

## Will children with autism make improvements on language skill and social interaction by flashcard?

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### ABSTRACT

Social interaction is individual problem which caused limitation, including to Autism Spectrum Disorder (ASD) who have obstruction in language skill, that the individual can communicate expressively and receptively. This research was aimed to identify the effects of language skill to the improvement of social interaction on children with ASD by using flashcard. Moreover, this research was an experimental research with random pretest posttest design. The subjects in this research were taken from 6 kindergarten students in 7-8 years old who have diagnosed as autism, particularly they were able to do babbling. The instrument of research was ATEC (Autism Treatment Evaluation Checklist) on social sub-test and language skill scale by Massey. The data analysis employed non-parametric method through Mann Whitney test, Wilcoxon test, and Kendall's tau-b test. The analysis result from Kendall's tau-b showed  $Z = 0.654$  and  $p \text{ value} = 0.024 < 0.5$ , It suggested the language skill has quite significant effect to the improvement of social interaction.

**Keywords:** *Language Skill, Social Interaction, Autism Spectrum Disorder*

Social interaction was a part which couldn't be separated from human life. The social interaction was referred as an important relation on every individual, which could influence, change, and improve or fix individual condition (Ahmadi, 2009). The social interaction could fix and also be developed on some particular individuals who have low level of social interaction as on individuals who suffered blindness (Celeste, 2006), the individuals with disabilities (Anggriana, Asroful & Trisnan, 2017), children with physical disabilities (Richardson, 2002), and on individuals with autism disorder (Hanley, et al., 2014).

The negative impact from lack of social interaction would cause the individual to not be able to build reciprocal relationship (Rapmauli & Matuslessy, 2015). This was due that the individual who have not verbal and expressive capability would raise to rigid style of communication (Handayani & Murniati, 2011). The minimum ability of interaction could raise frustration, since they were not able to convey what they have felt and wanted, so they

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found difficulty to adjust their selves into environment (Doise, Mugny & Perret-Clermont, 1975).

Social interaction problem could exist on individual who have condition of Autism Spectrum Disorder (ASD), DSM V has explained that the autism syndrome could cause obstacle in social interaction and communication, which was indicated by specific obstructed behavior and interest as well as activity. The research which has discussed about the function of social interaction style on autism defined that the undeveloped and low interaction limitation would cause to long term impact on children's life cycle, from aspects of education, occupation, or surrounding environment (Scheeren, Koot & Begeer, 2012). The environment which was less able to understand wish from children with ASD and lack of communicational competence would emerge frustration and impact to tantrum on children. This situation was also related to children independence who would depend on other people as long as their life.

The success of social interaction needed development on imitation, identification, sympathy, and suggestion skill (Baron & Byrne, 2004). To develop social interaction on individual, it needed from not only the environment, but also to the skill development which functioned to do communication, have knowledge and comprehension, which was related to language ability or acquisition. The minimum language skill impacted to restriction on speaking skill and then raised to rigid style of interaction, speaking and pronunciation difficulty (Napitupulu, 2010). On the other hand, the language skill which have been developed would keep improving until it could be in active and two ways of direction (Fatwakiningsih, 201).

The improvement of language skill on individual showed to a long-term development in order to own potential which could build a great effect to autism children (Chen & Kuo, 2017). The effect from language skill on autism children would also help them to fulfill their needs autonomously (Rapmauli & Matulesy, 2015). The improvement of language skill could create individual to be able to communicate verbally to the environment (Widiyanti, 2013). Besides, the gender on ASD children also affected interest and motivation of children to the development of their language skill (Ramirez & Mendoza, 1985). The parent intimacy and knowledge could influence the language skill of children (Listani, 2016), either the school or home environment could also influence the language skill of children (Papacek, Chai & Green, 2016). This statement indicated that the improvement required to the role of engagement or involvement externally, it was not directly centered on skill and interest of individual.

Regarding to the finding that the individual skill would be better developed since the earlier stage, playing was the most suitable method which could be given, since it was fitted to the age of children development. The playing method by using media could help developing the language skill on children, for example flashcard, this method exerted imitation technique in its use through picture card in certain themes and was completed by object names on each picture of card, this method has been introduced by Doman (1991).

