

Multimodal Strategies in Teaching Children with Autism: A Discourse Analysis

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ABSTRACT

The process of teaching and learning involving children with autism requires teachers to be creative in designing special and effective strategies to ensure students' understanding. This is due to the fact that these children have problems in communicating with others, thus need special attention from the teachers. The present research hopes to further understand the needs of these children by examining strategies undertaken by teachers at the Schools for Exceptional Children and Autism Centers in Solo city which assist children with autism. Five classes were observed and recorded audio-visually. Data representing the aspects of verbal behaviors, non verbal behaviors, and teaching aids exploitation were collected. Results show that the condition of autism children is a primary influence on the strategy in exploiting multimodal aspects. Thus, teachers must design different approaches in transferring knowledge to these children. In general, teachers always perform verbal exploitation in collaboration with the nonverbal aspects such as facial

gestures, body movements, standing positions, and paralinguistic resources such as intonation and loudness. The study also found that out of the five classes being studied, two classes were supported by an effective use of teaching aids. The findings contributed towards a better understanding for teachers and parents of the needs of autism children during the teaching and learning process.

Keywords: autism, verbal, nonverbal, behaviors, multimodal strategies, teaching aids

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INTRODUCTION

The multimodal strategy which is used in the teaching of children with autism covers two major aspects, the verbal and nonverbal resources. These aspects of communication are accompanied with the right choice and utilization of teaching aids. Effective exploitation of these aspects plays an important role in ensuring effective teaching. The purpose of this process is to increase the knowledge and skills of children with autism since this group of children have communication problems (Wenar et al., 1986). They generally have an inability to use language to communicate with others (see for example, Safaria, 2005; Dover & Le Couteur, 2007; Blenner, Reddy & Augustyn, 2011), especially in imitating the words and actions of others and choosing pronouns. Besides that, they also experience problems in reciprocal interactions.

Based on this phenomenon, teachers for children with autism must consider effective strategies to accommodate the teaching and learning process. To further understand the needs of these children of special needs, we further investigate their needs during teaching and learning process. We utilized the multimodal analysis to explore the lexico grammar quality by exploiting the quality of verbal and nonverbal behaviors as well as the teaching aids used by teachers in caring for autistic children. We therefore, hope that the utilization of the strategy will further enhance our

knowledge of the needs of this special group of children. The combination of strategies in teaching these children will also help us to further understand effective mechanisms that ensure effective their understanding and ability to retain information obtained from in class.

LITERATURE REVIEW

Pamuji (2007) states that autism children suffer from brain development dysfunction that affects their communication especially in initiating social interactions with others, and they also demonstrate slow academic development. Helping autistic children to improve their ability to interact with other people is very challenging, because in general they are unconscious and do not understand what is being communicated (Schuler & Fletcher, 2002; Sugini, Djarmika, & Maryadi, 2016). Moreover, they usually tend to carry out unexpected and uncontrolled behavior that will influence the process of communication. In line with this condition, Shulman (2002) also suggests that children with autism tend to have difficulty playing roles, therefore, assuming they have problems with other children in using language to play. Another linguistic feature of children with autism is that they like to repeat what others have produced in an interaction with them (Wetherby, Prizant & Schuler, 2000). Most children with autism rarely begin interaction. If initiated, they do not respond to the initiating speech or if

they do, the response is done in an inconsistent pattern (Shulman, 2003). Schuler and Fletcher (2002) also state that such conditions have an impact on the process of interaction between children with autism and other normal children. Therefore, talking at a slow rate, in a clear way to children with such a condition is highly recommended.

The problem of helping children to communicate using language can be attributed to combining oral production and auditory processes (Djatmika, Wibowo, Kusuma & Mohamad, 2016). Generally, they do not respond to the words conveyed by others. If they might respond, they are executed in an inconsistent pattern. Furthermore, starting an exchange and maintaining the topic of conversation is also a problem for them (Shulman, 2002). Raley (2002) suggests that this is a biological condition that affects the communication process between children with autism and normal children.

METHOD

As discussed earlier, our research focuses on the adoption of multimodal strategies in teaching autistic children, where each teacher must utilize more than one strategy in his/her classroom to ensure students understand and retain the information being taught to them. The multimodal strategies are based on four preferences: visual strategies, aural strategies, read/write strategies and kinesthetic strategies. Of the four strategies, we focused only on the type of speech acts for verbal aspects, classify the types of nonverbal behavior in the form of body movements, proximity, facial gestures, standing positions and paralinguistic qualities in the form of loudness and intonation that represent nonverbal aspects, and describe the teaching aids used in the teaching process.

