Abstract: People with high functioning autism display pragmatic disorder when they communicate with the others. The aim of this study is to investigate the capability of oral narration for year 1 and 2 pupils that show high functioning autism. We record the narrative processes of 12 pupils with high functioning autism and 12 typical children after providing them with 4 set of comic stories and then compare their narrative performance in story length, story structure, referential device, affective enhancer and syntax to identify the differences in language application capability from the two groups of pupils. The results indicate that there is no significant difference in the narrated story lengths between the two groups, but a significant difference exists in orientation, complication, evaluation, solution of the narrated story structures. There is also significant difference between them regarding referential devices. As to the affective enhancer, no noticeable discrepancy is found between them. Although the two groups of pupils use the same type of sentence, it is found that there is divergent in the repairs when analyzing syntax. At the end, some conclusions are given and several suggestions for future studies are described.

Keywords: autism, pragmatic disorder, narrative, story structure

Introduction

According to the diagnosis principle, children with autism have the syndrome that presents quality deficits in social interaction, communication and behavior or interest under multiple life environments. The so-called “the syndrome that presents quality deficits” means that people can not take the criteria of “all” or “null” to describe the deficits that autism children suffer. The presented deficits display in a series, from slight, mild to severe. Recently, some researchers have merged these deficits and Asperser Syndrome and called these deficits as Autism Spectrum Disorders (ASD). Although such a mergesence is not supported by the entire researchers associated with autism and Asperger Syndrome, we adopted this ASD opinion in this study. The subjects in this study include pupils who are diagnosed as autism and Asperger Syndrome.

The deficits of the children with autism in the social interaction and communication are innate deficits. They are embodied in their pragmatic ability, which can be investigated by means of a good tool--narrative. In our daily life, people usually communicate with each other by narrative, hence it is an ecological predictor to assess one’s language application.
ability. The key points to study the narrative of children with autism are to explore their ability on pragmatic capability and social cognition, by which their deficits on metal disable condition can be understood (Tager-Flusberg, 1995). Statistically, approximately 50% people with autism can develop the useful language for communication (Lord & Paul, 1997), thus, this study method of narration is not suitable to study every child with autism. The autism children who have the ability of communication belong to the high functioning autism. Moreover, the language development of many high functioning autism children with verbal ability stays on the stage of echolalia and formulaic speech. As a result, there are very few children with autism have the ability of narrative. The children that are at the higher level for both cognitive development and social adjustment ability are also those with high functioning autism.

Narration is called as story-telling as well. The study on narrative began in 1928, when a Russia scholar, Vladimir Propp, researched the theme of the fairy tale and the function of charters. His paper was written in Russian and it did not be noticed until 1968, when it was translated into English. From then on, the study on narrative became an important approach in the field of linguistic science.

Narrative does not belong to any single discipline and is a theme that crosses the disciplines of the social science (Riessman, 1993). Over past three decade, the researchers have employed the method of narrative in linguistic, social linguistic and psychology to explore mankind narrative abilities and further understand mankind language ability, social ability and cognition psychological condition. It is a language, cognition and social predictor that provides the information for the clinical practice. In the field of special education, there are several researches that have used narrative to study the children with reading disabled (Chi Bau-Hsang, 2003), hearing loss (Young Ya-hwai, 2004), language disabled (Botting, 2000; Norbury & Bishop, 2003), metal retarded (Loveland & Tunali, 1993) and autism (Capps, Losh, & Thurber, 2000; Losh & Capps, 2003; Loveland, McEvoy, Tunali & Kelly, 1990; Tager-Flusberg, 1995; Tager-Flusberg & Sullivan, 1995).

The range of variables in narrative study is extensive and complex. The social linguistists, Labov and Waletzyk, compared the development sequence of the real event with the narrative sequence of a story in 1976 and found that there was a special structure in the story. They divided the narrative structure of a story into five components, which are orientation, complication, evaluation, solution and coda. From then on, many researchers from different disciplines have investigated the narrative structure of a story and classified
it in different methods according to their discipline fields

In 1990, Loveland, McEvoy, Tunali, Kelley compared the narrative performance from 16 autism pupils and 16 Down Syndrome pupils. The researches played the video story twice and then guided the subjects to tell the story according to what they saw. The narrative result showed that there was no significant difference between the autism and the Down syndrome. Both of them presented the deficit in pragmatic, whereas the problems of their pragmatic were different. The autism had more problems in pragmatic than the Down syndrome did. They used bizarre language, less physical language, and were lack of facial expression and less consideration of the opinion of the listeners. Some of the autism could not understand the content of the story, they told the story fragmentary. Therefore, the researchers inferred that it could be concerned with their theory of mind.

