. The results of one-way ANOVA showed there were significant differences in the CJSR results among the age groups, \( F(2,57) = 21.8, \ p<0.001 \). Post hoc comparisons were then performed to identify which pairs of age groups were significantly different from each other. The results of Bonferroni test revealed statistically significant differences between the N and K1 groups \( (p<0.001) \), as well as between the N and K2 groups \( (p<0.001) \). No significant difference was found between K1 and K2 classes \( (p=.295) \).

To further explore the relation between CJSR and age, correlational analysis was performed between the CJSR test performance and age of all 60 participants. Using the curve estimation procedure in SPSS, a regression analysis was conducted with age (in months) as the criterion (dependent) variable, and CJSR as the predictor (independent) variable. The scatter plot in Figure 1 demonstrated that the CJSR test performance improved with the age of the children.
The correlation coefficient between CJSR and age was .649 ($p < 0.001$), revealing a statistically significant and positive correlation of moderate magnitude. Approximately 42% of the variance in age were accounted by its linear relationship with CJSR scores, $F(1,58) = 42.181, p < 0.001$. In view of the scatter plot distribution in Figure 1, a quadratic function was fitted to the data to determine if a quadratic component was present in the correlation. Results showed that the quadratic function did not impose a statistically significant change in the amount of variance, $F(1,57) = 0.099$. Hence, the possibility of a quadratic component in the correlation of age and CJSR was eliminated. The resulting equation for predicting the CJSR performance given the child’s age is, predicted age = (0.723 x CJSR scores) + 21.129.

Another regression analysis was also performed with age as the predictor (independent) variable, and CJSR as the criterion (dependent) variable. The resulting equation for predicting
children’s performance in CJSR, illustrated in Figure 1, is: predicted CJSR scores = (0.582 x age in months) + 7.505.

Relation between CJSR and RDLS-C

Descriptive statistics for both the CJSR and RDLS-C test results of the three age groups are presented in Table 3. No significance difference was found between the RDLS-C results of male and female participants, F(1,59)=.006, p=.936, hence subsequent analysis were performed without the differentiation of gender. Descriptive statistics revealed that the results of RDLS-C showed a similar pattern with CJSR in terms of the means and variance across the three age groups. The youngest N group scored the lowest in RDLS-C (M=39.3, SD=8.52). The K1 group performed considerably better than N group by about 11 points (M=50.0, SD=5.88), and the K2 group demonstrated the best performance in RDLS-C (M=58.0, SD=3.08). Similar to CJSR, the standard deviations were observed to decrease when the age of children increases.

Table 3.
Means, range, and standard deviation of the results of CJSR and RDLS-C for the three groups of children.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>Range</th>
<th>SD</th>
<th>M</th>
<th>Range</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>18</td>
<td>25.9</td>
<td>8-41</td>
<td>9.95</td>
<td>39.3</td>
<td>28-62</td>
<td>8.52</td>
</tr>
<tr>
<td>K1</td>
<td>22</td>
<td>36.1</td>
<td>19-45</td>
<td>5.63</td>
<td>50.0</td>
<td>39-62</td>
<td>5.88</td>
</tr>
<tr>
<td>K2</td>
<td>20</td>
<td>40.0</td>
<td>33-44</td>
<td>2.44</td>
<td>58.0</td>
<td>53-64</td>
<td>3.08</td>
</tr>
</tbody>
</table>

It was hypothesized that if the CJSR was valid in its assessment of children’s comprehension abilities, it should demonstrate a significant correlation with the RDLS-C as
an evidence of its convergent validity. To explore the relation between CJSR and RDLS-C, a
correlational analysis was performed on the scores of the 60 children. Using the curve
estimation procedure in SPSS, a regression analysis was conducted. CJSR was entered as the
predictor (independent) variable, while RDLS-C was entered as the criterion (dependent)
variable. The scatter plot in Figure 2 showed that as the performance of CJSR increased, so
did RDLS-C. The correlation coefficient between them was .758 ($p<0.001$), indicating a
statistically significant and positive correlation of strong magnitude.