Data for this research were collected from five teaching sessions performed by teachers at the Schools for Exceptional Children and Autism Centers in Solo city. The selected classes were comprised of those which accommodated a learning process for teenage children with autism. We observed the verbal and nonverbal aspects employed by the teachers during the learning process, and analyzed them to identify how these aspects were utilized in classroom learning. Additionally, the types of teaching aids chosen and used by the teachers were also studied to see how these elements supported the exploitation of the two previous aspects. Finally, the multimodal exploitation patterns from three aspects are presented to see how they accommodate the teaching process for children with autism.

FINDINGS

The classes identified for the study revealed different characteristics from each other. These classes were classified into two groups; classical and individual. The first group was comprised of classes with more than one student and one teacher, while the second group was consisted of only one student and one teacher. Students who were assisted individually were students who could not be independent, while students who were able to be independent were included in the classical class. There was only one classical class studied in this research. This class was comprised of

four male students, and one female. They were all classified as autistic children with verbal abilities of primary school age.

Throughout the learning process, we observed only one child that showed active verbal quality in communicating with the teacher. In the case of this class he could be referred to as an autistic child with active verbal abilities. This student was able to capture messages from various types of speeches and could respond effectively to the speeches that the teacher made. The strategy of introducing reading skills was performed by the teacher to stimulate students to spell out letters that construct language units that conveyed meaning. These cases were somewhat similar to a research conducted by Fleury, Miramontez, and Hudson (2014) where they examined how loud reading activities for autistic children could introduce students to language units without having to spell the language units.

Students in this class were seated in a U-formation. Thus, when the teacher stood in the middle, all students were able to get a balanced portion of attention. The teacher did not write much on the board, but relied on a combination of verbal modes, nonverbal modes and teaching aids in introducing semantic units to students.

On the other hand, each of the four individual classes we observed was taught by a teacher who accompanied a student. The individual learning process was applied in the classroom, where each of these individual classes was taught by a teacher on a one-to-one basis with an autistic student. Due to its individual nature, each teacher tend to take a close position with his/her student during the learning process, whether in a standing position or in a sitting position. However, there was also a teacher who stood closer to the whiteboard instead of being close to the students while delivering teaching materials. This was purposely done to ensure that the student would be more comfortable during the teaching and learning process, and hence, stimulated the classroom learning. The following sections discuss our **observation in details by focusing on students' verbal capability, teaching materials used in classrooms, verbal language exploitation, teacher's non-verbal strategy, proximity and teaching aids used in classroom** (Warto & Mohamad, 2016).

Students' Verbal Capability

In general, students with autism are divided into two groups, namely students who have verbal abilities and new students with non-verbal abilities. Students involved in this research were comprised of those with verbal abilities. However, classroom observations showed that even though they were categorized as students with verbal abilities, it turned out that they still showed different skills. Some students seemed to have active verbal abilities, while some others have passive ones.

Active verbal ability is featured by active verbal responses that the students could produce to teachers' initiating utterances, while passive verbal ability is characterized by the limited number of response to such utterances. Students with passive verbal ability can only repeat the language units spoken by the teacher as a model, or often this case is called echolalia. Table 1 summarizes the ability of the students

being studied based on their verbal abilities.

Table 1: Students Verbal Capabilities

Name	Types of Capability		Verbal Performance
	Active	Passive	
Student 1		√	<ul style="list-style-type: none"> • immitating the pronunciation of the word of <i>baik</i> • immitating the pronunciation of the word of <i>papah</i> • responding to a name call by saying <i>apa</i>
Student2		√	<ul style="list-style-type: none"> • immitating the pronunciation of the word of <i>baik</i> • immitating the pronunciation of the word of <i>ayah</i> • responding to a name call by sayingsaya
Student3		√	<ul style="list-style-type: none"> • immitating the pronunciation of the word of <i>baik</i> • responding to a name call by sayingucapanapa
Student4	√		<ul style="list-style-type: none"> • immitating the pronunciation of the word of <i>baik</i> • immitating the pronunciation of the word of <i>ayah</i> • responding to a name call by sayingapa • reading a short text • reading a prayer
Student5		√	<ul style="list-style-type: none"> • immitating the pronunciation of the word of <i>baik</i>
Student6		√	<ul style="list-style-type: none"> • immitating the pronunciation of numbers • rejecting teacher's invitation
Student7	√		<ul style="list-style-type: none"> • mentioning dates • mentioning names of place • immitating teacher's utterances • responding to a question • refusing teacher's command • asking
Student8	√		<ul style="list-style-type: none"> • counting • mentioning numbers • answering mathematic problems • writing answers
Student9	√		<ul style="list-style-type: none"> • counting • mentioning numbers • answering mathematic problems • mentioning names of fruits • mentioning names of colors • writing names of colors