Based on the studies from Baron-Cohen (1986) and Loveland (1990), Tager-Flusberg (1995) compared the narrative performances from three student groups, which are the autism student group, Down syndrome student group and typical student group. The researcher matched the subject language age at around 7 years old and used the word-less story book, “Frog, where are you?”, as the material for the student to narrative a story. The subjects were required to read the story first and then tell the story from the book page by page. The study results showed in the narratives of the students with autism there were two aspects that significantly differed from the narratives of the students with Down syndrome and the narratives of the typical students. First, the averaged narrative length and proposition number of the autism students were shorter and less than those of the students from other two groups. Secondly, the narratives of the autism students lacked of cause-effect relationship. Besides, the researcher also found that there were inter-relation between the language ability and narrative capability. The results were different from those from Baron-Cohen etc. (1986) and Loveland etc. (1990). In her conclusions, Tager-Flusberg suggested the variables in language expression, language understanding, theory of mind, the number of subjects and the study instruments should be controlled or adjusted beforehand for future narrative studies.

Because there were not so many samples in her previous study, Tager-Flusberg and Sullivan (1995) did another narrative study in the same year and added more subjects into each group that was classified as mentioned above to acquire more results. According to the suggestions in the previous study, they not only adjusted the story book, but also modified the test of theory of mind in that study. The researcher matched the subject language age at.
around 9 years old, but the range of chorological age among the subjects were larger than in the previous study. The study results showed that in the same language age, the narrative of students with autism were the similar to the typical students. The language ability, verbal narrative ability and theory of mind presented inter-relation, especially from the data collected from the autism students. The researchers emphasized again that the results might be influenced by the selection of subject groups and matching them.

Capps, Losh, Thurber (2000) questioned the results from Tager-Flusberg and Sullivan (1995) regarding the syntax, the evaluation, and the inter-relation among language ability, narrative capability and the theory of mind, they adopted the same research method as Tager-Flusberg, and Tager-Flusberg and Sullivan did and compared the ability of narrative from 13 children with autism, 13 children with the mental retarded and 13 typical children, and the inter-relation among language ability, narrative capability and the theory of mind. They matched the subject language age at around 6 years old. Their results showed that there were no significant differences among the three subject groups in the narrative length and the error types of syntax were also similar among them. There were significant differences in the grammar among the typical children and the autism children and the mental retarded children. The differences among the narrative evaluation from the three groups were also significant. The evaluation skills of the children with autism and mental retarded were deficient and they had deficits in performing the background knowledge to build the story.

From the review of the narrative studies above, we may have some discussion in the subjects, variables, methods, results of the narrative. Tager-Flusberg, Tager-Flusberg and Sullivan, and Capps, Losh, Thurber have chosen the children whose language IQ ranges from 60 months to 80 months, language age from 6 years old to 13 years old. But the range of the children chorological age is pretty broad and the difference is even beyond 20 years. Because of the extensive range of chronological age, people argue their study results and think it is the reason why their study results can not achieve a conclusion. Thus, in making the narrative study, it is important to choose the subjects they should match each other regarding their chronological age, intelligence and language ability. As to the study variables in these studies they are not more than length, narrative structure, syntax, evaluation, theory of mind. From these variables, the researchers discuss the abilities in language structure, language development, pragmatic, cognition and social cognition. There is only a study--- Tager-Flusberg (1995) which investigated the whole narrative structure,
but unfortunately it did not provide any conclusion in the ability of narrative of the autism children. There are still no related studies that have provided the detail and clear information about the narrative of the autism children. Regarding the method of telling a story, Loveland (1990) suggested the children were not suitable by using the method of video to play the story, which made Tager-Flusberg (1995) modify her study instruments by using the story books. She, however, also found the problems in this way and then adjusted her method in the following study, whereas, she still suggested that the match of subjects was very important to the research. From her suggesting, we could draw two conclusions, one is that it is not easy in the study of narration and the other is that it is very important to design the research method prior to commence the study. There are still no agreement conclusions in the narrative structure, cause-effect, referential device, affective enhancer and belief. Therefore, it is desired to make further investigation of the narrative of autism students to understand language organization, pragmatic, cognition, psychology, social cognition of human beings.

