Social Skill Profile in Children with Low Function Autism Spectrum Disorder: Descriptive Analysis of Communication Levels, Understanding of Shopping Activity and Skill of Shopping in School Canteen

Ahsan Romadlon Junaidi1*, Dimas Arif Dewantoro1, Joko Yuwono2, Muchamad Irvan1, Lailatun Nuriyah1, Yuliana Pramesti1

1 Department of Special Education, Faculty of Education, Universitas Negeri Malang, Malang 65145, Indonesia
2 Department of Special Education, Universitas Sebelas Maret Surakarta, Surakarta, Indonesia
* Corresponding author. Email: ahsan.romadlon.fip@um.ac.id

Abstract: One of the problems of children with low function autism (LFA) – is the lack of social skills. Social skills are understood as the right set of behaviors in a certain situation. With a case study strategy, this study explored the profile of social skills possessed by seven children with LFA aged between 14 - 21 years in shopping for food in the school canteen. The study findings showed diverse abilities in research subjects in communication skills level, understanding of shopping activities, and shopping skills. The findings also concluded the absence of the association between the communication levels of research subjects and the understanding of shopping activities and shopping skills.

Keywords: low function autism, social skill, communication

1. INTRODUCTION

Children with autism spectrum disorder (ASD) are generally characterized by limited social interaction, communication, behavioral disorders, repetitive behavior patterns, and excessive attraction to one object. This condition is understood as a disorder with a long-range and of grades ranging from mild to severe. It means that even if someone has the same symptoms, the ways and consequences that appear in autism will vary. Similarly, cognitive abilities potential is varied from above average to mental retardation. ASD conditions will be more severe when accompanied by comorbid. About 30% of ASD children are estimated to have comorbidities with ADHD, and 50-70% of others have comorbidities with intelligence disability [1].

Based on intellectual function, ASD can differ into high function autism (HFA) and low function autism (LFA). ASD children are said to be LFA when they have an intellectual disability or IQ below 70. Although intelligence measurement in ASD children is still in the debate, some researchers still use an IQ test to predict the ability of ASD children, especially in academic aspects [2]. Light-level LFA allows for social training and sufficient opportunities to obtain specialized education designed for people with ASD. At a severe level, they can live fully independently, despite their need for much help from others.

One of the problems faced by children with low-function autism is the mastery of social skills. Social skills develop gradually over the ages resulting from dynamic interactions between individuals and their environment. Children with the autistic spectrum have serious challenges in mastering social skills. Social skills are a set of behaviors that a person displays in a situation [3]. The social skills including (1) the ability to select information and use it in interpersonal relationships; (2) the ability to use the information to direct appropriate behavior; and (3) the ability to determine verbal and nonverbal expressions in maintaining interpersonal relationships [4].

As described according to SIP theory, the development process does not occur in children with the autistic spectrum. They draw from interactions with others, whereas social skills occur in the context of interactions with others. According to Rutherford et al. [6], the fundamental problem in children with autism lies in their inability to imitate and play symbolically.
A capacity does not develop well in children with autism spectrum, namely Theory of Mind (ToM). ToM refers to the socio-emotional function of each individual. Through ToM, a child develops their ability to understand facial expressions, voice intonation, pay attention and give attention (example, through eye contact, smiles, and other nonverbal expressions). In children with ASD, the capacity does not develop, so they do not have the skills to understand and express emotions [7], [8], are incapable of bonding with others [9], [10], and it looks like it does not have empathy [11], [12].

Social skills development interventions for children with autism spectrum are highly recommended before age 5 [13]. However, many studies have found that social skills development interventions are implemented at ages between 6 to 9 years [14].

The need for social skills intervention is increasingly urgent as children progress into school age. The heavier the level of intellectual disabilities, the more severe children's social skills [15]. The increasingly severe condition of autism requires different intervention programs and strategies. Children with low function autism need adaptive behavioral exercise programs, including social skills integrated with school programs [16].

From a literature review, Matson et al. [17] concluded that interventions in the development of skills of ASD are widely performed by a teacher in a school activities setting.

This study was a preliminary step to identify social skill profiles in children with LFA. The findings of this study serve as the basis for developing social skills intervention strategies in children with low-function autism.

2. METHOD

This research approach is qualitative with a case study research strategy. The data collected is quantitative and qualitative data analyzed with Chi-squared. The study subjects consisted of seven students with low-function autism diagnoses aged between 14 and 21. This research was located at an SLB Autis Laboratorium Universitas Negeri Malang, East Java.

Quantitative data is obtained through participant observations and semi-structured interviews with teachers. Qualitative data is collected using structured interviews with students and observations when students buy food in the school canteen. The principal performance is presented in Table 1. The mean of principal performance is 85.86; it can be concluded that the principal’s performance is in the medium category. Furthermore, the item mean is compared with the total mean. The results of these comparisons are in Table 2. Referring to Table 2, it can be seen that items included in category R are items that must be improved by the principal. Whereas items included in category H are items that must be maintained by the principal.

