A COMPARISON OF EXPERIENTIAL GRAMMAR IN NARRATIVE DISCOURSE BETWEEN TYPICALLY DEVELOPING CHILDREN AND CHILDREN WITH AUTISM[1]

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Abstract

The objective of this study was to compare experiential grammar in the narrative discourse of thirty typically developing Thai children and thirty Thai children with autism in elementary grades 1 to 3. Data was compiled by asking subjects to tell a narrative discourse from a wordless storybook "A Boy, a Dog, and a Frog" (Mayer 1967). Data was analyzed based on the Systemic Functional Linguistics approach and focused on experiential mode of meaning concerned with the system of Transitivity. The results revealed that children with autism used fewer clause complexes and clause simplexes than typically developing children. For the system of Transitivity, it was found that children with autism used less modified nominal groups as the Participant especially in grade 2 and 3 and they used a smaller number and less variety of process types; used a lower percentage of mental, behavioral and verbal processes; and used a lower percentage of serial verb constructions. Children with autism, especially those in grades 2 and 3, used a smaller variety of circumstance types; and used a lower percentage of clauses with complex circumstances.

Introduction

Autism or autistic spectrum disorder (ASD) is a neurodevelopmental disorder in which the essential features are the presence of markedly abnormal or impaired developmental in social interaction and communication and markedly restricted and repetitive behavior, activity and interests (Boucher 2003: 247; Nicolosi, Harryman and Kresheck 2004: 41; Siegel 1996: 16; Volkmar, Lord, Bailey, Schultz and Klin 2004: 136). The social interaction impairment of children with autism is closely related to the impairment of communication which impacts on both comprehension and expression. Children with autism have speech and language problems in many aspects including narrative problems. They often have problems in using linguistic devices to structure coherent discourse or narratives, and to disambiguate meaning (Boucher 2003: 249). Narrative production differs from conversational production in that the narrator has to use certain rules of cognitive organization and language sequencing to describe events that have a

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beginning, middle, and end (Shipley and McAfee 2004: 159). When children talk or narrate stories, they use language to represent their experience in the external world - events, things- and the internal world- their beliefs, feelings and thoughts (Thompson 2004: 86). The ability to produce narrative discourse is vital for academic achievement and in the daily life of children with autism, and this ability can affect many aspects of children' s language use such as grammatical measures, fluency, story structure and pragmatics (Botting 2002: 3; Merritt and Liles 1989: 438). Currently, it has been concluded that narrative skill or narrative ability is an effective way of assessing linguistic ability and communicative competence in both typically developing children and in children with autism (Botting 2002: 1).

Narrative ability is important both in social interaction, and in the academic and vocational success of children with autism and typically developing children, especially regarding the communication and social interaction problems of children with autism. The purpose of this study was to determine how typically developing children and children with autism construe their experience of the world around and inside them in producing their narratives. This study focused on studying syntactic ability in the narratives of children by using Systemic Functional Linguistics as an approach applied to data analysis. The narrative data of Thai children with autism and typically developing Thai children in the first to third grades was examined and compared. By the time typically developing children are in the first to third grades or from six to eight years of age, they develop narratives that are more complex and well-structured, produce increasingly more appropriate, coherent

and understandable stories, and use appropriate discourse codes and styles (Roseberry-McKibbin and Hegde 2000: 140; Tager-Flusberg and Caronna 2007: 474). Since there are no previous studies about this aspect in the Thai language, the results of this study will provide knowledge about the difference in abilities between children with autism and typically developing children in using language to represent their experiences in their narratives. These results will be beneficial for those who work with children with autism such as teachers and speech-language pathologists in planning for teaching to help children with autism develop their narrative skills. This study deals only with the experiential mode and experiential clause grammar of the ideational metafunction.

Research questions

1. What are the characteristics of experiential grammar used in the oral narrative discourse of typically developing Thai children in the first to third grades?
2. What are the characteristics of experiential grammar used in the oral narrative discourse of Thai children with autism in the first to third grades?
3. What are the similarities and differences between experiential grammar used in the oral narrative discourse of typically developing children and children with autism in the first to third grades?

Methodology

Analytic framework

Systemic Functional Linguistics (SFL), a theory of the fundamental functions of language developed by Michael Halliday

(1960s), was used. Within this paradigm, language is viewed as a resource for conveying meaning and grammar is viewed as a resource for creating meaning in the form of wording. This approach offers many grammatical choices of word selection that are suitable for analyzing a narrative discourse such as various types of process. The available choices depend on aspects of the context in which the language is being used (Armstrong 2005: 140). This framework helps to explain a speaker's language in systematic patterns relating to the contexts of everyday discourse (Armstrong 2005: 142).