From the Table presented above, it can be observed that five students are classified as having autism with active verbal abilities, while the other four students are classified with passive verbal abilities. The former have more verbal capabilities as compared to the latter. Students with active verbal capabilities were able to produce simple verbal production such as immitating language units such as word or utterances, and responding to a call to higher skill of production such as reading a short text, reading a prayer,

mentioning dates, mentionig names of place, mentioning names of fruit, mentioning names of color, answering a question, refusing a command, asking, counting, and writing answers on a paper. On the other hand, students with passive verbal capability could only immitate the pronunciation of certain language units, and respond to a name call by saying *apa*(what). These children showed limited verbal production during the learning process.

Teaching Materials

Each class observed in this study had different teaching materials. The difference in these teaching materials could be related to aspects, such as learning targets, type of class, and also the condition of student autism. Whatever

knowledge or skill being transferred to students, the teaching material presented in each class was accommodated by semantic units. The teachers develop a number of semantic units that represent the topics that later became the learning material as presented in Table 2.

Table 2: Teaching Materials

Classical Class	Individual Class 1	Individual Class 2	Individual Class 3	Individual Class 4
names of day, names of month, self names, addressing names, numbers, times, activities	numbers, multilevel calculation	plant, growing phases	numbers, calculation	numbers, calculation, names of fruits, names of colors

Table 2 reveals how the target of each class differs. The classical class aimed towards introducing semantic units related to family and family members in the form of words that represent their names and names for family members such as *ayah* (father), *papah* (father), *ibu* (mother), *mamah* (mother), *bunda* (mother), *kakak* (older sister/brother), and *adik* (younger sister/brother). A few words were also introduced to the class such as activities that were usually done by family members on Sundays. These included words such as *membaca* (reading), the name of the day the class took place, *Senin* (Monday); and names of times related to Sundays and Mondays, such as *hari ini* (today) and *kemarin* (yesterday). Next, from the word Monday, the teacher then introduced numbers that represent the date of the day such as *delapanbelas* (eighteen), and *duaribudelapanbelas* (two thousand eighteen) as a representation of a year. The teacher also mentioned the word of *Maret* (March) as the name of the month.

If sorted from the beginning, the semantic units that became the learning material were introduced by first mentioning the name of the day the learning process took place, the date, and the name of the month and year representing such a day. After that, the teacher asked questions about the name of the day before today (i.e. Monday — that was Sunday) and what activities were carried out by family members of students on Sundays. This question then led to the word *membaca* (reading) for the name of the activity carried out by a family member of one student as a response he gave to such a question. From this point on, the main learning materials, namely the names of the students' family members and the activities they usually involved on certain days were presented. A short reading text about family and daily activities was shown by the teacher to students, and the teacher invited students to read the reading text. One student with the best verbal ability took the opportunity and read the text in front of the class.

Interestingly, during the teaching and learning process, the semantic units were introduced to students through reading and writing activities. The teacher gave more reading practice than the exercise of writing for the semantic units. This was related to class conditions. Although all students in

the class were categorized as autistic students with verbal abilities, only one student had active verbal abilities, while the other four were students with passive verbal ones. From these conditions, the teacher then performed special procedures for the introduction of the semantic units. The teacher first introduced the units, after that the students were asked to follow the teacher's words. Furthermore, the units were written on the whiteboard, and the students were asked to follow the readings of the units on the board.