The purpose of this study is to investigate the oral narrative ability of the high functioning autism of the year 1\textsuperscript{st} and year 2\textsuperscript{nd} in the primary school by using four sets of pictures in sequence. In this study, the researchers chose the criteria from the social language during this autism study, analyzing and discussing the variables of narrative, which are the narrative structure, length, syntax, referential device and affective enhancer.

**The Method of Study**

The study method is divided into five aspects, which are the subjects of study, instruments of study, sequence of study, setting of study, and the dependent measures of study and described as following:

**The Subjects of Study**

This study is purposely sampled and the subjects are the two groups of pupils coming from the regular classes in the Taipei City. One group is regular pupils that have no autism and Asperger Syndrome; the other group is the pupils that have been diagnosed to have autism or Asperger Syndrome by the doctors. The requirements for the autism pupils are: (a) the pupils are diagnosed to have slight Autism or Asperger syndrome by the doctors associated; (b) the pupils should have the oral capability to express their requirements in their class; (c) the pupils have the ability for reading pictures and then speaking; and (d).
the full intelligence quotient of the Wechsler Children Intelligence Scale is above 70. The data regarding the subjects shows in Table 1 below:

<table>
<thead>
<tr>
<th>High Functioning Autism &amp; Asperger Syndrome</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>12</td>
</tr>
<tr>
<td>Year</td>
<td></td>
</tr>
<tr>
<td>Year 1</td>
<td>5</td>
</tr>
<tr>
<td>Year 2</td>
<td>7</td>
</tr>
<tr>
<td>CA</td>
<td>91.33</td>
</tr>
<tr>
<td>PPVT</td>
<td>101.92</td>
</tr>
<tr>
<td>WISC</td>
<td></td>
</tr>
<tr>
<td>Full IQ</td>
<td>84.33</td>
</tr>
<tr>
<td>Language IQ</td>
<td>83.58</td>
</tr>
</tbody>
</table>

### Instruments of Study

Based on the purpose of this study, there are three instruments used in this study, which are: (a) Peabody Picture Vocabulary Test--Revised (b) Four Sets of Pictures in Sequence; and (c) Coding Form of Assessment. They are described as follow:

**Peabody Picture Vocabulary Test---Revised:** The tests were developed by Lloyd, M. Dunn (1959) and they were revised by Lloyd, M. Dunn and Leota, M. Dunn in 1981. In Taiwan, it were translated and revised by Lee and Liao Ho-Shang in 1993. It is an individualized test which consists of version A and version B. In this study, we selected version B to test the language ability of the subjects.

**Four Sets of Pictures in Sequence:** the researcher purchased 27 sets of pictures in sequence with each set of pictures comprising a story. They have been produced by a Germany company, suitable for the children from year 6 to 12 years old. The dimensions of pictures in the stories are 9 cm × 9 cm and there are no words in the pictures. The contents in the stories are the living experiences associated with children’s daily lives, such as house-moving, shopping and having a holiday. Due to the culture differences between Germany and Taiwan and the levels of different difficulties containing in each story, the researchers carefully selected 4 sets of the stories out of the total 27 sets of the pictured stories, which are relatively suitable for the Taiwanese children at the age of 7. There were 5 to 8 pictures in each story originally, but the researchers redesigned these pictures based on the goals of the stories and selected four sets of the stories for this study. They deleted unnecessary pictures in the four sets of the selected stories, and at the end there were only 4 pictures left for each story. Using the 4 pictures left for each story, the regular children can
tell the story clearly and thoroughly. According to the topics of the four stories, the researchers name them as “having a nightmare”, “listening to the music with walking”, “seeing a doctor” and “go hiking”, individually. Although the contents of the four stories are some daily experiences which every child may has been through, there are still different levels of difficulties among the four stories. We arranged the four stories in the sequence: (a) easier (having a nightmare); (b) harder (listening to the music when walking); (c) easier (seeing a doctor); and harder (go hiking).