The Systemic Functional Linguistics framework was used in many studies to analyze the discourse of children and adults with language disorders such as aphasic patients, individuals with traumatic brain injury, individuals with dementia, children with autism, children with attention deficit, and children with specific language impairment (Armstrong 2005: 142; de Villiers 2005a: 245, 2005b: 215; Thomson 2005: 175). Moreover, de Villiers (2005a) studied the role of Systemic Functional Linguistic discourse analysis in understanding the speech characteristics of people with Autism Spectrum Disorder (ASD). She concluded that linguistic discourse analysis using the SFL approach can be a useful method in assessing the speech patterns of individuals with autism. Thus, the Systemic Functional approach seems to be an effective way to explain the overall system of grammar**,** especially at the clause level, which contributes to discourse. The Systemic Functional approach proposes that language shows three properties in communication simultaneously: ideational, interpersonal, and textual metafunctions. The ideational metafunction, which this study focused on,

is concerned with 'ideation' and there are grammatical resources for construing our experience of the world around us and inside us. The ideational metafunction is divided into two subtypes, namely the experiential mode and the logical mode. The experiential mode provides the resources to represent experience as configuration: the logical mode provides the resources for creating clause complexes and other complexes to represent experience as a series. The system of transitivity is a grammatical system of the ideational metafunction. This system is realized by a configuration of process, participants involved in it, and attendant circumstances (Matthiessen 1995: 194, 785; Patpong 2006: 123, 396-397) as shown in an example of experiential clause grammar below.

Example [1] (T.3- 6_3_1)[4]

kha1na?2-nan4   *khaw4*   *hen5*
at that time   he   see
circumstance   participant   process
kop2   tuə1   niŋ2
frog   CLASS   one
participant
At that time, he saw a frog.

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[4] [number] (T. / A. 1st number 2nd number 3rd number 4th number):
[number]
The number refers to number of examples given.
(T. / A. 1st number 2nd number 3rd number 4th number)
The alphabet T. or A. refers to the type of children; T. refers to the typically developing child; and A. refers to the child with autism.
The first number refers to the grade level in which the child was studying.
The second number refers to the ordering number of the children from each grade level.
The third number refers to the number of a clause complex. The fourth number refers to the number of a clause simplex.

For Process, there are many types which are concerned with the particular fields of experience that offer choices. The transitivity system construes the world of experience as a set of process types, which are typically expressed by a verbal group (Halliday and Matthiessen 2004: 180, 170). In Thai, there are three major types of process: material, mental and relational and three intermediate types: behavioural, verbal and existential. The use of verbal group complexing in the realization of the Process can be characterized as having "serial verb construction" (Patpong 2006: 124). Process types are categorized according to the domain of experience: doing and happening, sensing and saying, being and having (Patpong 2006: 133). Each process type is described as follows:

A material process is composed of the processes of 'doing' and 'happening'. Material clauses are concerned with our experiences in the material world. A material—doing process is a transitive process; a material—happening process is a intransitive process (Halliday and Matthiessen 2004: 180, 211). Some examples of the material process are 'cap2' (catch), 'ti:1' (hit), 'nɔ:n1' (sleep), 'də:n1' (walk), 'ʔa:p1-na:m4' (take a bath). In general, material processes are used to reveal what happens in the story and they cannot project another clause (Butt, Fahey, Feez, Spinks, and Yallop 2000: 81). A behavioural process is a process of physiological and psychological behavior such as breathing, coughing, smiling, looking, listening and dreaming (Halliday and Matthiessen 2004: 248). A mental process is a process of sensing. This process includes the cognitive, desiderative, perceptive, and emotive. Clauses with mental process or 'mental clauses' are concerned with our experience

in the world of our own consciousness (Halliday and Matthiessen 2004: 197), e.g. 'khit4' (think), 'ja:k2' (want), 'hen5' (see), 'kro:t2' (angry). Mental processes can project another clause (Patpong 2006: 138). An example of projecting type is — 'khaw5 **khit4** wa:3 ca2 **cap2** ma:5' (he thought that (he) would catch a dog.)— the clause with material process '**cap2**' (catch) was projected from a mental process- '**khit4**' (think). Verbal processes in clauses (or clauses of saying) are an important resource in various kinds of discourse. In a narrative, verbal clauses help to create dialogue passages (Halliday and Matthiessen 2004: 252), e.g. 'bɔ:k2' (tell). This process type can project another clause too (Patpong 2006:142). A relational process, or a process with clause grammar, is concerned with being, possessing and becoming (Halliday and Matthiessen 2004: 210) e.g. 'pen1', 'ju:2', 'khɨ:1' (be); 'mi:1' (have), (exist). A relation clause construes abstract relations between two entities; one entity is characterized (ascriptive) or identified (identifying) by reference to another (Patpong 2006: 145). Existential processes are used to describe something that exists or happens. Existential clauses are generally found in various kinds of text. In narratives, existential clauses are used to introduce participants at the beginning of a story or a narrative (Halliday and Matthiessen 2004: 257), e.g. 'mi:1' (exist).