![Figure 2. Scatter plot of CJSR and RDLS-C with linear regression line.](image)
**DISCUSSION**

Very young children are being constantly exposed to narratives in daily settings such as households and schools. Deficits in their understanding at this level of language would not only directly affect their social communicative experiences from an early age on, but might also increase risk for later literacy-related difficulties (McCabe & Rollins, 1994). An assessment measure which would more specifically tap on narrative comprehension was therefore deemed crucial in order to provide timely intervention. Traditional comprehension tests, the CQs and story-retells, were commonly used to evaluate comprehension competence in young pre-school children. However, the confounding factors involved in the tests, such as memory and expressive language proficiency, might lead to obscured interpretation of the result. This study hence aimed to develop a Cantonese version of Joint Story Retell test (CJSR), a test designed to limit the interference of memory and verbal proficiency. The validity of this new measure was investigated, and it was hypothesized that if CJSR was valid as a measurement of children’s narrative comprehension, it would demonstrate, firstly, developmental sensitivity by showing a significant correlation with age; and secondly, convergent validity with the comprehension measure of RDLS-C, a commonly practiced standardized language test. In the following, these hypotheses concerning CJSR validation would be discussed in details.

*Developmental sensitivity of the CJSR*

According to Anastasi (1988), age differentiation is a major criterion used in test validation. Test scores should show a progressive increase with advancing age. It was expected that since the development of both expressive and receptive language progressed rapidly in the early preschool years (Chapman & Kohn, 1978), the scores of CJSR should increase with the advancing age groups. Results of this investigation revealed that CJSR did possess a certain degree of age differentiation. It was shown that there was a significant and
moderate correlation between CJSR and age. Further result analysis revealed that the test performance of the youngest N group was significantly lower than the other two older groups. However, no statistically significant differences were found between the K1 and K2 groups. There are several plausible reasons to account for such findings.

First, the difference in test results between the youngest N group and the two older groups match with the expectation that the age factor would indeed play a role in test performance. At closer examination of the test results, responses which were partially accurate (i.e. 2 scores or below for each test item) account for 60% of the total responses in the N group, in comparison to the 34% and 25% in K1 and K2 groups respectively. Such poorer performance in the N group children was likely to indicate their relatively weaker story comprehension ability.

Second, despite the differences exhibited between the N group and the older two groups, no statistical significance was found between the older two groups. This finding was inconsistent with the stated argument that the developmental nature of comprehension would be reflected in the age differentiation of the CJSR test. To account for this result, a closer examination at the score variability and score range might be valuable. Results revealed that the test score standard deviation decreased substantially in the older age groups. The N group test performance was marked by a SD of 9.95, while the K1 and K2 groups were shown to have a lower SD of 5.63 and 2.44 respectively. In addition, some children in the two older groups had approached the maximum score of the CJSR test, i.e. 45 scores. This peak performance, in addition to the reduction of performance variability in the older groups, especially in the oldest K2 group, suggested that their CJSR results were affected by a ceiling effect. According to Cohen & Swerdlik (2005), there was a display of ceiling effect when the test was not sufficiently challenging enough to accurately gauge the ability of the higher-performing participants.

In the CJSR test, the ability of the older children might not be fully reflected due to
several possible reasons. Firstly, the CJSR employed an oral cloze test format which was an adaption from the traditional written cloze test. It should be noted that there is a fundamental difference between the oral and written form of the cloze test. Although both require children to fill in missing text elements, the upcoming text materials after the omitted elements are shown in a written cloze test, but are not available for comprehension in an oral format. As a result, children engaging in an oral cloze test were not cued in terms of how extensive their verbal response was expected. Children with more advanced understanding of the story were more likely to fill in a longer response than those with a minimal understanding of the story script. Evidence to support this argument could be observed by comparing responses across different age groups on the same test item. In test item no.9, children were expected to fill in the omitted story element of ‘action’ in the sentence.

[媽咪] 跑過去___（拎）返頂帽俾小輝

[Mother] ran and ______ (picked up) the hat for Siu Fai.