**Coding Form of Assessment:** the coding form of assessment, which corresponded to the variables of this study, has been developed. Some of the variables are assessed by quantitatively calculations, which are the calculations of the averaged lengths, the structures, referential devices, affective enhancers, repairs of the narrated stories, and the rest are assessed by descriptions, which are the sentence pattern, the error in syntax and the others.

**Experimental process**

At first the researchers set up the aims of the study and then made the choices and designs of the study instruments. After that, the subjects of this study were searched, preliminarily estimated. Following this, they were tested by Peabody Picture Vocabulary Test---Revised, required to tell the stories based on the selected Four Sets of Pictures in Sequence as described above. Next, the data of the stories narrated by the subjects were recorded, collected and transcribed into the words. This was done by the first author of this study and an invited teacher, with an agreement of 92.5% for the word transcription. Following this, the individual variables were analyzed and scored by the first author of this study and one of the graduated students on special education, with an interrater agreement of 87.5% for the scored variables. Finally, the results were presented in words.

**Setting**

The subjects were tested individually. The children with high functioning autism were tested in the resource classrooms of the associated primary schools. The regular students were tested in the teachers’ rest room of the Wuxing primary School. The conditions of the setting kept quiet in order to draw the subjects’ attention to the tests and to record the data.

**Dependent measures**

The dependent variables in this study were five, which were the length, narrative
structure, referential device, affective enhancer and syntax of the narrated stories.

*The length of the narrated story* is the variables that represent the total number of words, the total number of sentences, the mean length of utterances and the total number of the narrated stories. The proposition means the combination of a verb and an argument. For example, in the sentence of “You are beautiful”, the “are” is the verb and the “beautiful” is the argument. As such, “are beautiful” is an argument.

*The narrative structure* is the integration of the narrative structures that are represented by the researches of Labov, Waletzky (1976) and Tager-Flusberg (1995). The variables in the narrative structure for this study mean orientation, complication, evaluation and solution. There are some items in the variables of the orientation that are characters, time, location and context, and the evaluation that are the relation of cause and effect, the emotional utterance, the utterance of the characters and coda. The definitions of the variables and items are showed below:

**Orientation**
- Examines if the narrator has given an entire idea of this story to the listeners by introducing the characters, time, location and context in the beginning of a story.
  - Characters---the main characters in a story.
  - Time---the time when the event was happened
  - Location --- the scene that the event was happened. It could be changed by the developing process of the story.
  - Context---it indicated the process of the event.

**Complication**
Examines if the narrator has told the episode in the event, which is the most important portion in a story.

**Evaluation**
Examines if the narrator has made the judgment or conclusion about the whole story or an episode in the story. It could be expressed in any time and any portion of the process of the story. It happens in every story. The items that are included in the evaluation are below.

- Cause and effect--- examines if the subjects have understood the relationship between the events in the structure of narrative. For describing relation of the cause and effect precisely, the subjects should be equipped with sufficient background knowledge for the event. Therefore, the evaluation of the relationship of cause and effect will provide the subject performance in the cognition to us.
- Emotional utterance---examines if the narrator has described the characters’
feeling by appropriate emotional utterance. Besides the emotion expressed in the
pictured story, the narrator also could further enhance this emotion that emerged
in the story by proper utterances.

- Utterance of the characters---examines if the narrator has imitated the speech of
the characters in the pictured story, which was marked in the quotation marks by
the transcribers.
- Coda---examines if the narrator has described the ending of the story clearly.

Solution describes if the narrator has produced the ending based on the context and
the development of the story.