The 'Participant' function includes subjects and objects. Participants, are a nominal group and are labeled according to different process types as follows:

Table 1 Process types and Participants

PROCESS TYPE		PARTICIPANTS
Material	- happening	Actor (+ Range)
	- doing	Actor + Goal
behavioural		Behaver (+ Range)
Mental		Senser + Phenomenon
Verbal		Sayer (+ Receiver), (+Verbiage)
Relational		Carrier + Attribute / Token + Value
Existential		Existent

(Adapted from the table of Patpong 2006: 171)

Circumstances are the part of a clause that describe where, when, how long, how far, how many times, how, why, for who/what, with who/what, as well as…, instead of whom/what, into what, about what and as what. Therefore, their meanings are about time (temporal), place (spatial), cause, manner, accompaniment, matter and role. Circumstances are composed of Location, Extent, Cause, Manner, Matter, Accompaniment and Role types. They are generally realized by a prepositional phrase or adverbial group (Matthiessen 1995: 776). Location is a circumstantial type that construes the location of the unfolding of the process in space and time. Location includes temporal location and spatial location. Spatial location includes place, direction, source and destination. In general, it is realized by a prepositional phrase (Halliday and Matthiessen 2004: 180, 265). In some cases, either a preposition or a nominal group which is the part of a prepositional phrase can be omitted (Patpong 2006: 574). Temporal circumstance includes time and the temporal analogues of source, path and destination (Halliday and Matthiessen 2004: 180, 265). It is realized by an adverbial group and a prepositional phrase and sometimes by nominal groups

(Patpong 2006: 574). Extent is a circumstance type for construing the extent of the unfolding of the process in space and time: the distance in space and the duration in time. Extent is used to tell about how long, how far, how many and how many times and it is generally realized by adverbial groups, prepositional phrases or nominal groups with quantifiers (Halliday and Matthiessen 2004: 264). Cause circumstance is used for expressing the reason why the process is actualized. It answers the question: why, what for, and for whom. Cause includes Cause: reason, Cause: purpose, and Cause: behalf (Halliday and Matthiessen 2004: 269). The circumstance of Manner construes the way in which the process is actualized. This circumstance type includes four subcategories: Means, Quality, Comparison and Degree (Halliday and Matthiessen 2004: 267). Manner may be realized by adverbial groups and prepositional phrases (Patpong 2006: 579). Accompaniment means that there is a joint participant in the process and expresses the meaning of *and*, *or* or *not*. It is used for answering the question item: and who or what else? Accompaniment is generally realized by a prepositional phrase. It includes two subcategories: Accompaniment: comitative and

Accompaniment: additive (Halliday and Matthiessen 2004: 272-273). In Thai, circumstances of Accompaniment can be marked by prepositions 'kap2' (with) for a positive aspect and 'do:j1-pra:t2sa1ca:k2' (without) for a negative aspect (Patpong 2006: 589).

Subjects

There were 60 children from seven schools and one speech clinic. The subjects were divided into two groups: 30 typically developing Thai children and 30 Thai children with autism who were studying in a mainstreaming program in the first grade to third grade. Each group of subjects was divided into three subgroups according to grade level. There were ten children in each subgroup. For the subgroups in elementary grade 1, the typically developing children ranged in age from 6 years to 7 years 6 months with a mean age of 6 years 11 months (5 boys and 5 girls); children with autism ranged in age from 7 years 2 months to 11 years 4 months with a mean age of 8 years 9 months (9 boys and 1 girl). For the subgroups studying in elementary grade 2, typically developing children ranged in age from 7 years 1 month to 8 years 4 months with a mean age of 7 years 11 months (5 boys and 5 girls); children with autism ranged in age from 8 years 7 months to 14 years 8 months with a mean age of 11 years 8 months (9 boys and 1 girl). For the subgroups in elementary grade 3, typically developing children ranged in age from 8 years 5 months to 9 years 5 months with a mean age of 9 years (4 boys and 6 girls); children with autism ranged in age from 9 years 5 months to 12 years 4 months with a mean age of 10 years 6 months (10 boys).

Instrumentation

A 24- page wordless storybook**,** "A Boy, a Dog, and a Frog" (Mayer 1967), was used to elicit oral narratives discourse data. The book is about a boy with a pail and a net who takes his dog out to play. The dog and the boy walk to the river to catch a frog. They try to catch a frog, but they cannot catch it. When they go back home, the frog follows them and ends up playing in a bathroom with them.

Administration procedure

Each subject was asked to look through the pages of the wordless storybook by themselves. Following this, the subjects narrated a story spontaneously in Thai beginning in whatever way they chose and used the pictures in the storybook as prompts. The researcher did not say anything to prompt the subjects about the story and there was no time limit in telling the story. All narratives were recorded by both audio and video. The subjects' actual pronunciation was transcribed into International Phonetic Alphabet (IPA). All narratives were glossed and translated. In some cases where the recorded voice of a subject was not clear, their video was reviewed.

Results and discussion

The narrative discourse data of both subject groups were segmented in terms of clause boundaries and the number of clause complexes and clause simplexes were identified and numbered. A clause simplex means one clause only and clause complexes are a number of clauses that are linked together grammatically (Halliday and Matthiessen 2004: 8). There were 869 clause complexes and 1,811 clause simplexes. All clause simplexes were

analyzed in terms of experiential clause grammar that is composed of three functional components: Participant, Process, and Circumstances as discussed below.