However, the teacher in this class inserted some semantic units less related to the main topic of learning. These units were considered to be a bit too difficult for students to capture their meaning. The introduction of these semantic units was done at the beginning of the learning process. When the teacher asked the name of the day when the class was held, the teacher also asked why the school did not hold a flag ceremony by asking a question: *Mengapalagi tidak upacara naikkan bendera? (Why didn't we have flag ceremony this morning?)*. None of the students responded to the question. This might indicate that students were not able to catch the message and/or they were unable to provide a response for the question. Actually, the expected answer for this question was: *Tadi pagi tidak upacara karena kakak kelas yang SMA sedang ujian* (This morning we did not have a flag ceremony because the senior high school students were having an exam). In addition, the teacher also asked the second question: *Dengan siapa kamu di rumah? (Who were you with at home?)*. This question could be more easily digested by students, but in the study, only one student was able to provide a response: *Dengan teman* (with a friend) – an answer that was actually not expected to be given by autistic students. The teacher was actually expecting that the answer for this question would be a family member, so that the teacher could then continue with the main materials, which was about family and family members.

Meanwhile, an individual class with Students 6 presents a multilevel calculation with numbers up to hundreds. During the process, the teacher explained numbers from one to four digits. The teacher also taught the process of adding a basic number to another basic number. Addition itself becomes a competency that was to be taught to the student, especially

in the form of multiple calculations. The semantic units used by the teacher in the class when linked to the condition of students appeared to be too high. Knowing, spelling and writing basic numbers may already be done by the student; addition of basic numbers for the remaining basic numbers as the results of the calculation was also expected to be mastered by the student, for instance $2 + 4 = 6$. However, the arithmetic process of adding basic numbers to become teen numbers, for example $6 + 6 = 12$ was a problem for Student 6 to understand. Especially for this learning process, the teacher tried to introduce the summing up process of numbers with various final results such as teen, hundred, or thousand. Since spelling out three types of numbers was quite difficult for the student, saying or explaining the flow of multilevel calculation process would be much harder for Student 6.

The next individual class assisted Student 7. The instructional objective of this learning process was to provide knowledge about plants, specifically the rice plant. The teacher hoped to equip the student with knowledge about the process of growing rice from seeds to plant. At regular school, this material was included in a biology class. Several language units being exploited for the teaching materials were considered as new units for students or units that were rather difficult for students to understand. Interestingly, there are also common semantic units that were already known by students.

The material used for Student 7 could be categorized as a material that had a high level of difficulty. The teacher presented semantic units that accommodate biological concepts related to the process of growing rice. These biological concepts were considered appropriate if given to normal students who were of the same age as Student 7. The student had difficulty understanding, even though the vocabulary used as a representation of these concepts remained congruent with the actual event, and there was no concept in the form of nominalization like *pertumbuhan* (growth) or *perkembangan* (development), and so on.

The last two individual classes were presented with similar teaching materials. The two individual classes, one with Student 8 and one with Student 9 were given the concept of numbers and the addition of simple one-digit numbers with answers in the form of two to three digits. The difference was that the class with Student 9 was given additional material in the form of numbers and names of fruit. In accommodating the learning targets of these two classes, the

teacher of each class developed and exploited semantic units that represent the teaching materials.

Verbal Language Exploitation

The pattern of exchange, turn and act in teaching and learning process requires that teachers perform the exchange, turn and act, as the main learning target of all classes is to make students produce responses to every utterance the teachers execute in their turns. So this is an interaction of initiating utterance-responding utterance. However, in certain turns, the teacher can use more than one utterance. Table 3 illustrates the quality of the teacher's verbal language in the classical learning process that we observed.

Table 3: Teachers' Interaction Units

Types of Class	Exchange	Turn	Act
Classical	83	83	319
Individual 1	63	63	370
Individual 2	45	45	319
Individual 3	75	79	177
Individual 4	68	110	237

The table shows that in a learning process, the teacher-student interaction was performed in a simple pattern. An exchange only accommodated a turn for most of the teachers. This could be attributed to the condition of autistic students who mostly had passive verbal abilities. However, the teacher in Individual Class 4 showed different management. She had more than one turn in several exchanges. This indicates that in such exchanges she tried to make her student produced more than one response for her. Furthermore, all teachers used more than one utterance in each turn. This was related to the stimulating action they did for the students. One expected response from the students was prompted by repeating similar utterance.