Referential device examines if the narrator has called the name of the main character
during narrating the story and the different ways by which he/she names the main character
in the process of narration, such as the narrators names the character “he”, or “the little
boy”, or “this guy”, or “this child”. In this study, the researchers located the positions where
the narrator names the character and coded them. According to the way by which the
narrator names the character, the researchers encoded it as nominal--- the article with noun,
thematic--- pronoun, anaphoric or mixed, which are explained in detail on the following:

- Anaphoric---the narrator shifted the main character to others, meanwhile he used
pronoun or the article with noun to anaphoric the main character. Such as the
sentence “The little boy” woke up, and then, “he” felt uncomfortable….. In this
sentence, the pronoun of “he” is referential device of anaphoric

- Mixed---the shifting condition of the referential device of the main character
according to the text being changed over 60%.

The four referential devices--- nominal, thematic, anaphoric and mixed--- represents
different kind of levels for the narrator to use referential device. The higher the ability of
narrator is, the more his /her referential devices tend to the mixed.

Affective enhancer examines if the narrator has provided the intensified words to draw
the attention of the audience and a whole structure of the story. There are three items
containing in the affective enhancer.

- sound effect---imitating the sounds, such as “fall with a flop on the ground”,
“blow out a candle with one puff”, “hullabaloo” to upsurge the story.
- Excitation of interest --- the phrase of exclamation, such as “have a sigh of
relief” to maintain the attention of the audience.
Intensive marks--- includes intensification and repetition.

Syntax examines the syntax performance of the narrator during the narrative, especially if the narrator has the ability to repair the sentences and what patterns of sentences does the narrator have used.

Results

In this section, the researchers discuss five aspects of contents to compare the narrative ability of the pupils with high functioning autism and the comparison pupils. They are: (a) the length of the narrated stories; (b) the structure of the narrated stories; (c) the referential device method; (d) the emotional enhancer; and (d) the syntax of the narrated stories. The high functioning autism in this work is defined by Autism Spectrum Disorders (ASD), so it includes students with Asperger Syndrome.

The length of the narrated story

The length field of the narrated stories is divided into four parts, which are the total number of words, the total number of sentences, the mean length of utterance and the total number of propositions.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
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<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
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<td>90.72</td>
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</tr>
<tr>
<td></td>
<td>R</td>
<td>12</td>
<td>251.4</td>
<td>11.59</td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
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<td>MLU</td>
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<td>12</td>
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<td>proposition</td>
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<td>35.92</td>
<td>14.67</td>
<td>3.29</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>12</td>
<td>21.33</td>
<td>10.38</td>
<td></td>
</tr>
</tbody>
</table>

A = high functioning autism pupils; and R = the typical children * * p < .01

It can be seen from Table 2, for the high functioning autism students, the total number of word in the four narrated stories is 192.92 words; the total number of sentences of the four narrated stories is 29.75; the mean length of utterance of the four narrated stories is 6.57 words; and the number of proportions of the four narrated stories is 35.92. In contrast, for the controlled students, they are 251.42 words, 32.42, 7.7 words and 21.33, respectively.
The results show that, in terms of the total number of words, the total number of sentences and the number of proportions of the four narrated stories, there are no substantial differences between the high functioning autism and the controlled students, although the later is slightly better than the former. In terms of the mean length of utterance of the four narrated stories, the later is much more than the former.

From the collected language data, it shows that the stories narrated by the Asperger Syndrome and more able high functioning autism students out of the total high functioning autism students are all pretty long, having more propositions of the 4 Asperger Syndrome students being two to three times more than the other eight high functioning autism students. In addition, the data also shows that the high functioning autism students (including the Asperger ones) are not able to tell the main ideas of the stories immediately during their narrating, by adding some information that is not pertinent to the provided pictures in sequences, such as linking the circumstances of the stories to their daily activities. This difference is noticeable, compared to the typical students.

The structures of the narrated stories

The structures of the narrated stories are discussed based on the story orientations, story evaluations and the general story structures. The statistical results are shown in Table 3-5.

<table>
<thead>
<tr>
<th>Variables</th>
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<td>5.83</td>
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<td></td>
<td>R</td>
<td>12</td>
<td>6.17</td>
<td>1.59</td>
<td></td>
</tr>
</tbody>
</table>

A = high functioning autism pupils; and R = the typical children  * P < .05;  ** P < .01

The story orientation is analysed based on the characters in the stories, the time when the stories occur, location where the stories occur and context that appear in the stories. It can be seen from Table 3 that, for the characters, location, context, there are substantial differences between the high functioning autism children and the typical children with the performance of the high functioning autism children being poorer than that of the typical children, but for the time, the difference between them is not obvious. This means that the high functioning autism children are not as clear as the typical children about how to
initialize a story and how to describe the characters in stories, the locations where the stories occur as well as the story context.

The evaluations include the four items: the relationship of the causes and effects, the emotional utterances of the stories, the utterances of characters and the coda of the stories. For the description of the relationship of the cause and effect and the coda of stories, the high functioning autism students present less logical than the regular students. For the emotional utterances of the stories and the utterances of characters, the differences between them are not so significant.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
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<th>SD</th>
<th>t</th>
<th>P</th>
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<tbody>
<tr>
<td>cause and effect</td>
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<td>A 12</td>
<td>4.67</td>
<td>2.42</td>
<td>-4.57</td>
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<td></td>
<td>R 12</td>
<td>8.83</td>
<td>1.80</td>
<td></td>
</tr>
<tr>
<td>Emotional utterance</td>
<td></td>
<td>A 12</td>
<td>.67</td>
<td>.89</td>
<td>.27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 12</td>
<td>.58</td>
<td>.79</td>
<td></td>
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<tr>
<td>Utterance of character</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>R 12</td>
<td>2.25</td>
<td>2.34</td>
<td></td>
</tr>
<tr>
<td>Coda</td>
<td></td>
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<td>2.11</td>
<td>-3.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R 12</td>
<td>6.58</td>
<td>1.16</td>
<td></td>
</tr>
</tbody>
</table>

A = high functioning autism pupils; and R = the typical children

* P < .05;  ** p < .01

Through the analysis of the text description of the data, it can be found that the children with high functioning autism tended to speak many emotional utterances that are not associated with the stories in the processes of their narratives, especially the four children with Asperger Syndrome. They added some plots that were nothing to do with the stories and told many emotional utterances, such as “That boy is very silly!” (A04), “the clouds do not stopping crying! …… Because that thunder is very angry, yes, that thunder is scolding the clouds” (A01). Moreover, six children with high functioning autism also told many negative utterances, such as “you are a dead boy……” (A08), “that man speaks angrily” (A10), “he is good for nothing, you have to do something” (A07), “he gives him a lesson” (A09) etc. such negative words have not been heard from the descriptions of the typical children.

From the results of the items of the narrative structure: location, complication, evaluation and solution as shown in Table 5, it can be seen that all of the high functioning
autism pupils score less than the typical pupils. This means that the narrative structures of the high functioning autism pupils are weaker than the typical children.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
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<td>2.58</td>
<td>-5.38</td>
</tr>
<tr>
<td></td>
<td>R</td>
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<td>4.19</td>
<td>2.98</td>
<td></td>
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<td>complication</td>
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<td>2.20</td>
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<td></td>
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<td>300</td>
<td>.85</td>
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</tr>
</tbody>
</table>

A = high functioning autism pupils; and R = the typical children

* * * p < .001

Through the analysis of the text description of the data, it can also be found that 8 out of a total of 12 pupils with high functioning autism linked the stories with their own daily activities during their narratives. The linking either followed the ends of the stories or appeared in the processes of the narratives. For instance, “…..He has a nightmare. He dreamed a dinosaur. Dinosaur! Who let him see the film, it is a film of the ghost, having a nightmare following the seeing the ghost film. I have already seen several ghost films. I have ghost films in my own home, but somebody has taken them away. I still feel afraid of it……” (A04), “this story is about seeing a doctor after getting sick. Taking medicine, then, taking the Chinese medicine. When you get better after taking medicine, you should continue to take Chinese medicine as well. The Chinese medicine makes the ill of our doctor. Sick. Taking her to see a doctor and taking the medicine home.”(A10). All the four of the Asperger syndrome presented this narrative condition. Half the children with high functioning autism presented the same condition. In contrast, this phenomenon did not appear among the typical children. This was one of the reasons why the high functioning autism children have given more number of propositions than the typical children have.