Participant

Participants are typically expressed by a nominal group and labeled according to different process types, for example, a Participant of behavioral process type is called Behaver. For the mental process type, a participant as subject of a clause is called a Senser with a Phenomenon as the object (Halliday and Matthiessen 2004: 176-177). Participants used in the narratives of typically developing children and children with autism were analyzed in terms of bare nominals and complex nominals. Complex noun phrases (complex nominals) in Thai are composed of a head noun and one or more modifiers following the head noun. There are seven types of modifiers: numeral modifiers, demonstrative modifiers, interrogative and indefinite modifiers, genitive modifiers, adjectival modifiers, prepositional phrase modifiers and relative clauses. Moreover, these modifiers can be combined to be complex modifying phrases (Iwasaki and Ingkaphirom 2005: 13, 61). All typically developing children and children with autism used bare nominals and some children used complex nominals as the participants. A comparison between the number of bare nominals and complex nominals as participants used by the two groups of children are shown in Table 2.

As can be seen in Table 2, the number and percentage of complex nominals used by typically developing children increased by grade levels. In contrast, the percent of bare nominals as participants decreased by grade levels. Typically developing children used complex nominals as participants more frequently than children with autism with the exception of children in grade 1. From the data of children in grade 1, it was found that nine out of ten typically developing children used complex nominals as participant whereas only four children with autism in grade 1 used them. Moreover, one child with autism in grade 1 used a complex noun phrase – 'dek2 khon1 ni:4' (this child) repeatedly 9 times or 50 % of the total complex nominals used by all children with autism in grade 1. To clarify the results, types of complex noun phrases used by both groups of children were analyzed. A comparison between the types of modifiers of complex nominals used by the two groups of children is shown in Table 3.

Table 2 Number of bare nominals and complex nominals used by typically developing children and children with autism

	Typically developing children			Children with autism		
	Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3
Bare nominals	94.9% (394)	81.6% (315)	75.4% (319)	93.4% (256)	97.5% (192)	88.9% (225)
Complex nominals	5.1% (21)	18.4% (71)	24.6% (104)	6.6% (18)	2.5% (5)	11.1% (28)
Total	100% (415)	100% (386)	100% (423)	100% (274)	100% (197)	100% (253)

Table 3 Types of complex noun phrases used as participants

Modifier	Typically developing children			Children with autism		
	Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3
Numeral	33% (7)	31% (22)	13%(14)	5.5% (1)	20% (1)	18% (5)
Demonstrative	29% (6)	36.6%(26)	60%(62)	78%(14)	-	50%(14)
Genitive	38% (8)	28.2%(20)	15%(16)	5.5% (1)	20% (1)	21% (6)
Adjectival	-	1.4% (1)	2% (2)	5.5% (1)	60% (3)	11% (3)
Prepositional phrases	-	-	1% (1)	-	-	-
Relative clauses	-	1.4% (1)	1% (1)	-	-	-
Complex modifying phrases	-	1.4% (1)	8 % (8)	5.5% (1)	-	-
Total	100% (21)	100% (71)	100% (104)	100% (18)	100% (5)	100% (28)

As can be seen in Table 3, no child used interrogative or indefinite modifiers as participant. The variety of complex verb phrases or complex nominals as participant used by typically developing children increased by grade level, while those of children with autism did not. Examples of each type of modifier with nouns as complex nominals used by children from both groups are listed below:

Noun- (Classifier)- Demonstrative : 'kop2 (tuə1) nan4' (that frog).

Noun- *(khɔːŋ5 'of')*- Possessor (Genitive) : 'lɔ:j1-tha:w4 khɔ:ŋ5 ma:5' (footprint of dog).

Noun- Classifier- Numeral: 'dek2 khon1 nɨŋ2' (one child).

Noun- (Classifier)- Adjective : 'ba:n3 lu:5' (luxurious house).

Noun-(Classifier)- Prepositional Phrase: 'troŋ1 kaaŋ1 la-waaŋ2 dek2' (space between a child and…)

Noun- (*thi:3*)- Relative clause : 'lɔ:j1-tha:w4 thi:3 dek2-phu:3cha:j1 də:n1 paj1 kap2 ma:5' (The footprints that belong to the boy and the dog).

Noun- Two or more modifiers (complex modifying phrases): 'sunak4 khu:3 caj1 khɔ:ŋ5 khaw5' (his buddy dog)

Process types

Processes are the cores of the clauses from the experiential perspective: the clause is primarily about the event or state that the participants are involved in and it is typically expressed by a verbal group (Thompson 2004: 87)

In this study, each subgroup of typically developing children and children with autism produced all six process types- material, behavioural, mental, verbal, relational and existential- in their narratives. The average number of process types used by children is in Table 4.

Table 4 Average number of process types used by typically developing children and children with autism

Typically developing children			Children with autism		
Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3
3.8	4.8	5.0	2.6	2.8	3.7

As can be seen in Table 4, the average number of process types used by typically developing children increased by grade level (3.8, 4.8, 5.0 process types on average, respectively). This meant that typically developing children who were in grade 3 could produce a larger variety of process types than typically developing children in grades 1 and 2, and typically developing children in grade 2 could produce a larger variety of process types than typically developing children in grade 1. For children with autism, the average number of process types also increased by grade level (2.6, 2.8, 3.7 process types on average respectively). However, when the average number of process types used by typically developing children and children with autism were compared, children with autism produced a smaller variety of process types than typically developing children in every class level. The six process types used by each subject group relative to grade levels are presented in Table 5.

