Improving expressive communication in children with autism using social story and picture exchange communication system

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ABSTRACT: In everyday human activities, both social and personal interrelations require communication. Cognitive abilities influence the communication process. Cognitive disorders in children with autism lead to communication problems. Communication disorders in children with autism lead to emotional changes. In the learning process, children with autism can overcome communication disorders by maximizing their visual potential. In this article, we study that a review of the visual media literature can improve visual abilities of children with autism. The method used is a narrative review with steps to 1) determine the scope, 2) search literature, and 3) analyze the findings. The results found that to improve communication skills and basic behavior in children with autism, the Picture Exchange Communication System (PECS) can be used. PECS can get used to communicating with children with autism by using symbols that are appropriate to their daily activities. To increase the effectiveness, the implementation of PECS can be combined with the Social Story Model. Social stories can help students with autism interpret and understand social situations with therapy using short stories. By using PECS and SS, student with autism can increase their positive social behavior and the development of receptive and expressive communication. It also can improve structured speech skills and stimulate language.

Keywords: Student with Autism, Picture Exchange Communication System, Social Story, Expressive Communication

1 INTRODUCTION

Communication has a vital role in human life, both socially and in personal relationships. Because it is so important for humans, scientists try to answer every difficulty so that effective communication can occur by creating various communication media as it is today. Communication impairment slows development in people by many ways. Communication itself is an activity that receives and transfers information in the form of ideas, messages through speech, images, symbols, writing, or behavior (Troshanska & Trajkovski 2014). As social beings, humans need other people to complement each other and learn many aspects. To complement each other, effective and intense communication and relationships are needed (Rueda 2020). Good communication occurs strongly influenced by cognitive abilities and experience where a person can formulate a message so that it can be understood by the communicant so that he or she can do the right things as conveyed by the message and actualize it according to the concept and context (Hallahan, Kauffman & Pullen 2020).

Social communication impairment is the main disorder in children with autism, repetitive behavior, and limited interests (Hyman, Levy, & Myers 2020). This communication disorder causes autistic children to face several difficulties, such as difficulty in understanding simple instructions and difficulty expressing what they want or feel. Not only autistic children, teachers, parents, or

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caregivers also have difficulty understanding what autistic children want. As a result, they are often easily sad or throw tantrums because what they want or need cannot be conveyed. On the other hand, other people are also unable to understand the message delivered clearly. Thus, there is a gap between children with autism and their environment (Cagliani et al. 2017; Hyman, Levy, & Myers 2020). If not treated early, this problem will worsen both children with autism and the people around them.

Although having a disorder in social communication, Koshino et al. (2008) states that a group of children with autism can process letters visually, in a non-verbal way, and not verbally. So the children with autism are also referred to as visual learners (Tissot & Evans 2003). Children with autism can compensate by utilizing visual learning to help children with autism in building and developing communication, incredibly expressive communication, such as social stories and Picture Exchange Communication System (PECS) (tondy & Frost 2011; Riga, Ioannidi, & Papayiannis 2020).

Based on the explanation above, the current study wants to analyze whether social stories and PECS can improve expressive communication in children with autism based on literature studies. Currently, many methods have been developed to help improve communication in children with autism.

2 METHODS

The method used in writing this article is a narrative review, which summarizes several research results and compares them to produce a natural or holistic interpretation of children with autism found in academic articles (academic-oriented literature). The stages carried out by the researchers in this narrative review consist of three stages (Gasparyan et al. 2011), including 1) determining the scope of focus and the results of the research. The primary approach studied in this scientific research is to find the focus of research concerning social stories media or the PECS method. The step of the selection of the article can be seen in Figure 1. The results produced in this scientific search are in terms of finding the effect of social stories, media, and PECS on developing expressive communication in children with autism. 2) Conducting a literature search through keywords related to the title of this research. The search for published articles was conducted on Google Scholar and Research Gate with the keywords “PECS and/or social stories to improve expressive communication in children with autism.” The articles determined are in 2011–2021, while the criteria for the journals reviewed are 16 articles.

![Figure 1. Article selection scheme.](image)
3 RESULTS

Bondy and Frost use applied behavior analysis to understand and improve verbal behavior. They used communication function analysis according to antecedents or triggers and their consequences. The analysis shows that communication is a function of the consequence of his behavior. Evidence presented throughout his book show that the use of communication systems other than language enhances speech. Communication systems development provides other significant benefits, such as reducing frustration due to the current unavailability of effective alternative communication strategies (Bondy & Frost 2011). So the use of the PECS method has been proven to be effective in improving expressive communication in children with autism (Asep et al. 2019; Goa & Teresia 2018; Putri, Hastuti, & Adi 2018). PECS can also improve structured speech skills (Vistasari & Patria 2019) and stimulate spoken language or verbally among students his age (Jusoh & Majid 2017).

Furthermore, Paul (2012) underlined the value that a PECS image and visual communication strategy in children with autism could improve receptive and expressive communication as a parallel process with the same ability. Some children have good receptive abilities but lack expressive skills or vice versa. Therefore, parents and caregivers during the lockdown are advised to use PECS as a medium of daily communication. The house is an important part of lives. There is no need to wait for a particular time for communication exercises (Bondy, Horton, & Frost 2020). However, