ENGLISH MORPHOSYNTACTIC PERFORMANCE OF A HIGH-FUNCTIONING ASD CHILD: IMPLICATIONS ON ELT

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ABSTRACT

Purpose – The inclusion of an increasing number of high-functioning ASD children in mainstream classrooms demands for adequate awareness of autism and effective teaching methods from teachers to ensure that learning takes places efficiently. Hence, this study investigated the atypical language performance of a high-functioning Malay girl with autism spectrum disorder (ASD), who chose to acquire English as her first language (L1) and eventually spoke the language fluently despite English not being the main language at home. Focus was given on the child's literate language use of morphology and syntax in present tense English.

Methodology – Data was collected from spontaneous speech interactions with an 8-year-old high-functioning ASD child for a period of 12 months. The interactions were conducted at the child's home. Each session lasted approximately an hour and was video recorded. The data was analyzed using thematic analysis. In this study, focus was given on the morphology and syntax of the child's present tense structures in English.

Findings – The findings revealed four main themes: 1) elaborated noun phrases, 2) adverbs, 3) conjunctions, plus 4) mental and linguistic verbs. The findings indicated the child's strength in her language performance that was consistent albeit with weak central coherence account and that she was not at the optional infinitive stage of grammatical development.

Significance – These findings led to a further understanding of the language acquisition process in high-functioning children with ASD in Malaysia, and called for mainstream teachers to 1) upgrade their skills, enhance their knowledge and develop their awareness of the linguistic ability of high-functioning ASD children, and 2) implement effective teaching methods in managing them.

Keywords: High-functioning ASD, Optional Infinitive (OI), Weak Central Coherence (WCC).

INTRODUCTION

The number of children diagnosed with ASD is increasing and this has become a significant health issue globally. The 2014 statistical data released by the Centers for Disease Control and Prevention USA (CDC) reported that about one in 59 children aged 8 years (or 16.8 per 1,000 children) were recognised with ASD in the United States (Baio, 2018). This phenomenon has raised concern on the increasing number of children with ASD in mainstream schools in Malaysia, particularly among children between 7 and 12 years old. This in turn, has posed concerns on autism awareness among teachers and effective methods that teachers can adopt or adapt in dealing with autistic children in mainstream classrooms (Toran, Mohd. Yasin, Tahar, & Salleh, 2010; Yahya, Md Yunus, & Toran, 2013a). This is because, most children with ASD who are between 7 and 12 years old are typically placed in mainstream classrooms as they possess intellectual ability which are in the range of average to above average, as measured by their IQ (Sansosti, Powell-Smith, & Cowan, 2010).

Autism Spectrum Disorder and the Varied Spectrum

Autism Spectrum Disorder (ASD) is a wide-ranging term to refer to a set of neurodevelopmental disorders which is characterized

by impairment specifically in two main areas; deficits in social communication and social interaction, and restricted, repetitive patterns of behaviour, interests or activities (APA, 2013; Attwood, 2015). Children with ASD may display a degree of deficiency which varies widely, from very severe to very mild (Frith, 2003; Sansosti et al., 2010). At the very severe end of the spectrum, children with autism are referred to as classic or Kanner's autism. At the other extreme end is another group of children with autism, whose cognitive capability is between average to above average, and whose language capabilities are within the normal capacity (Attwood 2015; Sansosti et al., 2010). In the earlier DSM-IV, these children were referred to as having high-functioning autism or Asperger Syndrome (HFA/AS) (Attwood 2015; Sansosti et al., 2010). However, in the current DSM-5, the terms AS and HF have been substituted with a new classification in diagnosis that is ASD Level 1, that is, without accompanying intellectual or language impairment (Attwood, 2015).

Grammatical Development in Typical Developing (TD) School-Age Children

When children attend school, the language they hear and use becomes progressively decontextualized, and this is termed as literate language. It denotes the child's capability in using language without the help of contextual cues to support meaning, in which the child needs to depend on the language itself to provide meaning. This development is important for children's involvement in the discourse used in the school environment, and is characterized by highly precise vocabulary and complex syntax which articulates ideas, events, and objects. The four explicit features of literate language which typical children learn to use, according to Greenhalgh and Strong (2001), Heilmann, Miller, Nockerts and Dunaway (2010), Pence and Justice (2008) are:

1. Elaborated noun phrases: It is a group of words consisting of a noun and one or more modifiers to provide extra information about the noun, including articles, possessives, demonstratives, quantifiers, wh-words and adjectives. Typical school-age children acquire this between 7 and 8 years old.
2. Adverbs: An adverb is a syntactic form which modifies verbs and enriches the explicitness of actions and event descriptions. Adverbs offer extra information about time, manner, degree,

place, plus affirmation or negation. Adverbs are typically acquired between 7 and 8 years old.