9

Table 5 Process types used in the narratives of children arranged in descending order

Typically developing children			Children with autism		
Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3
material (61.9%)	material (67.8%)	material (57.0%)	material (79.6%)	material (83.7%)	material (63.8%)
mental (21.9%)	mental (15.5%)	mental (23.1%)	mental (11.6%)	mental (7.0%)	mental (20.2%)
behavioural (8.3%)	verbal (6.9%)	verbal (6.6%)	relational, (2.8%) existential (2.8%)	verbal (2.8%)	relational (8.4%)
verbal (6.0%)	behavioural (4.4%)	relational (6.1%)	verbal, (1.6%) behavioural (1.6%)	relational, (2.3%) existential (2.3%)	verbal, (2.9%) existential (2.9%)
relational (1.1%)	relational, (2.7%) existential (2.7%)	existential (3.9%)		behavioural (1.9%)	behavioural (1.8%)
existential (0.8%)		behavioural (3.3%)			

Table 6 Process types used in the narratives of children arranged by process type

Process types	Typically developing children			Children with autism		
	Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3
material	61.9%	67.8%	57.0%	79.6%	83.7%	63.8%
mental	21.9%	15.5%	23.1%	11.6%	7.0%	20.2%
behavioural	8.3%	4.4%	3.3%	1.6%	1.9%	1.8%
verbal	6.0%	6.9%	6.6%	1.6%	2.8%	2.9%
relational	1.1%	2.7%	6.1%	2.8%	2.3%	8.4%
existential	0.8%	2.7%	3.9%	2.8%	2.3%	2.9%

As can be seen in Table 5, both groups of children used the material process the most. Some process types were used in equal number. For example, typically developing children in grade 2 used relational processes in equal percentage with existential processes. The percentages of process types in the narratives of typically developing children and children with autism are compared in Table 6.

As can be seen in Table 6, the percentages of material processes used by typically developing children were less than those of children with autism in every grade level and typically developing children used mental, behavioural and verbal processes more than children with autism in every grade level. The reason for this result is that the children with autism narrated a story by describing a subject participant and what the participant did or what happened so they used material processes the most in their narrative discourse. Moreover, children with autism acquired action words more easily than abstract words, e.g. emotional or mental terms, and used action verbs the most in their narratives (Bartolucci and Albers 1974: 140; Shipley and McAfee 2004: 420). For typically developing children in grades 1 and 3, they used relational processes less than children with autism. From the narrative data, it was found that percentages of ascriptive relational processes used by children with autism in grade 1 and 3 were less than the percentages of identifying relational processes; however, the opposite pattern emerged with typically developing children. Children with autism often used a duplicated clause pattern to identify the participants such as 'ni:3 khɨ:1 kop2' (This is a frog.), 'ni:3 khɨ:1 ma:5' (This is a dog.). For typically developing children, relational processes were used to describe the qualities of participants. In Thai, Qualities of participants are construed as a verbal group. In addition, only typically developing children in grade 1 used existential processes less than children with autism in the same grade level. Children with autism used a smaller number and less variety of process types (types of the verbal group set) than typically developing children. Children with autism also used a limited number of process types. Moreover, children with autism in the present study used mental, verbal and behavioural processes less than typically developing children. The mental and verbal processes are projecting processes that can project another clause and these processes are used to reveal the inner world of the characters (Butt et al. 2000: 81). Furthermore, using projecting processes increase the length and the complexity of clauses.

In the studies of Baron-Cohen, Leslie and Frith (1986: 121); Goldman (2008: 1986); Losh and Capps (2003: 247), children with autism tended to have problems with emotional knowledge or understanding and expressing mental states. The authors of these studies concluded that children with autism have problems in using mental state terms because they have specific deficits in this area although their nonverbal and/or verbal mental age were at the same level as typically developing children. In contrast, some studies such as those of Norbury and Bishop (2003: 308); Tager-Flusberg and Sullivan (1995: 252, 253) reported nonsignificant differences in the use of mental state terms or emotion terms between children in the autism group and in the typically developing group who were matched for linguistic competence or non-verbal abilities in the normal range. Thus, it may be that if the

11

subjects were matched carefully on linguistic competence, there would not be a difference between children with autism and other subject groups in the use of mental state terms (Tager-Flusberg and Sullivan 1995: 254). In addition, it is possible that the use of mental state terms might not be developed until the typically developing children were older so they were not mature on this ability. When these typically developing children were older, they should have greater ability than children with autism because this skill is developed throughout the school years (Norbury and Bishop 2003: 308). Therefore, these researchers concluded that difficulty with mental state terms is not a specific problem of children with autism. Moreover, using a wordless picture book might not be conducive for eliciting mental state terms in the narratives (Tager-Flusberg 1995: 54, 55), or some children with autism might have used mental state terms that they did not fully understand (García-Pérez, Hobson, and Lee 2008: 159, 164).

Several examples of process types follow:

Example [2] (A.3-4-5-6) a clause with a mental process (mental: perceptive) used by a child with autism in grade 3.

læːw4	*kop2*	*kɔ:3*
then	frog	then
	Senser	
hen5		*lɔ:j1-tha:w4*
see		footprint
Process: mental: perceptive		Phenomenon

Then the frog saw the footprint.

Example [3] (A.3-2-12-0) a behavioural process used by a child with autism in grade 3.

kop2 man1	*ca2*	*rɔːŋ4ha:j3*
frog it	FUT.	cry
Behaver	Process : Behavioural	

The frog would cry.

Example [4] (T.3-8-5-1) a clause with a verbal process used by a typically developing child in grade 3.

dek2-phu:3cha:j1	*bɔ:k2*	*ma:5*
child	tell	dog
Sayer	Process: verbal	Receiver

The boy told the dog.

Example [5] (A.3-5-24-1) a clause with a verbal process used by a child with autism in grade 3.

caw3-kop2	*bɔ:k2*
frog	say
Sayer	Process : verbal

The frog said.

Serial verb constructions (SVCs)

A serial verb construction is a grammatical structure in which sequence of verbs or verb phrases appear together without a connective marker of coordination or subordination within a simple clause (Noonan and Sebba 2004). In Thai, there are three major types of serial verb construction: the 'subordination' type, the 'coordination' type, and the 'hybrid' type according to the degree of integration and relationship between verbs or verb phrases in a series (Iwasaki and Ingkaphirom

2005: 231). In the present study, the results focused on analyzing the types of process used in the narratives of children so the types of serial verb construction were not analyzed.

The subjects in this study used some serial verb constructions or complex processes in their narratives. Two examples of serial verb construction in clauses are given below.

Example [6] (T.1-10_2_1) a clause with a serial verb construction used by a typically developing child in grade 1.

kop2	*kra1do:t2*	*ni:5*
frog	jump	flee
	serial verb construction (SVC)	

The frog jumped away.

Example [7] (A.2-10_2_2) a clause with a serial verb construction used by a child with autism in grade 2.

(Ø:*dek2*) *li:p3 wiŋ3 paj1 cap2 kop2 ma:1*
(child) hurry run go catch frog come
serial verb construction (SVC)

(The child) quickly went to catch the frog.

The number and percentage of serial verb constructions used by typically developing children are compared with those of children with autism in Table 7.

Table 7 Percentage and number of serial verb constructions

	Typically developing children	Children with autism
grade 1	43.3% (148)	36.3% (91)
grade 2	45% (168)	32.1% (69)
grade 3	52.2% (190)	33.2% (91)

As can be seen in Table 7, the percentage of serial verb construction used by typically developing children in grades 1-3 increased by grade level whereas, children with autism, did not. Children with autism in grade 1 used serial verb constructions more frequently than children with autism in grades 2 and 3. All three subgroups of typically developing children used more serial verb constructions in their narratives than the 3 subgroups of children with autism. The results of the present study agree with that of Yangklang (2003: 35) who also reported that the use of serial verb clauses increases with age. It has been found that children with autism had language delay, and deviance or disorders (e.g. echolalia) (Bartolucci, Pierce and Streiner 1980: 43; Owen 2004: 43). Some children with autism in school may be good in some subjects such as English but not in narrative depending on their attention span and their interest. Accordingly, some children with autism in grade 1 may tend to show some interest in serial verb constructions and try to use them. Moreover, many children with autism have echolalia which is a whole or partial repetition of previous utterances of other person (Owens, Metz and Haas 2003:179). When parents of children with autism teach language to their children, the children may imitate their caretakers or

parents without understanding the real meaning. So they used more in terms of percentages than children with autism in grades 2 and 3.

Circumstances

Circumstances are the part of a clause that tell about where, when, how long, how far, how many times, how, if what, what for, why, with whom, and who else, but not who, what about, what as, what with, how, what like, according to whom (Butt et al. 2000: 65).

The circumstance types which were used in the narratives of typically developing children and children with autism are in Table 8.

As can be seen in Table 8, typically developing children in grade 1 used six types of circumstances which were Location: place and time, Accompaniment: comitative and additive, Manner: quality, Extent: frequency, while typically developing children in grade 2 used circumstance types of more variety than typically developing children in grades 1 and 3. Children with autism in grade 1 used six circumstance types which were Location: place and time, Accompaniment: comitative and additive, and Manner: quality and means, while children with autism in grade 2 used only Location: place and time, Accompaniment: comitative, and Manner: quality in their narratives. Children with autism in grade 3 used Extent: frequency and duration and Cause: reason more than children with autism in grades 1 and 2. Table 9 is a summary of the types of circumstances used in narratives of both groups of children.