Meanwhile, the characteristics of the language exploitation in interaction are indicated by the types of speech acts chosen by the teachers in the learning process. Utterances exploited by the teachers for their class consist only a few types, which could be classified according to the types of speech acts as suggested by experts (see for example, Thomas, 1995; Verchueren, 1999). These are summarized in the following table.

Table 4: Teachers' Speech Acts

Types of Class	Teachers' Speech Acts				
	Assertive	Directive	Commissive	Expressive	Performative
Classical	- stating - explaining - mentioning names - acknowledging	- questioning - commanding - inviting	---	- greeting - praying - thanking - praising	----
Individual 1	- stating - explaining - mentioning names - acknowledging	- questioning - commanding - inviting	---	- greeting - praying - thanking - praising	----

Individual 2	- stating - explaining - mentioning names - acknowledging - commenting	- questioning - commanding - inviting - prohibiting	- threatening	- greeting - praying - thanking - praising - teasing	-----
Individual 3	- mentioning names - acknowledging - telling	- questioning - commanding - inviting	---	- praying - praising - cheering - congratulating	-----
Individual 4	- mentioning names - acknowledging - telling	- questioning - commanding - inviting - prohibiting	---	- greeting - praising - praying - appreciating - blaming	-----

Table 3 reveals that there were three types of speech acts dominating the learning process: assertive, directive and expressive. This shows that the learning process is generally carried by explaining or describing the teaching materials using assertive utterances, then giving exercises through directive utterances and finally appreciating the results by using expressive utterances. Our study reveals that none of the teachers utilized performative type speech acts, but one used a commissive type of speech act.

In each classification of speech acts, the teachers showed almost the same selection. In general, they used several assertive speech acts, such as *calling*, *explaining*, *stating*, and *acknowledging*. The teacher who taught the classical learning class would check the attendance of students by calling their names one by one at the beginning of the class, while each teacher of the individual class would mention the name of her/his student once at the end of her/his greeting utterance. The speech act that the teacher executed at the beginning of the class did not only aim to record the attendance of the students, but more than that the teacher gave an exposure about each student's name, so expectedly every student could recognize that the name being mentioned by the teacher was hers/his. In addition, *mentioning students' name* was repeated throughout the learning process. This was executed as a strategy to get their attention. Meanwhile, the acts of *stating* and *explaining* were chosen by the teacher in presenting the teaching materials and the speech act of *acknowledging* was used in responding to each answer correctly given by a student.

Meanwhile the speech acts of *questioning*, *commanding*, and *asking* dominate all the classes. Almost in every turn, the teachers used one of these three speech acts, or two or three of these directive speech acts together. In other words, these three directive acts could be a representation of the objectives of learning process. By questioning, the teachers provided questions to students which were meant to check or ensure students' understanding of the learning materials or to stimulate them to communicate certain matters related to the materials. The teachers also chose a command to stimulate students' oral response, or to make them write the answers, or to perform certain physical actions such as reading a text, giving attention, holding a pen, or taking a

book. In addition to questioning and commanding, the teacher conducted the learning process with students by asking them to work on exercises related to the learning materials. Should a prohibition be used in the class, it would only mean to stop the student's **unexpected behavior** during class.

Our study also reveals that teachers used an expressive speech act to provide feedback on students' performance, such as praising the students who performed well in their exercise. Thus, if it was related to speech acts that had been described above, then the general pattern that the teacher chose in using speech acts could be described as the teacher executed a directive speech act of questioning, commanding, etc. Usually, after a question or a command as an exercise got a correct response from the students, the teacher continued the interaction by giving an appreciation by acknowledging, praising, or cheering. These appreciative speech acts were often selected by teachers during the learning process. On the other hand, the expressive speech acts performed by all teachers in all classes included *greeting* and *praying* when starting classes. However, there were two speech acts which should not appear in the learning process, namely *threatening* such as "Pulangsajakalaubosan" (Just go home if you are bored), and making fun of, "Wehjeleknya..." (Weh... it's ugly...). Although these two types of speech acts were done jokingly, it was expected that teachers avoid using these two types of speech acts.

Most of the speech acts in our study were realized in elliptic constructions. For example, in introducing the concept of father, the teacher's question "Gambarayahnyasiapaini?" (Whose father's picture is this?), seemed to be executed as "Inisiapa?" (Who is this?). Although the construction representing the question is elliptic, the real message could still be understood by the students as the teacher supported such an act with a nonverbal action by showing a picture of one's father. In other cases, the elliptic form could also be received systemically by students as a question through the accompanying intonation. For example, by using rising intonation in saying "Siapaini?" (Who is this?).

Teacher's Nonverbal Strategy

In carrying out the teaching and learning process, the

teachers also processed nonverbal language mode in addition to using the verbal language mode. In general, the nonverbal behaviors used by the teachers could be classified

into three types (i.e. facial gestures, body movement, and paralinguistics), as shown in the following table.

Table5: Nonverbal Strategies

Function	Nonverbal Strategies		
	Facial Gestures	Body Movements	Paralinguistics
getting attention	- making eye contact	- touching students' part of the body - blocking students's view - hand clapping	- increasing the voice loudness
giving stimulants	- sticking out the tongue - shaping mouth	- cross-hands positioning - providing fingers for counting	- enslowing the pronouncing of language units - cutting words into syllables.
making convenience	- smiling	- touching cheek - touching chin	

Each type of strategies was executed differently by each teacher. While there were teachers who actively and effectively considered these nonverbal aspects for their class, there were also teachers who were less effective in expressing nonverbal behaviors. For example, the teacher in the classical class only used two types of strategies, namely, facial gestures and body movements throughout the learning process. The first type was related to the face and part of the face, such as eyes, lips, tongue and mouth. These parts were collaboratively exploited— simultaneously to present a nonverbal message. For example, when the teacher greeted, *Apakabar?* (How are you?) to students, she then produced the word “*baik*” (fine) in such a way that students could imitate them as the response to the greeting. The model in producing the word of “*baik*” (fine) was provided by the teacher by showing a form that represents how to produce vowel sounds [a] and [i]. The teacher showed the shape of the mouth for low and open vowel sounds and then followed by the mouth shape for high and close vowel sounds. Along with this process the teacher also turned his eyes on and before the pronunciation model was performed, the teacher stuck his tongue out before the students as a sign that the teacher invited them to try to pronounce the semantic unit being introduced. These steps were taken by the teacher so that in practicing the pronunciation the students could do it comfortably.

Furthermore, the teacher in this class also showed body movements in the learning process where every movement was carried out for a purpose. For example, pinching a student's chin was done by the teacher to get the student's attention. Often the pinching action was followed by directing the student's eyes to the teacher's face so that students see the pronunciation model of a word. For example, when a student did not seem to respond to a greeting given by the teacher, the teacher would approach the student, pinch his chin, and then expose the student's head so that s/he could see the teacher's face, and at the same time the teacher gave the pronunciation of the word “*baik*”

(fine). In this case, the act of pinching the chin and directing the student's eyes to the teacher's face could represent a verbal action that says *Look*, or *Watch*, or in other words, if a nonverbal action is verbalized, then the action was taken to encourage the student to direct his/her attention to the teacher, so that she/he can observe how a semantic unit was produced so that s/he could imitate it. More than that, even though the teacher verbally did not speak clearly, the mouth shape shown by the teacher to the student could send a message to students to mimic the model given. In executing this implicit instruction, the teacher positioned his face directly against the face of a student who became the focus or the target of the practice.

Another nonverbal action taken by the teacher in this class was to assemble the students' hands into a folded position, or to fold both students' hands – a position that represents the readiness of students to pay attention and follow the presentation of learning material. Every time a student behaved out of control, did not pay attention to the class, did not concentrate on the teacher or the learning material, the teacher would immediately approach her/him and folded the two hands of the student. Before doing so, the teacher would ask the students verbally to fold their hands together by providing the two-handed model in a folded position. If verbal instruction and this model did not work, the teacher then executed the act of hand folding. Some models of body movements were also performed by the teacher, such as raising her hands, raising two hands to pray, rubbing two palms to end a prayer, and clapping.

In contrast, the nonverbal behaviors carried out by teachers in individual classes were different. Individual Class 1 and Individual Class 2 showed similar nonverbal exploitation. Although these two classes were presented with different materials, the teachers similarly showed less effective nonverbal behavior during the learning process. They did not exploit facial gestures and body movement much, and they spoke normally in a normal pace and did not modify it or adjust it to be appropriate for children with autism.

Paralinguistic modification was only performed when the teachers stimulated the students in providing responses. Furthermore, one of these individual teachers wrote too often on the board, and did not face the students as the teacher concentrated on the numbers or questions he was writing on the board. In an individual class, he could actually take a sitting position opposite or next to the student and wrote the material and the problem on the paper placed on the table, so that he could more easily control the students' attention and also the stages of student learning. Another teacher in the study performed less effective standing posture, where he often stood in front of the student with his left hand always in the pants pocket and the right hand pointed towards the material in the book on the student table when delivering teaching material to the students. With such a posture, the teacher could not make maximum eye contact with students, so his control of the students was also not optimal.

The two teachers from Individual Class 3 and Individual Class 4 seemed very effective in nonverbal exploitation along the learning process. They exploited nonverbal aspects in similar strategies. Three nonverbal aspects were used in this class. The teacher sat in front of student and performed effective facial gestures by smiling to make the student feel comfortable, and by making eye contact to maintain the student's attention.

In presenting simple calculations, the teachers did a lot of hand movements, such as providing a number of fingers to help the students get the answers for the counting problems,

asking the students to toss whenever they answered correctly, and giving out paper for the student to write his/her answers. The other hand movement performed by the two teachers was touching the chin or cheek of the students as a reward after they gave correct answers to the questions asked. Interestingly, the two students in the two classes were active in following the learning process.

In making class interactions more effective, the teachers in the two classes also exploited the paralinguistic aspect for most of the actions taken. The expressions used in building interactions were uttered at normal speed, but for important communication parts, such as things related to numeracy skills, they told them more slowly, which was adjusted to the students' ability to capture the messages contained in the speech. For example, the teachers would cut the words that were considered important in a number of syllables such as *ma-te-ma-ti-ka*, *em-pat*, *li-ma*, and so on.

Proximity

In supporting the verbal and nonverbal language modes discussed above, teachers also seemed to select the proximity or distance between them and the students. Every nonverbal action taken by the teachers required a different distance of standing position. Throughout the learning process, there were three qualities of distance, which were very close, close and far away to accommodate nonverbal actions as presented in Table 6.

Table6: Teachers' Nonverbal Actions and Distance

Very Close	Close	Distant
<ul style="list-style-type: none"> • showing pictures or books • touching student's chin • directing student's view to teacher • providing model of pronouncing words • rubbing student's cheek • inviting a toss 	<ul style="list-style-type: none"> • helping students doing exercises • providing fingers for counting 	<ul style="list-style-type: none"> • writing materials on the whiteboard • showing pictures on the whitebord

For this element of nonverbal behavior, we observed three qualities of distance taken by the teacher towards the students. This distance was performed differently from one class to another. For classical classes and one of the four individual classes, the three types of distance seemed to appear and be selected by the teacher during the teaching-learning process. Meanwhile, in another individual class, the teacher showed a close distance to the student, while in the remaining two individual classes the teacher chose to be at a very close distance during the mentoring process. In short, the quality of distance was considered by each teacher to support every nonverbal action she/he did in her/his class. In other words, every nonverbal action taken by the teacher would require a certain distance in order to be effective. For example, a very close distance was needed by the teacher when she/he had to touch a student's chin in order to get the attention of the student, or when the teacher must provide models for pronunciation of certain words, or when the

teacher showed pictures of family members to certain students, and so on. The teacher also took a close distance when she/he explains, asks the whole class, and mentions the names of students taking turns, while the far distance was done when s/he writes something on the board and reads it, or when the teacher shows pictures on the whiteboard.

Teaching Aids

In completing the multimodal learning strategies, the learning process for students with autism needs to be equipped with teaching aids. In this study, the learning process for both classical and individual classes, showed the quality of different learning tools. There were classes with the selection and usage of effective teaching aids, such as the Classical class and Individual Class 3 and Individual Class 4, whereas the other two individual classes were taught without learning properties.

The teachers of Classical Class, Individual Class 3, and

Individual Class 4 used several learning media. As the first teacher brought media or teaching aids in the form of photographs of family members from each student in her class, the teacher of Individual Class 3 used pens, pencils, sheets of paper, notebooks to facilitate the learning process and the practice of counting done by Students 8. In addition, during the learning process, various numeracy exercises were facilitated by providing fingers, so students were assisted in the calculation. Meanwhile, the teacher of Individual Class 4 was very maximal in utilizing learning media. In addition to basic media such as those used by her peer in Individual Class 3, she provided many toys with various shapes and various colors such as cars, planes, various fruits, and so on. These items were exploited by the teacher in this class to be used as learning media.