3. Conjunctions: They are words which organize information and elucidate relationships amongst components. These are typically developed between 7 and 8 years old.
4. Mental and linguistic verbs: Mental and linguistic verbs refer to the numerous acts of thinking and speaking, correspondingly.

Learning Challenges of Students with ASD and Teachers' Facilitation

Children with HFA frequently seem to be inattentive and are easily distracted during activities in class. Inattention could be caused by interference in the environment, for instance, noise and overstimulation of the senses. Apart from that, children with HFA often have poor organizing, planning and prioritizing skills. There is a high tendency for them to misplace their stationeries, fail to plan materials needed to complete their assignments, thus wrongly manage/allocate time for their work. They usually have cluttered desks and backpacks, hence creating a challenging task for them and their teachers to search for things in a particular area. These problems often result in these children not being able to complete their school assignments on time, or fail to submit them (Sansosti et al., 2010). They are also prone to anxiety and other emotional mood problems (Kim, Szatmari, Bryson, Streiner, & Wilson, 2000; Sansosti et al., 2010). Anxieties could emerge due to obsessions with probable violations of routine, being placed in circumstances without clear expectations, and anticipation of failed social meetings (Sansosti et al., 2010).

The Optional Infinitive (OI) Hypothesis

The OI hypothesis is a theory of children's early grammatical development suggested by Wexler (1994) to explain a variety of phenomena in children's early multi-word speech. It offers an account of children's knowledge of verb movement and verb inflection across languages. According to Wexler (1994, 1998), the main difference between adult and child grammar is that, for TD children of a certain age, sentences may optionally be finite (with tense markers) or non-finite (with infinitival form of the verb); hence the term, OI stage. In this theory, -ed, -s, BE, and DO are also considered as finiteness markers (Rice, Wexler, & Cleave, 1995).

Studies which report on the OI stage have been quite limited, with the latest by Modyanova, Perovic and Wexler (2017) examining tense marking abilities within subgroups of autism, autism with normal language (ALN) and autism with impaired language (ALI). Results of their study showed that the ALN group performed similarly in comparison to their TD control group in contrast to the ALI group. Another study on OI stage was conducted in 1995 on children with Specific Language Impairment (SLI). This study found that the SLI group was very accurate in marking agreement on BE and DO forms (Rice et al., 1995).

Weak Central Coherence and Language

Weak Central Coherence account denotes the detail-focused processing style suggested in characterising ASD (Happe & Frith, 2006). Individuals with very weak central coherence focus more on details without giving significance to the global meaning. The details are not considered with regard to a central idea. It results in individuals concentrating on small pieces of information rather than globally coherent patterns of information.

The uncommon capability of children with autism in perceptive tasks is recognized by Frith (2003) as a lack of attention to the context as a whole, in which information is effectively processed locally, in contrast to globally. From the psycholinguistic perspective, 'local' refers to information which is available in the short-term or working memory, simultaneously whereas 'global' refers to greater units of information that cannot be perceived as being available in the short-term or working memory at one time (McKoon & Ratcliff, 1992). Happe and Frith (2006) explained the term weak central coherence as a processing bias for featural and local information, and the relative failure to "see the big picture" in daily life.

Weak Central Coherence account (WCC) was previously used to explain converging evidence from a series of studies in different cognitive and perceptual domains. However, Vulchanova and colleagues extended the account to language and provided evidence to show the relation between local processing bias and acquisition of morphology and grammar. The first study was on a 10-year-old child (Vulchanova, Talcott, Vulchanov, & Stankova, 2012)

while the other was with an 18-year-old adolescent (Vulchanova, Talcott, Vulchanov, Stankova, & Eshuis, 2012). Both studies found language strength at the level of morphology and syntax in contrast to weaknesses in the processing of figurative language and inferencing.

Problem Statement

Much research on language acquisition in autism has so far been emphasizing on the pragmatic deficits, which are widely acknowledged as a universal phenomenon amongst individuals on the autism spectrum (Eigsti, Bennetto, & Dadlani, 2007; Roberts, Rice, & Tager-Flusberg, 2004). In contrast to the large number of studies on pragmatic deficits, only a small number of studies to date have been conducted on grammatical abilities in autism. The scarcity of literature and studies of grammar on individuals with autism has been reported by scholars in more recent studies (Brynskov et al., 2017; Khetrapal, 2015; Modyanova et al., 2017). Within the dearth of studies reported, studies on grammar have yielded conflicting findings; some found grammar as a deficit while others found it a strength in children with Autism Spectrum Disorder (ASD) (Brynskov et al., 2017; Durrleman & Delage, 2016; Modyanova et al., 2017).

With regard to morphology and syntax, some studies have revealed that grammar is rather unharmed in children with ASD. Grammar is often considered to be an asset in the cognitive profile of individuals with HFA, in which they often reveal remarkable results in grammar (Eigsti et al., 2007; Kjelgaard & Tager-Flusberg, 2001; Naigles, Kelty, Jaffery, & Fein, 2011). Some scholars have even asserted that grammatical development is an area of relative strength, with no deficiencies, in ASD (Tager-Flusberg, 1981). Happe and Frith (2006) asserted that grammar is extraordinarily intact in many people with autism due to a closed modular system. This grammar advantage in people with ASD is relevant to the WCC hypothesis of autism (Frith & Happe, 1994; Happe & Frith, 2006). Their stand is parallel to Eigsti and Bennetto (2009) who emphasized that older children with HFA are regularly thought to possess intact grammatical abilities. Another two studies using the WCC account (Vulchanova et al., 2012; Vulchanova, Talcott, Vulchanov, Stankova, et al., 2012) are also in agreement with this stand. However, a few studies have

shown contrasting findings. Two studies by Perovic, Modyanova and Wexler (2013a, 2013b) reported grammatical deficits among autistic children with normal language (ALN) HFA group as well. A recent study by Brynskov et al. (2017) reported impaired syntactic and morphological abilities in HFA children. These contrasting results to date have led to inconclusive results in the study of grammar in ASD thus far.

From the perspective of the Malaysian context, generally, it has been found that studies conducted on issues related to ASD were focused on either the Malay language or the teaching of English as a second language. Three studies on the teaching of English as a second language explored teachers' practices in terms of sight vocabulary (Yahya et al., 2013a; Yahya, Md Yunus, & Toran, 2013b; Yahya, Md Yunus, & Toran, 2013c), whereas a study by Mat Rabi, Osman and Mat Rabi (2016) focused on the teaching and learning of the Malay language in a few special education classes.

Another relatively current study was by Abdul Wahid and Samsudin (2016) who investigated the acquisition of Malay grammatical items of nine ASD children from a few special education classes in Malaysia. So far, no studies have been carried out to examine the acquisition of English among individuals with HFA and its implications on the teaching and learning of English to this group of children in Malaysia.

Present Study

A unique phenomenon has been observed in the acquisition of ASD children's first language (L1) in Malaysia. Many of these children are found to speak English fluently with English native speakers' (L1) accent, despite English not being used in their homes as the first language. This phenomenon has not been researched thus far in any language acquisition studies of children with ASD. Despite the fact that many studies on high-functioning (HF) individuals have been focused on the acquisition of a language by ASD children living in countries in which the language is spoken as the national language, there has been no study which examines the fluent (and with native speakers' accent) use of English as their first language (L1) amongst children with HFA, in countries that do not have English as its national language, as in Malaysia.

The morpho-syntactical aspects of language offers a good area for evaluating basic language competencies and processes (Vulchanova, Talcott, Vulchanov, Stankova, et al., 2012) and is thus chosen for this study. Hence, the current study aims to investigate the performance of a HFA child with regard to her simple present tense, focusing on the third person regular, *-s*. The production of verbal inflection (tense marking *–s*) and the morphological and syntactic features present in her utterances were examined.

METHODOLOGY

Participant

This paper is part of a larger qualitative research case study of children with high-functioning autism, in which purposeful sampling was employed. A thorough search for Malay children between 7 and 11 years old who have been diagnosed with high-functioning ASD by a child psychiatrist either at Malaysian government hospitals or private hospitals was conducted. These children would have to be those who acquire English as their first language, with Malay as their home language. These children also had to be those who were in mainstream schools. English was confirmed as their first language through letters issued by their respective psychiatrists, and the interviews conducted with their parents. The search was also focused on children living in the northern region of Malaysia, and was conducted at hospitals, intervention centres, through social media (e.g., Facebook), friends, networking, etc. This study, which formed a portion of a larger study, focused only on one Malay child with high-functioning autism who met the criteria mentioned.

Ethics

Approval from the university ethical committee (UKM/PPI/111/8/JEP-2016-517) was obtained before the research was conducted. Written consent for the participation of the child and her parents was obtained from the parents of the child.

Research Procedure

A qualitative research approach was used in this case study, in which the researcher acted as a participant-observer in conducting

spontaneous speech interactions with the participants. The participant-observation method allowed the researcher to participate in the events studied and not simply be a passive observer (Yin, 2003).

A Case Study of a High-Functioning Girl with ASD

Data was obtained from one high-functioning child with ASD, whose pseudonym is "NZ". This profiling was included in the researchers' previous article (Mohd Yusoff, Salehuddin, Abdullah, & Toran, 2018). At the time the study started, NZ was 8 years and 3 months old. She is a Malay girl who was born in Selangor and brought up in Sungai Petani. She speaks English fluently with an American accent. This accent is believed to have been acquired through the Playhouse Disney Channel and Nickelodeon as the child spent most of her television time watching these two channels. Her home language is Malay and English is the second language used by her parents; conversely NZ acquired English as her first language. NZ's IQ score, which was tested on CTONI (Comprehensive test of non-verbal intelligence) when she was 7-years old, revealed a score of 121. This indicated that NZ has above average intelligence.

NZ started to say words clearly by about one and a half years old. Her speech then could be described as echolalia as she merely repeated what was said to her. Later, she developed her speech from songs that were sung to her, and started speaking about things that came to mind. Although at that time she used both Malay and English, her speech was dominated by English, and was a one-way communication. Her echolalia lasted until she was almost two years old. By the time she was two years old, NZ spoke solely in English. Her two-way communication developed when she was between two and three years old as her mother was able to understand her speech better then. She started to speak Malay only when she was seven, at the end of her year one in school. By the time the current research was conducted (i.e., when NZ was 9 years old), NZ was already Malay-English bilingual. However, her discourse was dominated by English. Due to her sensory issues to sound and high anxiety levels, she often failed to complete her school work. She also had problems sitting still at her table and would walk out of the class whenever she

felt like it. Even with such challenges, NZ usually scored very high marks (frequently above 90%) in English tests and exams.

NZ really loves drawing, writing and reading. She is very skilful at drawing and likes to draw on paper and on the computer. Her favourite and persistent occupation is drawing using the 'Paint' application on the computer which she taught herself. NZ is a very talented writer too. She likes writing short stories using the computer and also on the mobile phone via the WhatsApp application.

Observations of Children's Language Production

Spontaneous speech protocols were collected during bimonthly visits to NZ's home for a period of one year. In accordance with Tager-Flusberg et al.'s (1990) procedure, the researcher sought the help of NZ's mother to prepare materials such as toys, books, etc. before each session. Besides, NZ's mother also updated the researcher on events or activities which occurred within the two weeks after each session between NZ and the researcher. These updates acted as prompts for conversation during coming sessions. Participants were given the freedom to interact with the researcher as they normally would with others, thus it was not structured. Recording tools include a Sony Handycam that was attached to a tripod, was used in each session. The researcher and NZ would use a room where they normally had their sessions. Casual conversations were exchanged with NZ to ensure that she was comfortable with the researcher. Each session lasted for approximately an hour.

Data Analysis Technique

Spontaneous Speech Protocols

The data collected from the participants were video recorded. Written transcripts of each session was prepared after each visit. A verbatim transcript of the conversation was prepared at this stage. The first draft of the transcript was prepared, and then edited. For reliability purposes, the interaction sessions were orthographically transcribed by the researcher and three other transcribers who are school English teachers. The three transcribers are all trained English teachers. Two

are primary school teachers and one is a secondary school teacher and all three are teaching in the state of Kedah. The researcher later reviewed all the transcripts in full. Once the completed transcripts were ready for analysis, the data were analysed using Microsoft Excel, and coded to find emerging patterns. Thematic analysis was used to analyse the qualitative data in order to answer the research questions. In addition, the percentages of correct utterances were calculated for present tense marking, while total number of words (TNW) was calculated to determine the total number of words used in the sample, using raw frequency of number of main-body words. These were performed, following Pence and Justice's (2008) method under *Measures Applied to Spontaneous Language Samples* (Table 7.2, page 245).

RESULTS

This section discusses results on the use of the third person regular (*-s*), and the morphological and syntactic (morphosyntactic) aspects of grammar that were present in NZ's utterances.

-s Tense marking

Table 1 shows an increasing trend on the correct use of –s. The results showed an increase that reached 90% in week 8 and a peak of 91% in week 10, the correct use of -s remained consistent until week 18 when there was a sharp drop to 37.5% in the correct use of -s. Despite this, there was again, a progressive rise up to 80% in week 20. A cross-check with the video recording of the data collected during week 18's session showed that NZ was quite playful during that session and this was believed to be the cause of the drop in her performance. Overall, the average percentage of her correct use of -s was 75.92%. From the Excel file which was used to code the data, a number of errors in producing the third person singular was in the form of missing -s tense marking. For example, NZ used *it's mean* instead of *it means* and *that's mean* instead of *that means* from week 1 until week 9; however, these errors were committed only once in week 15.

Table 1

Percentages of Correct Third Person Singular by NZ

WEEK	Total utterances	Correct utterances	Percentage%	It's look/It's mean/it's means/that's means
1	9	6	66.67	1
2	30	21	70	3
3	17	12	70.59	2
4	10	7	70.00	2
5	10	8	80.00	5
6	11	6	64.55	3
7	10	7	70.00	2
8	10	9	90.00	0
9	8	7	87.5	2
10	11	10	90.91	0
11	20	16	80.00	0
12	11	9	81.82	0
13	11	9	81.82	0
14	13	10	76.92	0
15	5	4	80.00	1
16	24	21	87.50	0
17	7	6	85.71	0
18	8	3	37.50	0
19	6	4	67.00	0
20	5	4	80.00	0

Instances of wrong and correct phrases are given below. The numbers in brackets refer to the recording sessions, following 1 to 20 interaction sessions or meetings, the number of video sessions following short breaks, and the time (in minutes and seconds) during the interaction.

Examples of incorrect utterances

> I catch the cats. And Froggy *catch* the dogs but he *catch* too much dogs.
>
> [1;3; 6.04]

That's mean a loud noise that can, that, that can hurt someone
[6; 2; 16.46]

Wait until the *times come* (time comes)
[14; 1; 20.3]

Examples of correct utterances

Results indicated that the correct phrases clearly outnumbered the wrong phrases, which were presented through the percentages calculated. The following are some instances:

Pinky **likes** to eat cupcakes, cakes, muffins, and ice cream pops
[3; 1; 1.48]

Cause it **makes** me feel very hot.
[8; 4; 7.3]

Morphology and Syntax (The presence of literate language)

The Excel data on the production of utterances in the third person singular/regular (-s) were analysed. Based on the Gibbs (2007) method of thematic analysis, the findings revealed the presence of literate language through the production of 1) elaborated noun phrases, 2) adverbs, 3) conjunctions, 4) mental and linguistic verbs. The organization of data is presented in Table 2.

Table 2

The Organization of Data

Elaborated noun phrases	Adverbs	Conjunctions	Mental and Linguistic Verbs
Articles	Time	Coordinating conjunctions	Mental verbs
Possessives	Manner	Subordinating conjunctions	Linguistic verbs
Demonstratives	Degree		
Quantifiers	Place		
Wh-words	Reason		
Adjectives	Affirmation and Negation		

Elaborated Noun Phrases

NZ was able to use correctly the articles: *a, an,* and *the* in her utterances. She showed an excellent understanding in the use of indefinite articles (*a, an*) and definite articles (*the*). A total of 31 of the 32 (93.75%) utterances she produced were correct utterances.

> Idiom is ***a*** set of words, is ***a*** set of words, that is, that looks like what ***the*** word is same meaning with different words, funny or not (a, the)
> [1; 2; 6.4]

> ***An*** early bird ***gets*** a worm. (a, an)
> [16; 2; 2.12]

The possessives found in her utterances were *m*y, *his* and *her* and all of these were correctly used. Out of 18 utterances, *my,* was uttered 14 times, *his* was uttered 3 times and *her* was spoken once.

> So I decided to see ***my*** mom's book after this.
> [8; 4; 3.55]

> Now he, (points at book) but luckily he, he wants to find ***his*** family.
> [9; 2; 2.02]

The demonstratives found in NZ's utterances were *this* and *these,* which were used accurately in her utterances. *This* was uttered twice (this toy, this time), while *these* were uttered once.

This toy looks like a poppy toy.
[1; 2; 1.44]

That means all ***these*** are my favourite
[13; 2; 14]

NZ also showed some variations in her choice of quantifiers. The number in brackets henceforth, identified the frequency. The quantifiers found were *some* (2)*, a bunch of* (1)*, a lot of* (1)*, a little bit* (3)*, bunch* (1)*, all* (3)*, every* (2) and *much* (6). Out of 18 utterances, only one was found to be incorrect.

R: What is that? NZ: Means there's ***a bunch of*** goose [2; 2; 2.07]

Get ***a little bit*** shade of grey. [8; 3; 2.3]

NZ also displayed some variations in the use of Wh-words. The Wh-words found were *who* (1), *what* (9), *why* (3) and *when* (3), which were all used correctly by NZ.

Hmm, hmmm, ***why*** are birds angry? [6; 3; 9.31]
But, I don't know **what** it means about korban. [18; 1; 7.5]

NZ was also found to be able to use the adjectives well, and this is seen in the large amount of words and in various forms, with and without suffixes, (including the *–ing* form of adjectives). The adjectives without suffixes include *full, early, late, automatic, good, best, brilliant, fair, seasick, special, hot, cool, responsible, wrong, old, loud, angry, big, great, fast, next, happy, confident, alone, fresh, fine, soft, evil, naughty, real, near, slow, far, next* and *tired* (produced once), *early* and *happy* (twice), and *good* (thrice). Adjectives with inflectional morphemes that NZ used in her utterances were *faster* and *laziest*; adjectives with derivational suffixes were *stylish* and *boogly* (once), and *funny* and *smelly (thrice)***.** Finally, adjectives with *–ing* endings that were found in NZ's utterances were *confusing, refreshing*, and *amazing***.** All the adjectives were used correctly in her utterances. Some instances include:

It means something very excited and ***special*** and very ***amazing*** in the world.
[8; 4; 3.55]

It means I need to write and be more ***confident***
[12; 1; 8]

Adverbs **–** NZ used adverbs of time which consisted of *next, every day, now,* and *tomorrow* (produced once), *still* and *sometimes* (twice), and *already* and *again* (thrice). All of these adverbs of time were used perfectly in thirteen (13) utterances.

I'm ***still*** at Year 3. So I decided to see my mom's book after this.
[8; 4; 3.55]

That means they play ***again***, and ***again***, and again until times up, finish.
[10; 2; 2.3]

Adverbs of manner were also found in NZ's utterances and they included: *heavily*, finally, *quickly, well, fast,* and *much*. There were altogether six instances, five of which were correct.

Get ready ***quickly*** because …an early bird gets a worm. [16; 2; 12.03]

The incorrect use of adverbs of manner (*much*) was found in the following sentence.

It means, I have to work very ***much*** my friends until make a surprise and show to MissRuba anytime.

[10;2;9.5]

Fourteen instances containing adverbs of degree were found in NZ's utterances, and they included: *only, so, almost* and *super (*once*), too* and *only (*twice*)* and *very (*seven times*)*. All of them were appropriately used.

It's ***almost*** one o'clock means I need to stop. [12;2; 14.03]

It means something ***very*** excited and special and ***very*** amazing in the world.

[8; 3; 6.12]

A total of 14 instances were found for adverbs of place. These adverbs were in various forms. The adverbs of place included the following phrases: climbing *up* and *downs*, pecking *in*, go *back,* leads the pray *at,* add chocolate *inside,* turn *into,* far *away,* blush up *in front of, hop* over and also *everywhere* (all were used only once), and *here* (used three times).