One response from the N group was recorded to be a monosyllabic verb ‘搵’ (‘find’: an acceptable equivalent to the given answer). However, responses of greater length, syntactic complexity, and semantic variety were observed in the older two groups. For example, a child from K1 group responded with ‘拎返頂帽俾小輝’ (‘pick up the hat and returned it to Siu Fai’), while another child from K2 group answered ‘執返頂黃色帽’ (‘picked up the yellow hat’). It was likely that the more complex responses from the older children were reflecting a more sophisticated mental representation of the story and hence stronger narrative comprehension. Nonetheless, CJSR was designed to tap on the comprehension of one story element in each test item, and all of the above answers were therefore scored the same. This might hence lead to a plateau of test performance among the older children despite their progressing comprehension ability.
The other possible reason to why the older pre-school children’s abilities were not fully reflected might be associated with the nature of responses elicited in the test. In the traditional QCs, both explicit and implicit elements of the story could be questioned on (Skarakis-Doyle & Dempsey, 2008). It was expected that implicit elements (e.g. intention of the story characters), which required additional inferencing skills to comprehend, were more challenging than the readily available explicit elements (e.g. names of story characters). However, the design of CJSR tasks forbad evaluation on the understanding of the implicit elements. During the collaborative joint story-retell, children were only expected to retrieve elements which were previously mentioned directly. Therefore, the progressing inferencing competence in older children might not be adequately reflected in the test, leading to the ceiling effect among older children.

The convergent validity of CJSR with RDLS-C

According to Zechmeister, Zechmeister, & Shaughnessy (2001), convergent validity is ‘the extent to which the new measure correlates well with measures of the same construct’ (p.121). A novel test should therefore correlate highly with another established measure which, on the basis of theory, should tap on a similar area of language. It was discussed earlier that the RDLS-C has been extensively used as a language test which assesses comprehension of children at the level of vocabulary and syntax. Comprehension at the level of narrative was not included. On the other hand, the CJSR targeted to reflect comprehension ability of children at the narrative level. In addition to the knowledge of words and sentences, other prior world, social, and scriptal knowledge was also required to help the children determine the meaning of an utterance in relation to the ongoing story script. The principle was that children who had better understanding across sentences and paragraphs should be more capable of recovering the missing words in the test. Nonetheless, narrative comprehension was a sophisticated process which was scaffolded by the decoding of word meaning and
identifying of word order. Hence, it was expected that a strong correlation should be found between the test results of CJSR and RDLS-C. This hypothesis received support from the result findings in this research study. A statistically significant and positive correlation of strong magnitude was found between the two tests, suggesting that CJSR is a potentially valid measure for young pre-school children’s narrative comprehension.

The use of CJSR to assess narrative comprehension in younger pre-school children

Although the developmental sensitivity of CJSR was not established among the older pre-school children, other findings from the research study still support the value of CJSR as an assessment tool for younger pre-school children.

First of all, one of the common challenges of assessing young children is the elicitation of their behavioral compliance (Bates, 1993). In conducting CJSR, informal observation showed that children generally enjoyed the story and showed active interaction with the investigator. Only a very small percentage of children (5%; 3 out of 63) did not pass the pre-experimental test due to their inability to participate in a joint story retell task. The naturalistic and interactive nature of the task allowed children as young as 30 months to participate adequately.

Secondly, although CJSR might not be able to fully reflect higher inferencing skills and more advanced comprehension ability in older children, it is still a useful measure of the emerging narrative comprehension among the younger children. Nelson (1996) stated that young pre-school children tend to comprehend ‘bits and pieces’ of a story. The broader thematic gist and structure of the story was less well understood. One manifestation of their incomplete comprehension was the infusion of elements which were not provided in the story, but were drawn from their own daily experiences. A closer examination of the younger children’s responses in CJSR confirmed this observation. In test item no.15, children were expected to fill in the omitted story element of ‘goal’ in the sentence.
Responses from both N and K1 groups showed that children would indeed infuse elements from their own experiences. A child from N group responded with ‘婆婆屋企’ (‘Grandmother’s home’); while a child from K1 group answered ‘返屋企瞓覺嘞’ (‘returned home to sleep’). Both responses resulted in the deduction of scores in terms of their semantic inaccuracy in comprehension. Therefore, CJSR could be effective in reflecting the emerging comprehension competence of younger pre-school children.