Furthermore, among the 12 high functioning autism children, two narrated their stories based on single picture instead of using the 4 sets of pictures to build up an incoherent story, and the other two told the story by asking himself/herself questions and then answered their questions by themselves. We did not found this odd situation in the description among the typical children. In addition, the high functioning autism children needed more time to initialize their narratives of the stories, compared to the typical children.
Referential devices

Table 6 showed that the referential devices used by the high functioning autism children were nominal, thematic and mixed, while the referential devices used by the typical children were mixed. Although both of the high functioning autism children and the typical children had the ability to use the mixed referential device, but the frequencies at which they used the mixed referential device showed significant difference, which meant that for using the referential devices, the high functioning autism children were poorer than the typical children. Also, the frequencies for them to use the nominal referential device that belongs to a lower level in terms of referential device presented significant difference. Few typical children used the nominal referential device, but many high functioning autism children used the nominal referential device. It meant that the level of referential device of the high functioning autism children was lower than that of the typical children.

<table>
<thead>
<tr>
<th>Variables</th>
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<th>P</th>
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<tr>
<td>Nominal</td>
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<td>2.25</td>
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</tr>
<tr>
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<td>R 12</td>
<td>.50</td>
<td>.67</td>
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<td></td>
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<td>.65</td>
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<td>.087</td>
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<td>.49</td>
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<td></td>
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<td></td>
<td>R 12</td>
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<td>.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A = high functioning autism pupils; and R = the typical children *p < .05, **p < .01

Affective enhancer

There are three items containing in the affective enhancer, which are sound effect, excitation of interest and intensive marks, which are used to investigate the emotional performance of the subjects and the investigated results are showed in Table 7.

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
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<th>t</th>
<th>P</th>
</tr>
</thead>
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<td>.46</td>
</tr>
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<td></td>
<td>R 12</td>
<td>12</td>
<td>.33</td>
<td>1.15</td>
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<tr>
<td>Intensive marks</td>
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<td>1.33</td>
<td>1.23</td>
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</tr>
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<td>1.28</td>
<td>-1.85</td>
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<tr>
<td></td>
<td>R 12</td>
<td>2.33</td>
<td>2.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A = high functioning autism pupils; and R = the typical children

The results showed that there were no significant differences between the autism
children and the typical children in items of sound effect, intension and excitation of interest and intensive marks.

Among the descriptions of the typical children, six children used some utterance, such as “Hey!”, “Ouch!” to draw the audience attention, while among the description of the high functioning autism children, there was no such condition. Both of the high functioning autism and the typical children were lack of using sound effect.

Syntax

Table 8 shows that there is a significant difference between high functioning autism and the typical children in the capability of repairing sentences. The frequencies of repairing the sentences from the high functioning autism children are higher than from the typical children. The basic sentence pattern used by the two groups is similar, which is the sentence (S+ V + C), with the typical children adding more adverb and adjective words to their sentences.

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
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</thead>
<tbody>
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<td>R</td>
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</table>

A = high functioning autism pupils; and R = the typical children. * * * p < .01

Discussion and conclusions

Deficiency of social interaction and language communication are the core handicaps of the high functioning autism children. Narrative is one of the sensitive tools for assessing and evaluating children capability for language application. Through studying the stories narrated by the high functioning autism children, their capabilities of the narrative, social cognition, pragmatic can be identified. And understood based on the results and suggestions from previous studies, the researchers make a deep exploration of the language handicaps of the high functioning autism children by matching the subjects from the high functioning autism and the typical children and designing the study method and the instruments. The results of this study show that the story length, sentence number, proposition number of the narrative collected from the high functioning autism children are similar to those from typical children. The MUL of the typical students are obvious shorter than the high functioning autism children. Comparing the narrative performance of story structure, the high functioning autism children are significantly poorer than the typical children. The high functioning autism children normally use nominal and thematic as the
referential device, while the typical children use anaphoric and mixed as referential device, which means that the referential device level applied by the high functioning autism children is lower than by the typical children. Moreover, the flexibility for the typical children to employ the referential device is much better, compared to the high functioning autism children. The data regarding the affective enhancer is too few to analyze. As to the syntax performances of the high functioning autism children are similar to those of the typical children and both of them use the basic sentence pattern, whereas, the number of repairing made by the typical children is more significant than by the children with high functioning autism.