The method of flashcard was in education-based, because it was able to add vocabularies which could develop language skill automatically and would improve social interaction on children with ASD who tended to be more silent and passive. Therefore, according to those explanation, the purposes from this research was to identify the effects of language skill to the social interaction by using flashcard media, thus, the researcher has chosen the title of

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research, “the effects of language skill to the improvement of social interaction on children with autism spectrum disorder (ASD)”.

### ***Social Interaction***

The social interaction was regarded as a relationship between individuals or groups (Baron & Byrne, 2004). Whilst, the social interaction which focused on children was defined as the children ability to communicate or correspond precisely and accordingly to particular events and objects which were seen from behavioral indicators as eye contact, recognize other people presence, laugh and cry which suits to the situation (Matson, 2017).

Soekanto (2006) has asserted that the aspect of social interaction was divided into two parts: (1) Aspect of social contact, which meant a social relation between one individual to another, not only physically, but also symbolically as smiling, shaking hand, and other positive things and negative social contact as conflict. (2) Aspect of communication, which consisted of information conveyance reciprocally as conveying or receiving information that aimed to give explanation to individual’s thought or behavior.

The social interaction was supported by a number of factors, as (1) Imitation in both positive and negative behavior, the condition of imitation was interest and attention to the things they would imitate, and to show good attitude while imitation as well as have social appreciation. (2) Suggestion was a process to see other people behavior. (3) Identification was an ability or skill to equate self to other individuals. (4) Sympathy was a process where the individual was interested to other people, where this process held a significant role, although the main encouragement in this context was sympathy as the intention to understand and cooperate (Baron & Byrne, 2004).

### ***Language skill***

The language was functioned to connect between individuals as communication means in order to think and feel something and have intention to define (Pamuji, 2007). Moreover, the language also functioned to express and show individual thought according to what they felt in verbal, oral, or symbolic (Sardjono, 2005).

The acquisition was referred as ability, skill, and power over their effort due to behavioral theory from Skinner, he has defined that the language could be understood through technique of operant conditioning which was given into affirmation and imitation (Susikaran, 2013). The language skill was also explained as the condition when the individual was able to explain and convey what they have been thinking during communication systematically, so the information could be understood well (Sitompul, 2011).

The language has several dimensions which was composed of two parts or two aspects. The first aspect was active language skill or in another word, expressive, while the second aspect was passive or it was mostly known as receptive. The passive (receptive) language was defined as a skill to understand the object which has seen or listened in order to increase listening, comprehension on word label, and ability to respond while speaking. Next, the active language skill (expressive) was indicated as sight or listening which aimed to show feeling and intention in verbal (Baron & Byrne, 2004).

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### ***The Effects of Language Skill to the Social Interaction on Autism Children***

The language was a significant aspect in communication, however, some limitation in communication were existed because of individual obstruction which could be an obstacle for the individual to be able to develop social interaction, for example autism children.

The language was a means of communication, then, everything which was related to communication would not be separated from language, as systematical way of thinking. In another word, if the individual did not have language skill, they could not think systematically and orderly (Wulandari, Ayu, Astini & Utami, 2012). The language disorder in autism children was indicated by the obstruction in language skill as echolalia (word repetition), vocabulary reversal, incorrect expression during speaking, and limited vocabulary (Halgin, 2002).

The language skill was not only about speaking, but also understanding and meaning comprehension from a word. Further, the language was functioned to explain thought and feeling in active (expressive way). The language skill in active or passive must be improved on either normal children or children with disabilities as autistic (Massey, Scherokman & Pleet, 1994). Without any language skills, the individual skill to create interrelationship would never occur, especially on children with autism, who have deficiency to take care of their selves, so it required to oblige them to be able to create relation or interaction within life, which could explain that the language skill was related to the social interaction (Fitch & Sanders, 2005).

The social interaction itself was defined as a relation between individuals, where the behavior which was performed could influence, change, or improve individual, the meaning of social interaction in the children growth was an activity which was related to other people, learn how to see other people role and also develop proper attitude which could be accepted by other people (Susanto, 2011). The development of language skill was focused on personality development on children with autism which would not only improve vocabulary skill, but also the pronunciation, it would show expression as the sign to understand the meaning. But indirectly, it would teach children interacting with their language skill when they were communicating with other people.