Lastly, the comparison of CJSR and RDLS-C concerning the variability in their scores might give us insights on the use of CJSR as a measure for young pre-school children. As discussed earlier, the standard deviation for CJSR showed a greater value in the youngest age group (SD=9.95). Similarly, the highest standard deviation of the RDLS-C test scores were exhibited in the same group (SD=8.52). Both their display of high variability in the performance of this group of children aged 2;6-3;0 matched with the general literature review that high individual variability in language performance was observed among younger pre-school children (Barton & Brophy-Herb, 2006; Thal, 1991). Barton & Brophy-Herb (2006) stated that the normative ranges of language development in toddlers vary widely. Children begin speaking at various times, but then mostly learn and progress with an incredible speed. As a result, their language profiles, both in terms of production and comprehension, show a relatively wider normative range when compared to children beyond the toddler stage. Hence, this phenomenon of wide individual variability in younger pre-school children is not exclusive to the results of CJSR, but is applicable to most, if not all, language measures for young children. CJSR is therefore still deemed as an appropriate narrative comprehension assessment tool for young pre-school children.
Conclusion and recommendation

The performance of CJSR was shown to be age-sensitive to the younger population of pre-school children and displayed convergent validity with a traditional comprehension measure. Although further investigation on the measure is necessary (e.g. comparison of test performance between children with typical development and children with language impairment), this study suggested that CJSR is a potentially valid and appropriate measure for assessing narrative comprehension of younger pre-school children from N and K1 classes (i.e. 30 months to 48 months of age).

Because the administration of the story retell task is relatively straight-forward and can be easily fit into other story-telling activities taking place in kindergartens in Hong Kong, the CJSR has the potential to be an early screening measure conducted by kindergarten teachers. On the other hand, according to Thal (1991) and Paris & Paris (2003), no individual measure could be fully representative of a young child’s comprehension competence. Therefore, to ensure the clinical decision about a child language status is well-informed and accurate, the CJSR could be used as a meaningful addition to the existing comprehension assessment battery (Dempsey, 1999). This multiple measures approach would be likely to contribute to a more comprehensive assessment of young children’s comprehension abilities.
REFERENCES


APPENDIX A

The full story script of Cantonese Joint Story Retell task with illustrations (English translation of the story is included):

1. 從前，有個小朋友叫做小輝喎。佢有一頂黃色既____(帽)。佢好鍾意依頂帽，去到邊度都要戴住佢。

   (Once upon a time, there was a child named Siu Fai. He had a yellow ____ (hat). He liked his hat dearly, and wore it wherever he went.)

![Image of a child wearing a hat]

2. 有一日，媽咪接小輝放學。行下行下，忽然間，小輝見到對面街有個____(公園)喎。
   佢就拉住媽咪行過去。小輝見到公園有好多野玩，覺得好開心呀。

   (One day, Mommy picked up Siu Fai after school. As they were walking, Siu Fai suddenly saw a ____ (park) across the street. He pulled Mommy towards the park. Siu Fai saw there was much to play with in the park. He was very happy.)

![Image of Siu Fai and his mom walking towards the park]
3. 首先，佢見到個______(搖搖板)，就同媽咪講：「媽咪媽咪陪我玩，陪我玩搖搖板！」
於是媽咪就幫_____ (小輝)坐上搖搖板，咁佢地兩個就搖高搖低咁玩。

(First, he saw a ______ (see-saw), and said to Mommy, “Mommy mommy, play with me.
Play the see-saw with me!” So Mommy helped _______ (Siu Fai) sat on the see-saw, and
they swung high and low.)

4. 點知，突然之間，一陣大風吹黎，呼一聲，小輝頂帽就飛走咗，飛到去____(樹)下
面。

媽媽見到，就跑跑跑，跑過去拎返頂帽俾小輝。

(However, suddenly there was a strong wind. ‘WHOOSH’ and Siu Fai’s hat flew away. It
flew to the bottom of a ____ (tree). Mommy saw that, so she ran and ran, and picked up
the hat for Siu Fai.)
5. 跟住呢，小輝見到執邊有個韆鞦，就同媽咪話：「媽咪媽咪陪我玩，陪我玩韆鞦！」
媽咪就幫小輝______(坐上韆鞦)，之後小輝搖呀搖，搖到上天咁高！小輝覺得韆鞦
好好玩，覺得好______(開心)呀。

(Then, Siu Fai saw a swing nearby, and said to Mommy, “Mommy mommy, play with me. 
Play the swing with me!” So Mommy helped Siu Fai _________ (sat on the swing). Then 
Siu Fai swung and swung, till he swung to the very top! Siu Fai thought the swing was 
very fun, and he was very ______ (happy).)

6. 點知，突然之間，一陣大風吹黎，呼一聲，小輝頂帽就飛走咗，飛到去____(垃圾筒) 
個度。媽咪見到，就跑跑跑，跑過去___(拎)返頂帽俾小輝啦。

(However, suddenly there was a strong wind. ‘WHOOSH’ and Siu Fai’s hat flew away. It 
flew to the ______ (dustbin). Mommy saw that, so she ran ran ran, and _____ (picked up) 
the hat for Siu Fai.)
7. 跟住呢，小輝見到執邊有個滑梯，就同媽咪話：「媽咪媽咪陪我玩，陪我玩滑梯！」 媽咪幫小輝行上滑梯，咁小輝就由滑梯上面好快咁落去咯喎。小輝覺得滑梯好好玩呀。

(Then, Siu Fai saw a slide nearby, and said to Mommy, “Mommy mommy, play with me. Play the swing with me!” So Mommy helped Siu Fai walked up the stairs. Then Siu Fai slid down the slide very quickly. Siu Fai thought the slide was very fun.)

8. 點知，突然之間，一陣大風吹黎，呼一聲，小輝頂帽就飛走喇。頂帽飛到去媽咪塊臉度，啪一聲，仲住咗媽咪塊臉添！小輝見係咁，就好快咁跑了，跑過去媽咪度拎返頂帽。

(However, suddenly there was a strong wind. ‘WHOOSH’ and Siu Fai’s hat flew away. It flew to Mommy’s face, and ‘SPLAT’, it covered Mommy’s entire face! Siu Fai saw that, so he quickly ran to Mommy to take the hat.)
9. 哇，玩咁耐，小輝成身都係汗勒。媽咪見小輝咁(___)，就帶佢去 7-11，仲俾佢買(___)雪糕俾佢食添。

(Oh, after playing for so long, Siu Fai became all sweaty. Mommy saw that Siu Fai was very __ (hot), so she took him to seven-eleven, and even paid to __ (buy) ice-cream for him.)

10. 食完雪糕，媽咪見就黎天黑，又有 D 腸餓嘅，就講嘞：「不如我地返____(屋企)食飯嘞。」於是小輝戴住佢頂黃色帽，開開心心同媽咪去_____ (搭巴士) 返屋企嘞。

After eating the ice-cream, Mommy noticed it’s almost night. She still felt a bit hungry, so she said, “Let’s go ____ (home) for dinner.” So Siu Fai wore his yellow hat, went to ____________ (take the bus) with Mommy, and returned home happily.
## APPENDIX B

The list of omitted story elements from the story of CJSR:

<table>
<thead>
<tr>
<th>Items</th>
<th>Story Element Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 帽 (hat)</td>
<td>Object</td>
</tr>
<tr>
<td>2 公園 (park)</td>
<td>Location</td>
</tr>
<tr>
<td>3 搖搖板 (see-saw)</td>
<td>Object</td>
</tr>
<tr>
<td>4 小輝 (Siu Fai)</td>
<td>Agent</td>
</tr>
<tr>
<td>5 樹 (tree)</td>
<td>Object</td>
</tr>
<tr>
<td>6 坐上鞦韆 (sat on the swing)</td>
<td>Goal</td>
</tr>
<tr>
<td>7 開心 (happy)</td>
<td>Reaction</td>
</tr>
<tr>
<td>8 垃圾筒 (dustbin)</td>
<td>Object</td>
</tr>
<tr>
<td>9 拎 (picked up)</td>
<td>Action</td>
</tr>
<tr>
<td>10 玩 (play)</td>
<td>Action</td>
</tr>
<tr>
<td>11 跑跑跑 (ran ran ran)</td>
<td>Action</td>
</tr>
<tr>
<td>12 熱 (hot)</td>
<td>Adjective</td>
</tr>
<tr>
<td>13 買 (buy)</td>
<td>Action</td>
</tr>
<tr>
<td>14 屋企 (home)</td>
<td>Location</td>
</tr>
<tr>
<td>15 搭巴士 (take the bus)</td>
<td>Goal</td>
</tr>
</tbody>
</table>
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