Table 8 Types of circumstances used in narratives of children

Type of circumstances	Typically developing children			Children with autism		
	G.1	G.2	G.3	G.1	G.2	G.3
Location: place	69.8% (83)	53.6% (97)	54.3% (83)	75.2% (79)	77.6% (59)	60.4% (64)
Location: time	2.5% (3)	9.4% (17)	11.8% (18)	6.7% (7)	2.7% (2)	7.6% (8)
Accompaniment: comitative	10.1% (12)	11.6% (21)	9.2% (14)	6.7% (7)	9.2% (7)	10.4% (11)
Accompaniment: additive	2.5% (3)	1.1% (2)	0.6% (1)	0.9% (1)	–	–
Manner: quality	12.6% (15)	17.7% (32)	19.6% (30)	8.6% (9)	10.5% (8)	17.9% (19)
Manner: comparison	–	1.1% (2)	2.6% (4)	–	–	–
Manner: means	–	–	–	1.9% (2)	–	–
Extent: frequency	2.5% (3)	3.9% 7	0.6% 1	–	–	0.9% 1
Extent: duration	–	1.1 % (2)	1.3% (2)	–	–	1.9% (2)
Cause: reason	–	0.5% (1)	–	–	–	0.9% (1)
Totals	100% (119)	100% (181)	100% (153)	100% (105)	100% (76)	100% (106)

Table 9 Summary of types of circumstances arranged in descending order of use

Typically developing children grades 1-3	Children with autism grades 1-3
Location: place (58.1% / 263)	Location: place (70.3% / 202)
Manner: quality (17% / 77)	Manner: quality (12.5% / 36)
Accompaniment: comitative (10.4% / 47)	Accompaniment: comitative (8.7%/ 25)
Location: time (8.4 % / 38)	Location: time (5.9% / 17)
Extent: frequency (2.4% / 11)	Manner: means (0.7% / 2), Extent: duration (0.7% / 2)
Manner: comparison (1.3% /6), Accompaniment: additive (1.3% /6)	Accompaniment: additive (0.4% /1), Cause: reason (0.4% /1), Extent: frequency (0.4% /1)
Extent: duration (0.9% /4)	**-**
Cause: reason (0.2% /1)	**-**
Total= 100% (453)	Total= 100% (287)

As can be seen in Table 9, both groups of subjects used Location of place the most and they used Manner of quality, Accompaniment of comitative, and Location of time in descending order.

Below are the examples of circumstances in clauses used by children.

Example [8] (A.2-2_4_1) a clause with a spatial circumstance used by a child with autism in grade 2.

dek2   ka1do:t2   lon1   paj1
child   jump   down   go
Actor   Process: material
naj1   na:m4
in   water
Location: place

The child jumped into the water.

Example [9] (T.2-3_7_12) a clause with a temporal circumstance used by a typically developing child in grade 2.

diaw5   *kha:3*
awhile   I
Location: Time   Actor
ca2   paj1   cap2
FUT.   go   catch
Process: material: doing
caw3-kop2   nan3   kɔ:n2
frog   that   before
Goal   Manner: quality

In a while, I will catch that frog first.

Example [10] (A.1-1_8_0) [clause with a accompaniment circumstance used by a child with autism in grade 1.

dek2   khon1   ni:4
child   CLASS   this
Actor
ʔa:p2 - na:m4
take a bath
Process: material: happening
phɔːm4   ma:5
with   dog
accompaniment: comitative

This child took a bath with the dog.

Temporal circumstance for expressing a folk tale

In a folk tale, the events and characters of the tale are generally placed at a point in time far removed from that of the tale's creation or reception and its almost formulistic formal realization is through a temporal adjunct, e.g. Once upon a Time, Long ago or Once (Hasan 1984, 1996: 59). Some typically developing children and children with autism used temporal adjuncts at the beginning of their narrative discourse for expressing a folk tale such as 'ka:n1la1-khran4-nɨn2-na:n1-ma:1-læ:w4' or 'ka:n1la1-khran4-nɨn2' (once upon a time). Two examples of temporal circumstance for expressing a folk tale at the beginning of narrative discourse are follow.

Example [11] (T.3-1_1_0) a clause with a temporal circumstance for expressing a folk tale used by a typically developing child in grade 3.

ka:n1 la1-khan4-nɨn2   *mi:1*
once upon a time   have
temporal circumstance
dek2-phu:3cha:j1   kap2   ma:5
boy   and   dog
Once upon a time there were a boy and a dog.

Example [12] (A.3-1_1_1) a clause with a temporal circumstance for expressing a folk tale formula used by a child with autism in grade 3.

ka:n1la1-khlaŋ4-nɨŋ2-na:n1-ma:1-læ:w4
once upon a time
temporal circumstance

wan1	*nɨŋ2*	*mi:1*
day	one	have

dek2	*khon1*	*nɨŋ2*
child	CLASS	one

Once upon a time, one day, there was a child.

The number of typically developing children who used a temporal circumstance at the beginning of their narrative discourse are compared with the number of children with autism in Table 10.

Table 10 Percentage and number of children who used the temporal circumstance for expressing a folk tale

	Typically developing children	Children with autism
grade 1	10% (1)	20% (2)
grade 2	50% (5)	0% (0)
grade 3	70% (7)	20% (2)

As can be seen in Table 10, the percentage of typically developing children who used a temporal circumstance for expressing a folk tale increased by grade levels.