Boucher (2003) has defined several characteristics in communication disorder on children with autism as these following (1) the first stage was phonology, where the children could not speak (mute), babble, and maintain eye contact while they were communicating with other people, and they use body language to communicate. (2) Prosody, which was defined as having flat talking voice or shrilling voice in sudden. (3) Syntaxes, which was defined as word repetition (echolalia). (4) Comprehension, which was defined as sentence meaning. (5) Semantic, which was defined as saying new words with no meaning, and pronunciation of word meaning was sometimes confused or swapped. (6) Pragmatic, where the individual would talk more, with no meaning, not flexible, and not meaningful body movement and visual attention.

Generally, the children with autism were able to make sentence and pronounce in a simple form, but they were less able to be understood by the environment, which then impacted to the minimum social interaction with environment on children with autism disorder (Boucher, 2003). The social interaction and language skill was interrelated one another which could influence the children development in communication skill (Camarata & Yoder, 2002).

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Further, the social interaction on children with autism has some indicators which enabled to be measured, as (1) being able to obey instruction and have attention or concern in visual or eye contact, (2) being able to imitate, (3) being able to communicate, (4) and being able to cooperate (Rapmauli & Matulesy, 2015).

### ***Play Therapy in Flashcard Method***

Play therapy was defined as systematic model which delivered to interpersonal process, where the therapist exerted therapeutic function within playing method in order to help prevention or settle down problems psychologically and children growth and development (Indriyani, 2011). The play therapy used a safe and comfortable media for the children to express and explore their selves as what they felt, thought, and achieved experiences as well as showed attitude during period of good children growth and development (Landreth, 2001). The function of play therapy was divided into six points: (1) Sensory development, (2) Intellectual development, (3) Socialization and moral development, (4) Creativity and expressive development, (5) self-competence or self-identity development, and (6) therapeutic value which influenced individual to release tension (Supartini, 2004).

From several kinds of play therapy, a method of playing and learning in playing methods was through education flashcard, where the picture cards would be equipped by words, and this method has been introduced by Doman (1991). The pictures on flashcard would be grouped according to the themes, for example series of animal, fruit, thing, color, shape, number, and many others. The flashcard could be a media which was implemented on children with autism and aimed to make the children get knowing to alphabets, object names, and showing expression. The conspicuous object and color on flashcard was expected to be able to give stimulus to make eye contact, remember, understand the picture, and be able to do pronunciation.

The implementation of flashcard was given during the process of learning, where the children would be given repetitive treatment, since the imitation within therapy procedure would make them to be able to master and comprehend the vocabularies. The theory of behavior by Skinner has defined that learning was a process of behavioral change, when the individual was able to show changes through stimulus which delivered to response (Corey, 2010), the stimulus which given to the children in flashcard was expected to be able to show response. Furthermore, the imitation technique was given in repetitive pronunciation by the therapist which then should be imitated by the subject, the reinforcement was also needed during the therapy process, since it was a very significant factor in learning, thus, the positive reinforcement in form of compliment and little reward was regarded as the supporting factor for the subject to improve motivation.

### ***Framework and Hypotheses***

H0: There was no positive effect between language skill and social interaction

H1: There was positive effect between language skill and social interaction

## **METHODOLOGY**

### ***Sample***

The subject of research was adjusted to the research objective, the children who were diagnosed as having autism spectrum disorder. The subject sampling was conducted through purposive sample technique, where the subject was taken and chosen according to the characteristics which have been determined due to characters and traits (Winarsunu, 2002).

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The subject of research was taken from the children in SDLB Putra Jaya Malang, who have specific characteristics: in age range of 7-8 years old, being able to babble, and were not in mute or silent category. The total of research subject were 6 respondents, the three subjects in control group, while the other three subjects in experiment group who were divided randomly.