DISCUSSIONS AND CONCLUSIONS

Each class in this research has a different quality related to the multimodal strategies performed by the teachers. The classical class teacher displays a fun teaching and learning. This is related to the fact that the teacher has conditioned students through singing and perception related to the material. This is in line with what Reid (2006) has suggested that one of factors influencing student learning is mood. This strategy made five students in this class obedient to learn, seen from the fact that they sat neatly, answered questions delivered by the teacher, voluntarily read in front of the class, sang songs and paid attention to the learning process. This conducive classroom environment can generate students' mood and motivation. In addition, teachers carried out the teaching process in accordance with the level of development and understanding of students. One of the teachers prepared the class well and created visual supports to make the students reach the teaching target comfortably.

Meanwhile, teaching aids exploited in the class are mostly in the form of photo or pictures of family members. Such media give children a direct experience of family themes. Autistic students get the benefits of information presented visually because it is more concrete than auditory information and the visual aids might provide an opportunity for the students to remember it much longer (Friend, 2005; Sumarlam, Djatmika, Mohamad, Pamungkas, 2016). This is evident from the understanding of family concepts in these students. However, the problem commonly faced by autistic children at school settings is that many of them learn something academically, but rarely use it in daily social interaction (McDonald, 2004).

In general, children with autism are given repeated information. This is not enough as they need to apply it in their daily lives. For instance, three students were trained with simple and multilevel calculation. Thus, in fact, in the learning process of number and calculation symbol, a teacher needs to show the numerical association and a concrete example of the functional use of addition, as what was done by the teacher in Individual Classes 4. As children with autism and Asperger Syndrome often experience difficulty in understanding concepts related to abstract concepts, then understanding utterances telling about calculation and numeric symbols can cause problems

(Gagnon, 2006). When the teacher presented dozens of numeric units, the message behind an utterance that says *lima ditambah satu di depannya adalah angka 15* (five which is preceded by one means fifteen) without the help of learning media will be difficult for the students to understand. For this class, learning media is very important. The teacher can include task cards that contain concepts related to multilevel calculation or numerical concepts to remind the concept of counting visually. Task cards are visual supports intended to help children with autism to recall academic content, routine activities and social skills (Friend, 2005).

Students with autism have unique characteristics as suggested by Smith (2004), that they have problems in reciprocal social interaction and communication. Lewis (2003) argues that most children with autism experience learning difficulties as the results of the study showed that the intellectual profile of autistic children is different from that of children in general. They display nonverbal abilities that are better than verbal abilities. Good visual spatial skills are just the ability to memorize problems. Student 7 in this learning setting showed the difficulty in memorizing problems. This can be observed in the processing of questions that must be assisted verbally and the concepts of subject matter that are always reminded by the teacher. To minimize communication interactions that are repeated and not immediately understood by Students 7, learning media in the form of visual sport is needed because information acquisition through visual processes in children with autism and Asperger Syndrome is better than auditory acquisition (Gagnon, 2006). Visual supports describe how activities or tasks must be completed, or what behavioral targets must be reached by students using images, objects or words. They are presented before, during and after activities (Hume, Wong, Plavnick & Schultz, 2014). Unfortunately the use of visual support media in the teaching and learning process of this class is very minimal. Effective exploitation of visual learning media was only performed by the teacher of Individual Class 4.

In conclusion, the effective multimodal strategies for teaching children with autism employed by this research covered only three aspects – the verbal, nonverbal, and teaching aids exploitation. The first is represented by the selection and use of speech acts performed by the teachers in presenting the teaching materials. To support the verbal aspects, the teachers developed strategies for their nonverbal behavior in the forms of facial gestures, body movements, and also paralinguistic aspects. Meanwhile, the teaching aids exploited by the teachers for their class are in the form of pictures, toys, and real objects. If effective verbal language aspect does not get support from nonverbal behavior, then the learning process will run less optimally. Likewise, if the teaching aids are less exploited in a learning process, even though the other two aspects are effectively performed, this condition is also considered to be less helpful in the learning process. As the choice of these three aspects of multimodal strategy may limit the findings of the present study, the future research in the area should consider exploring a wider scope of the strategy. It is hoped that the findings will help the government to design better policy and strategy in the

teaching and learning of autistic children.

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