3. DISCUSSION

Many factors support employee performance. The data obtained consists of three main topics: communication level, understanding of shopping activities, and shopping skills. Then they were analyzed using the Chi-squared Test.
communication capabilities of subjects R and H are grouped at level 3.

b. Understanding Shopping Activity

In this study, understanding shopping activities is understanding behaviors that conform to social norms related to shopping activities. Five shopping activities were selected that revealed their understanding to the research subjects. These five shopping activities are chosen as the norm agreed by the public when doing shopping activities. The five shopping activities are queuing, paying, choosing an empty seat, sitting while eating, and throwing away food wrapper waste. These five activities are considered important to be understood and mastered by children as part of social skills to be able to behave appropriately in shopping situations.

This understanding of shopping activities is revealed through interviews with students and teachers. Interviews with students are conducted in a structured manner using the help of drawing cards. In comparison, interviews with teachers are conducted by semistructured interview method.

Subjects W and B showed a good understanding of all five shopping activities.

They can understand the importance of queuing in rows of buyers. When buying snacks, buyers have to pay with some money. Finding an empty seat before eating snacks, to throw garbage in the trash.

Subjects D and J could understand the five shopping activities in question. However, they need verbal assistance that is repeated two to three times. For example, D can identify images of queuing activities. However, when asked by the researchers, "What to do when queuing?” D struggled to choose the answer “queue” or “wait for a turn”. Similarly, understanding the activities of paying, choosing a seat, eating while sitting, and throwing garbage in the trash can.

Subjects D and J could understand the five shopping activities in question. However, they need verbal assistance that is repeated two to three times. For example, D can identify images of queuing activities. However, when asked by the researchers, "What to do when queuing?” D struggled to choose the answer “queue” or “wait for a turn”. Similarly, understanding the activities of paying, choosing a seat, eating while sitting, and throwing garbage in the trash can.

Subject A is very difficult to understand the activity of choosing an empty seat and eating while sitting. Even with subject R and H that are not easy to understand the five shopping activities asked. The interview process was disrupted because subjects R and H had problems in communication, both verbally and nonverbally (in the picture). During this interview, the teacher accompanied and explained the questions asked by the researchers.

This “understanding shopping activity” is categorized into four: self-reliant, less help, more help, and unable or unwilling. Subjects W and B are categorized as self-reliant. Subjects D and J are in the “less help” category. Subject A is classified as “more help”. At the same time, the subjects R and H include “unable” to follow every step.

c. Shopping Skill

Shopping skills are known through observation of research subjects when buying food in the canteen. In this activity, each subject is provided with 10,000 rupiahs to buy two kinds of snacks. In general, research subjects have not been able to recognize the value of money. Subject R has not been able to follow the stage at all. He tends not to want to engage in activities in the canteen. Subject H can participate in queuing, choosing menus, paying, and disposing of garbage. Nevertheless, he still needs the help of teachers, except when disposing of garbage.

Subject A can shop in the school canteen. It is just that he still needs to be reminded to pay for his snacks first. It is also found in subject D. As a result of haste when buying, subject D must be physically assisted (demonstration) to pay - hand over money. Subjects W, B and J can do the shopping stages independently. Starting from queuing, choose the menu, pay, choose a seat, eat while sitting and throw garbage in its place.

In this study, the level of shopping skills was categorized into four levels: (1) self-reliant, (2) less help, (3) more help, and (4) unable or unwilling. Subjects W, B, J are self-reliant. Subject A falls into needing less help, while subjects D and H need more help. Subject R refuses or is unwilling to participate in activities in the school canteen.

d. Chi-Squared Test

Based on data from the seven subjects above, further descriptive statistical testing was conducted. Testing was conducted with Chi-Squared to determine the correlation between communication levels, understanding of shopping activities, and shopping skills.

TABLE I. COMMUNICATION LEVEL AND UNDERSTANDING OF SHOPPING ACTIVITY

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>11.083</td>
<td>6</td>
<td>0.086</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>12.333</td>
<td>6</td>
<td>0.055</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>5.255</td>
<td>1</td>
<td>0.022</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on table 1, Chi-Squared and df values are 11.083 and 6, respectively. If using a Chi-Squared table with a significance level (α) = 5%, the value obtained is 12.59. Thus, there is no relationship between communication levels and understanding of shopping activities.

TABLE II. COMMUNICATION LEVEL AND SHOPPING SKILL

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>10.500</td>
<td>6</td>
<td>0.105</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>12.333</td>
<td>6</td>
<td>0.055</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>5.263</td>
<td>1</td>
<td>0.022</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In table 2 is known Chi-Squared value of 10.500, with df 6. Chi-Squared table value with significance level (α) = 5% is 12.59. It can be concluded that there is no relationship between level of communication and shopping skills.
virtual reality (VR) technology in the practice of shopping in the school canteen. Developing social skills is a very important part of predicting the learning achievements of students with ASD [18], [19].

Functional communication skills become very important. It can be seen in the profiles of subjects D and A. They have functional communication levels where they still needed help from adults. In understanding shopping activities, subject D needs little help. While he needs much help in real simulation. Subject A is so well understood about shopping but needs much help in real shopping activities.