When ***here*** means near. [16; 2; 20.48]
I add chocolate ***inside*** with ice [13;2;0.53]

There were three instances of adverbs of affirmation and they were *nothing* (2) and *really* (1). They were all appropriately used in NZ's utterances.

Because I want to finish quickly before, before my editor *gets* angry, because I want to edit into ***really*** stylish. [17; 3; 7.4]

Because and *so* are two forms of adverbs of reasons found in NZ's utterances. *Because* was uttered dominantly (17 times) whereas *so* was used twice. This can be seen in the following instance:

Get ready quickly ***because***…an early bird gets a worm. [16;2; 12.03]

Conjunctions – Both coordinating and subordinating conjunctions were present in NZ's utterances. The coordinating conjunctions were *or* (1), *so* (2), *but* (15), *and* (25), whereas the subordinating conjunctions were *before* and *until* (once), *that* and *who* (twice), *why* and *when* (thrice), *what* (9), and *because* (17). They were all used correctly by NZ.

If you lose you have to make it better next, next time, ***or*** next year, ***or*** next month, next day, next week, next.

[10; 2; 3.5]

I need to listen what teacher says so, and that's ***why*** I'm going to do it.

[12; 1; 0.44]

Mental and linguistic verbs – A variety of mental verbs were found in NZ's utterances and they included *forgot* and *imagine* (1), *know* (8), *knows* (2), *remember* (3), *remembers* (1). The linguistic verbs that were found in NZ's utterances were *say* (5), *says* (4), *said* (1), *saying* (1), *promises* (1), *tell* (1) and *called* (1). For mental words, four words: *forget, know, remember* and *imagine* were used whereas for linguistic words, four words: *say, promise, tell* and *call* were used in different forms and tenses.

He knows she… she ***remembers***.

[15;2;5.46]

Means need to ***ask*** and if real luck and you have a quiz um a quiz ***saying*** so I know what.

[16;1;17.18]

DISCUSSION

The findings showed that NZ was able to use the third person regular (-s), both in the production of tense marking,–*s* and in morphological and syntactic features. With regard to tense marking, as shown in Table 1, the percentage of using the correct third person singular indicated NZ's ability in producing the correct present

tense marking –*s*. It also demonstrated her knowledge in subject-verb agreement, as the results showed that a high percentage of her utterances contained third person singular subjects which were matched with the -*s* inflection *in* the verbs used. This is in line with Modyanova et al.'s (2017a) findings on the use of tense marking and morphosyntax by ALN (autism with normal language) and ALI (autism with impaired language). Their study revealed that the high-functioning group with ASD performed equally well compared with their TD controls. The ASD was found to have good knowledge of the meaning of tense, case and agreement. Thus, it can be concluded that for the production of –*s* tense marking, NZ is not at the Extended OI Stage. This is because, as the results have shown, NZ has the grammatical ability that goes beyond the OI Stage, and is on a par with TD children.

Pertaining to morphology and syntax, this study revealed four exact features of literate language which were produced efficiently. The four features found were elaborated noun phrases, adverbs, conjunctions as well as mental linguistic verbs. All subcategories under the four categories were also found to be used creatively and competently in various ways. All the six subcategories under the extended noun phrases category including: the articles, possessives, demonstratives, quantifiers, wh-words and adjectives were uttered very well. All the six subcategories under adverbs of time, manner, degree, place, affirmation or negation and reason were suitably applied. Both coordinating and subordinating conjunctions were also uttered very well including the mental and linguistic verbs. These findings also showed that NZ's language development (with reference to morphological and syntactic development) was at a par with other TD school-age children who were English native speakers. It also indicated NZ's ability to use highly decontextualized language, which meant that NZ had the ability to use language spontaneously without relying on contextual cues to support meaning; in other words, she turned to the language itself to create meaning (Greenhalgh & Strong, 2001; Heilmann et al., 2010; Pence & Justice, 2008). With reference to adjectives, NZ produced adjectives that ended with the suffix -*y*, (such as funny and smelly) and a number of adverbs that ended with the suffix –*ly* such as, *finally* and *quickly*. Given the circumstance that NZ was only 8 years and 3 months old when the study commenced, and the fact that derivational suffixes –*y* is typically acquired around the age of 11,

and –*ly* is typically picked up in adolescence among TD individuals, NZ was actually more advanced in her morphological development compared to other TD children. In addition to her utterances, data from NZ's writing of her stories and exam papers also confirmed her language excellence in the areas being investigated in this study, which were the third person regular –*s* and the literate language. Furthermore, she scored 99% for her mid-semester English paper, and 90% for her comprehension paper. NZ scored 100% for writing in her English final examination paper during Year 3.