### *Instruments*

Two measures were used in this study:

1. **ATEC (Autism Treatment evaluation Checklist):** ATEC was divided into three sub-test, motor, social, and communication, however in this research, the researcher only exerted social sub-test to measure social interaction which referred to a theory concept by Gillin & Gillin (Baron & Byrne, 2004) and indicator of imitation or imitation skill, identification or obedience and eye contact, suggestion or communication, and sympathy or cooperation, the total item were 20 items, for instance, “the children did not wave the hand or say goodbye (bye-bye)”. The score or value was given on subject according to N (not true) in score 0, S (somewhat true) in score 1 and 2 for I (very true). The reliability value on social ATEC 0,93 ( $\alpha > 0,6$ ), which referred that it was reliable to use.
2. **Language test by Massey:** this test was comprised of 7 indicators of language skill sub-test in both expressive and receptive skill, within this language skill test, the answer or response would be stated in very clear in score 1 (true) and 0 (false). The formation of language skill would be delivered through treatment in flashcard method and reliability value 0.87 (Massey & Schesokman, 1994).

### *Procedure*

Generally, the procedure and data analysis in this research would be presented as, firstly, the researcher asked approval from the student guardian by signing informed consent. Secondly, the researcher divided randomly the subjects into two groups of experiment and control. Thirdly, the researcher conducted pre-test for the first measurement on both groups. Fourthly, the researcher implemented intervention on experiment group. Fifthly, the researcher re-measured or conducted post-test on both groups. And sixthly, the researcher analyzed the data by exerting SPSS 21.

## **RESULTS**

The research finding was based on the scale which given to 6 subjects of research on either the experiment group or control group that has been filled by the guardian or parent accordingly to the procedure. The result of data analysis:

**Table 1. Research Data Description**

Group	Variable	Pretest		Posttest	
		Mean	SD	Mean	SD
Experiment	Language skill	3.67	3.035	6.33	3.035
	Social interaction	11.33	1.528	31.33	1.528
Control	Language skill	3.00	3.464	2.33	2.309
	Social interaction	10.33	0.577	10.10	0.000

From the table 1 of data description result, it was indicated that on both groups, they have score difference on both variables. It was known that the language skill delivered to pre-test average value 3.67 (average) and posttest average value 6.33 (high), which showed the

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improvement on category of experiment group (3.67<6.33) after the flashcard media was implemented. While, on social interaction, the average value in experiment group 11.33 (low) and posttest value 31.33 (high), this was also indicated to the improvement on category (11.33<31.33), which defined that if the language skill was improved, the social interaction on experiment group would be improve as well.

On the control group, it was indicated that it has value difference on both variables. It was known that the language skill delivered to average value of pretest 3.00 (low) and posttest 2.33 (low). This result showed that there was no any improvement (3.00>2.33) on language skill, since there was no given treatment. The average value of social interaction did not produce improvement on average value of pretest 10.33 (low) and posttest 10.10 (low). Therefore, it was concluded (10.33>10.10) that if the language skill through media of flashcard was not implemented, the social interaction would not improve.

**Table 2. Mann Whitney Test on Language Skill (Check Manipulation)**

Language Skill	
Total of subject (N)	6
Mann Whitney (U)	0.000
Sig value (p)	0.046

The table 2 of Mann Whitney (U) showed 0.000 (<0.05) Z = -1.993 and p value = 0.046 which referred the significant probability. Based on this result, it was summed up the difference of language skill between experiment group and control group which was significant to the manipulation on experiment group which produced to improvement on language skill.

**Table 3. Wilcoxon Test on Language Skill (Check Manipulation)**

Group	Variable	Pretest		Posttest		Z	P
		Mean	SD	Mean	SD		
Experiment	Language skill	3.67	3.035	6.33	3.035	1.633	0.012
Control	Language skill	3.00	3.464	2.33	2.309	-1.000	0.317

The result on table 3 of Wilcoxon test showed difference on each group, the score of experiment group, particularly the language skill Z= 1.633 and p value = 0.012 (<0.05) which was referred as significant with the result of average value on pretest 3.67 and posttest value 6.33, it indicated to the score improvement on experiment group. Next, on the control group, the language skill Z= -1.000 and p value = 0.317 (>0.05) which was referred as not significant. The average value of pretest 3.00 and average value of posttest 2.33 showed that the score improvement was not occurred in control group.

**Table 4. Kendall's tau-b Test on Language Skill and Social Interaction**

Variable	Correlation Coefficient	p	Explanation
The effect of language skill to the social interaction	0.645	0.024	Quite related and significant

Based on the table 4, the correlation coefficient value of language skill to the social interaction 0.645 and p value 0.024 (p<0,05) and showed positive sign, it was concluded that

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the language skill has positive effect which was quite related and significant to the social interaction, which referred the improvement of language skill would affect the improvement of social interaction. According to the research hypothesis that has been determined, H<sub>0</sub> in this research was disapproved, while H<sub>1</sub> was approved, based on the analysis result, the effect of language skill could improve social interaction on children with autism spectrum disorder through method of flashcard in experiment group.

### DISCUSSION

Based on the research finding, it was demonstrated the difference between experiment group and control group, the experiment group showed improvement on language skill score and also social interaction rather than in control group which did not acquire any treatment. The result on analysis test was indicated the significant effect between experiment group and control group as well as language skill to the social interaction. Thus, in this research, it showed effects between both groups by using flashcard method.

The flashcard method in the previous research by Rapmauli & Matulesy (2015) has asserted that the flashcard method could improve social interaction on children with autism disorder, which showed eye contact obedience that involved language skill on the children. Tincani in his research (2006) has indicated that the use of picture card could affect the language development on children with autism, especially, in their school age.

Handoyo (2003) has defined that the autism have undergone difficulties in visual through eye contact with the interlocutor, thus, the use of flashcard which exerted imitation and reinforcement technique was easier to build eye contact obedience. The visual use in for of picture would increase the interest and attention on children (Rief, 2005). This result was identified on the subjects in experiment group who were able to maintain eye contact for 5 seconds or more.

Vacca (2007) has explained that the children with autism was suitable to learn by using flashcard which contained picture and writing and also show comprehension to the words they have been saying. Whilst, in the experiment group, the subjects were introduced the objects in the cards in real and repetition, when the picture on card was shown to the subjects, they spontaneously pointed to the real object around them according to the object on card.

Within the process of operant conditioning, according to Skinner, the language could be learned through reinforcement and imitation (Corey, 2010), where in this intervention, the subjects would be given reinforcement in form of compliment and reward or gift through imitation process. Based on the process of imitation in first meeting, the subjects were able to pronounce or imitate objects on the card, this condition showed the reciprocal interaction, where the subjects understood to the instruction, so they obeyed the eye contact, the subjects did not only know the names of pictures, but they also understood to the functions and real shapes of object in the picture. This result indicated that the approach of social interaction to the language skill has regarded the language acquisition on children was acquired through interaction, therefore, the children could communicate in their daily life (Haebig, McDuffie & Wesmer, 2013).

The attention showed the subject interest and eye contact which developed every day and affected their behavior to concern on a subject and communicate in either verbal or non-verbal. The repetitive activity in interaction and response could develop the language skill



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(Haebig, et al., 2013). This statement was a base why the intervention should be given repetitively in the process.

The social interaction was regarded language skill as a process which existed between behaviors that could influence the children improvement in language skill (Camarata & Yoder, 2002). The improvement of language skill in experiment group has shown different result, this condition was due to the interest and attention factor, the imitation process in verbal or motor in order to explore a particular object (Flippin, Reszka & Watson, 2010). The other factor which supported to the improvement of language skill in experiment group was because there was no obstacle in motor ability as well as attention or focus even not for a long time. Additionally, the other factor was subject condition who was ready to follow activity, stable physical condition, and support from surrounding environment.

The strength from this research was related to the intervention method which given in this research, play therapy. The play therapy was valued as the most appropriate media due to the subject condition and age. Moreover, the playing activity was a world which could not be separated from children, since it offered safe and comfortable condition. The play therapy also delivered to therapeutic benefit for the children, since they were able to release tension, explore as well as express their selves. While, the weakness or restriction of this research was related to the place setting, since there was no any special room as independent class during the process of intervention, then, the condition of room was too large and too many objects in that room which could affect the subjects to be easily diverted.

Through media of picture, we could teach children to have motivation in interaction, get attention from interlocutor (Welch, 2010). This result was indicated during the intervention process which showed that the experiment group started to have attention and be able to give response to either verbal or non-verbal instruction, and the subjects were able to point the picture on card concretely.

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