Regarding the use of a formal opening of a narrative or temporal circumstances (e.g. 'ka:n1la1-khraŋ4-nɨŋ2-na:n1-ma:1- læ:w4'

or 'ka:n1 la1-khraŋ4-nɨŋ2' (once upon a time)) for expressing a folk tale style, the number of children with autism in grades 2 and 3 used them less than typically developing children, while the number of children with autism in grade 1 used them more than typically developing children in the same grade level. A possible reason why some children with autism in grade 1 used a formal opening of narratives or temporal circumstances for expressing a folk tale more than typically developing children in the same grade level might be that the children with autism have delayed speech and language development and they tend to learn language by rote. They will imitate the parent's words (echolalia), especially the words in the beginning of the story that parents of children with autism always do for getting attention from their children so some children with autism may imitate their caretakers by using it at the beginning of the story without understanding the purpose. This finding disagreed with the result of Tager-Flusberg (1995: 49, 50) in that the number of children with autism who used a formal opening was similar to the number of typically developing children. The reason for this may be that children with autism in the study of the Tager-Flusberg (1995: 47) were matched on verbal mental age but children with autism in the present study were matched on class or grade level. This means that some of the children with autism may be different in their abilities on certain subjects such as using a formal opening at the beginning of their narratives.

Complex circumstances

Some typically developing children and children with autism used complex circumstances in their narrative discourse. In terms of complex circumstances, these circumstances are used to give more details of the event in clauses such as the

time and place that events in the story happened.

Example [13] (A.3-3_11_1) a clause with a complex circumstance used by a child with autism in grade 3.

than1daj1-nan4	***kop2***	***ke:1 le:1***
suddenly	frog	unruly
Location: time		
ma:k3	***lə:j1***	
very	NEGOTIATOR	
Manner: quality		

Suddenly the frog was very naughty.

In this example, the child used 'than1daj1-nan4' (suddenly) as a temporal circumstance and 'ma:k3' (very) as a manner circumstance for expressing the quality. This child used two circumstances in the same clause.

The number and percentage of clauses with complex circumstances used by typically developing children and children with autism are in Table 11.

Table 11 Number and percentage of clauses with complex circumstances by grade level

Typically developing children			
G.1	G.2	G.3	G.1-3
1.2% (4)	6.7% (25)	2.8% (10)	3.6% (39)

Children with autism			
G.1	G.2	G.3	G.1-3
2.4% (6)	2.3% (5)	2.2% (6)	2.3% (17)

As can be seen in Table 11, the frequency of clauses with complex circumstances used by typically developing children in grades 2 and 3 was higher than the frequency of clauses with complex circumstances used by children with autism in the same grade levels. For children in grade 1, the frequency of clauses with complex circumstances used by typically developing children was less than the frequency of clauses with complex circumstances used by children with autism. Overall, typically developing children in grades 1-3 used clauses with complex circumstances more frequently than the total number children with autism in grades 1-3. A possible reason that children with autism in grade 1 used complex circumstances more than the typically developing children in the same grade might be that they were matched on class levels or grade levels and some children with autism in grade 1 might have had more ability in some aspects compared with typically developing children in the same grade level. Regarding speech and language development, typically developing children develop speech and language abilities by age, but children with autism develop them at a slower rate. However, children with autism experience not only delayed speech and language development but also deviance, for example some children with autism can do well in mathematics but are unable to participate in meaningful conversation (Owens 2004: 43). Moreover, the children with autism studying in school have to learn many subjects and can retake exams in subjects that they failed. Therefore, children with autism will pass to the next grade level every year according to the policy of the schools. However, children with autism in grade 2 may do well in certain subjects, but not in telling stories. From these reasons, it is possible that some children with autism in grade 1 of this study can use complex circumstances in their

narratives more than some children with autism in grade 2 or some typically developing children in grade 1.

Conclusion

The results from using the experiential clause grammar approach in the present study leads to the conclusion that the ability of typically developing children in using language to describe their experiences about the outer and inner worlds develops according to their age. In addition, the results of this study can be used as a guideline in planning to teach children with autism to use a greater variety of process types, especially mental and verbal processes, and projecting processes to extend the length of their narratives. Moreover, children with autism should also learn how to use a greater variety of complex nominals as participants, and circumstances, in their narrative discourse. The student with autism should know the meaning of each clause, not only the structure of clauses with these three components of experiential clause grammar. Knowledge about participants, process types and circumstances is not enough for students to construct a good narrative. They should learn more about how to link the clauses together for the story flow and about the relationship of each character in the story using language in an appropriate way to explain each character. Further study of the use of textual and interpersonal clause grammar in narrative discourse of children with autism should be considered. Based on the experiences reported in this study, it is suggested that in studying language ability in children with autism, calculating the results in numbers and percentages is not enough. The language characteristics being used should also be described.

Since narratives are also related to pragmatic skills, children with effective pragmatic skills have the ability to order and organize utterances logically in communication. Therefore, further study of narrative discourse related to pragmatic skills is recommended.

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