Subjects H and R have functional communication skills with much help, likewise in understanding shopping activities. In the real simulation in the school canteen, H still needs much help. In contrast, subject R refused to take part in the simulation.

Based on the data, functional communication skills become very important. It can be seen in the profiles of subjects W, B, and J. However, the Chi-Square test does not provide similar evidence. Functional communication skills in children with low-function autism contribute to teaching social skills. Functional communication skills become a very important part of predicting the learning achievements of autistic children [18], [19].

The most popular intervention for developing social skills in children with autism spectrum disorder is applied behavior analysis (ABA) through modeling and reinforcement [17]. Rogers [20] stated the necessary interventions for developing social skills include: peer intermediaries, peer tutors, social games, pivotal response training, video modeling, direct instruction, visual cues, circle of friends, and social-skills groups. Although many studies were conducted for children with high function autism [21], with functional communication skills in the study subjects, the recommendations of such interventions can be considered.

Subjects D and A have functional communication with less help. In knowing shopping activities and shopping skills, subject D needs less help, and subject A needs more help. Subjects D and A can be given interventions using video modeling, direct instruction, and visual cues.

These three intervention models can be alternative by considering the functional communication capabilities that subjects D and A have.

Subjects H and R require more careful consideration in social skills development interventions. The use of communication aids, such as images or visual cues, becomes a good option in developing functional communication. Based on SIP theory, at least the practice of shopping in the school canteen can be processed using task analysis [20] into three stages. First, the skill of understanding the instructions or the situation at hand - shopping for food in the school canteen. For example, students are trained to recognize the school canteen room and recognize the menu.

Second, students are trained to set goals when going to the school canteen and determine the appropriate follow-up actions. Students are trained to understand the order of activity when buying food at the school canteen. In the first and second stages, the image media or visual instructions are very appropriate to use.

Third, students are trained in the hands-on practice of buying food in the school canteen and activities in the second stage. Interventions with modeling can be used in this stage. It can be combined with direct (verbal) instructions or using visual cues. In this stage, if students have consistently mastered shopping skills in the school canteen, then it is necessary to generalize in different situations. For example, shopping at a food court or restaurant.

Samson & Bui [22] are using a peer-mediated intervention (PMI) strategy. This intervention strategy can work well in a regular school setting – where there may be peers who can act as active peers – resulting in the mediation of social interactions. As in this research, in the context of special schools, it is unlikely that strategy can be implemented. It is due to the absence of peers who can perform the role of mediator.

The use of virtual reality (VR) technology in interventions in ASD education began to rise. Development of ASD children's communication skills through VR technology [23], [24], to train social expression skills [25], to develop joint attention, and social adaptation in inclusive schools [26], [27]. The use of VR technology for children with low-function autism is also possible [28].

4. DISCUSSION

Each research subject has a diverse profile of social skills. Three subjects have good functional communication skills, namely W, B, and J. They can express desire and understand commands verbally. In understanding shopping activities, W and B are self-reliant, which means understanding the whole well. Subject J needs a little help in understanding shopping activities. While also in a real simulation of shopping in the school cafeteria, these three subjects could do it independently.

Subjects D and A have different characteristics of speech ability. Subject D can speak and has echolalia tendencies, so his speaking ability is not used appropriately in functional communication. Subject A is very quiet, able to speak on a limited basis if stimuli are obtained. Both subjects had functional communication levels where they still needed help from adults. In understanding shopping activities, subject D needs little help. While he needs much help in real simulation. Subject A is so well understood about shopping but needs much help in real shopping activities.

Subjects H and R have functional communication skills with much help, likewise in understanding shopping activities. In the real simulation in the school canteen, H still needs much help. In contrast, subject R refused to take part in the simulation.

TABLE III. SHOPPING SKILL AND UNDERSTANDING OF SHOPPING ACTIVITY

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>df</th>
<th>Asymptotic Significance (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>12.833</td>
<td>9</td>
<td>0.170</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>12.333</td>
<td>9</td>
<td>0.195</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>3.998</td>
<td>1</td>
<td>0.046</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on table 3, it is known that the value of Chi-Squared is 12.833, with df 9. Chi-Squared table value with a significance level (α) = 5%, known as 16.92. It indicates there is no relationship between understanding shopping activities and shopping skills.

5. CONCLUSION

The seven research subjects had functional communication skills, understanding of shopping activities, and diverse shopping skills. The Chi-Square test concluded no link between functional communication levels, understanding of shopping activities, and shopping skills. The diversity of profiles of research subjects becomes the basis for...
choosing strategies or models of intervention in the development of social skills. Functional communication capabilities are a very decisive part of choosing the appropriate intervention model.

Various intervention models are widely used for children with high function autism, allowing it to be an intervention option for children with low function autism.

When they have good functional communication skills or are independent, for subjects experiencing functional communication disorder, intervention models that use visual aids or images are highly recommended. The use of task analysis to create simpler learning stages is urgently needed. The use of technology such as VR is an alternative that can develop children’s social skills with low-function autism.

Further research is needed to dig deeper into interventions for ASD with low function. Experiments on various models of intervention and development of assistive technology need to be conducted, taking into account the diversity of children with low-function autism profiles.

REFERENCES