NZs grammar advantage in this study was consistent with the WCC hypothesis of autism (Frith & Happe, 1994; Happe & Frith, 2006) that relates the strengths and weaknesses in cognitive abilities detected in autism to a bias for more detailed processing at the local level. It explains an outcome of superiority in local processing, in this case grammatical processing, that is remarkably unharmed in much ASD population. According to Happe and Frith (2006), this superior grammatical processing appears from a closed modular system, that is connected to local processing skills. Such a processing can be used to explain NZ's grammar advantage. As posited by Berk (2013), grammar is a product of general cognitive development, where there is an inclination for children to search for consistencies and patterns of all types. This also concurred with Vulchanova et al. (2012) that the language profile of individuals with Asperger will show strengths in areas which depend on pattern extraction, particularly those which display regularity.

The finding of this study also has implications for the teaching and learning of HF ASD children in Malaysia. In this case study, NZ who acquired English as her first language, was found to perform very well in her tests and exams in the English subject. However, she struggled in class due to her high level of anxiety and sensitivity to sound. She also showed signs of inattentiveness and had difficulty sitting still at her table, and walked out of class on a whim. This often contributed to her inability to complete her school work on time. Even though NZ is currently an excellent student and does not seem to have much problems academically mainly in the English subject, she requires some educational needs support. If these HF children with ASD are not given support in terms of their educational needs, as they grow older they may be at risk of being left behind academically compared with their TD friends (Yahya et al., 2013a).

Awareness of ASD and effective teaching methods would help NZ and other ASD children to perform better in mainstream classrooms. Highly structured teaching techniques which include directed learning, the use of scaffolding, repeating tasks and delivery of information in chunks would support them as all of these techniques highlight clarity and order. The same goes to the use of visual cues. Both highly structured teaching techniques and the use of visual cues bring clarity in the delivery of knowledge which can eventually reduce their anxiety. They can then have clear expectations of class sessions – a very important learning aspect that children with ASD need (Iovannone, Dunlap, Huber, & Kincaid, 2003; Yahya et al., 2013a). High anxiety could also be reduced by having anticipated and routine schedules, which would also enhance their ability to focus and retain their attention to tasks delivered in the classroom (Medina & Salamon, 2012; Patten & Watson, 2011). Finally, support from various parties which include educators, parents and the government are essential to ensure that their educational needs are fulfilled. As highlighted by Medina and Salamon (2012) and Patten and Watson (2011), enhancing these children's ability to focus and sustain attention in the classroom requires some approaches, with a highly supportive teaching environment (Kepol, 2017), low-staff-to-student ratio, strategies for generalization, support to aid program transition, besides parental involvement (Manukaram, Abdullah, & Hasan, 2013; Othman, Azman, & Mohd Ali, 2008).

CONCLUSION

The present in-depth study revealed superior grammatical knowledge in a high-functioning (HF) child with ASD. It showed her high language competence in morphology and syntax, and explained a specific strength in local processes, which provided support to the WCC account. This case study showed that the language system accountable for finiteness in a high-functioning ASD child appeared to be operating similarly to that of TD children. In spite of the child's excellent performance in her spontaneous speech interactions and in tests and examinations, this paper also showcased the child's learning difficulties as the child struggled in a mainstream class due to her ASD characteristics. Hence this study calls for educators to upgrade their knowledge on autism and to have a greater awareness of HF ASD children–in mainstream classrooms in Malaysia. It is

hoped that such knowledge and awareness will lead educators to employ more effective methods in teaching such special children so as to ensure that they will not be left behind academically in the mainstream classroom.

LIMITATIONS

To date, there is no normative data in typical language development (percentage or frequency) for grammatical errors. Therefore, there is no universally accepted cut-off for percentage or frequency of grammatical errors in language samples in ASD (Wittke, Mastergeorge, Ozonoff, Rogers, & Naigles, 2017). Thus, this is an essential area to be explored in the future so that exact allocations concerning frequency cut-off for grammatical errors are constantly used across studies.

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