Comparing with the results from the researches of Tager-Flusberg (1995), Tanger-Flusberg, Sullivan (1995) and Capps, Losh, Thurber (2000), we may conclude that the deficiency in the narratives of the high functioning autism children is not dependent upon the lengths and amounts which they narrate, but upon the structures, contents, referential devices of the narratives. The conclusion shows that there are the deficits of the cognition and social cognition for the high functioning autism children.

As to the item of the relationship of cause and effect, the results of this study are different from those described in Tager-Flusberg (1995) and Tager-Flusberg, Sullivan (1995). The reasons to cause this difference may be because the range of chronological age of the subjects are too broad in the studies of Tager-Flusberg (1995). and Tager-Flusberg, Sullivan (1995), and the language IQ and language age were not properly matched in their studies. This argument could be proved by the study of Capps, Losh, Thurber (2000), because in their study, the result regarding the relationship between cause and effect shows significant difference when they matched the chronological age, language IQ, language age and over 6 years old of the subjects, which corresponds to the matching in this study. Thus, we could make this conclusion that the sampling of subjects in chronological age and mental age are very important in performing language studies.

For building up a story, the narrators must be equipped with the knowledge of social interaction, such as the initializing, process, ending, belief, intention and emotion of the characters. As a result, the narrators have the ability to tell the story clearly. In the study of Tager-Flusberg (1995), when she compared the narrative structures among the autism, mental retarded and typical children by the four variables: opening, orientation, theme and ending and her results showed that there was not significant difference among them. But in this study, we have sub-divided the opinion, orientation and ending into more items, the
differences in each variable become significant. It means that the reasons why the
differences among the variables are not significant in the narrative studies are because there
are too many factors containing in the variables. We can not tell all the differences unless
we further sub-divided them into more variables. Therefore, the arrangements of the
variables in the studies of language and cognition are important.

From the descriptions of this study, we have found that the children with high
functioning autism are able to tell not only a story, but a long, long story. The cognition
deficits embodied in their narratives are because they are not able to introduce the character
features, setting, goals, the information presentation and the focus into the story well.
Moreover, they are lack of the organization ability, and poor in telling the relationship of
the cause and effect. They tended to repeat the same utterances and sentences without
pertinent to the main points, instead of precisely presenting the main idea of a story
immediately. This is the reason why the number of propositions in their stories made by the
high functioning autism children is higher than mead by the typical children, and their
stories are always long and insufficient of rich contents, which is also the reason for the
listeners not to be able to understand what they want to express and in turn to have
sufficient patience of listening to their story. In contrast, the typical students described the
main idea of a story quickly and are able to extend the story with rich contents to a high
degree based on the main idea.

The normal speakers will usually consider the ability of listeners, the setting and the
content during conversations and then are willing to modify their way of expression to
adapt themselves to the listeners. They try to make themselves understood by the listeners
and have an insight of the listener’s intention. This is the so-called ability in pragmatic. For
exploring the pragmatic ability, analyzing the referential device is one of good tools. The
study results in referential device show that the referential device level of the children with
high functioning autism is lower than that of the typical children and their flexibility to
modify the referential device is worse than the typical children. The deficit of the pronoun
reflected in the autism children is noticeable, but high functioning autism children is able to
use pronoun actively in a common conversation and thus, this deficit of them is hardly
perceivable, but the deficits become significant if the researchers apply the referential
device to analyze it. The referential devices help the speaker express the referents clearly,
such as people, object, and event. They also help the listeners understand the referents of
the speaker more clearly. The children with autism have deficits in using the referential
devices and it makes them have the difficulty to effectively communicate with others.

Because the data collected from the affective enhancer is pretty few, we can not tell the difference between the high functioning autism children and the typical children. The reason may be because the material of the pictures in sequences can not induce some emotion. The other reason may be because the ages of the subjects are too young to express much emotional utterances. This issue needs to be investigated the future studies.

People often use narrative to communicate with each other in their daily life, so the narrative is an important ability to the human beings. For improving this kind of ability, the clinical may design this kind of narrative ability into their curriculum and instruction activities. In designing the curriculum, the teacher may take the advantages of the two methods--theme curriculum and the style of infusion. Teachers should infuse their narrative skills into their linguist and social science to improve their language/communication ability in their daily life.

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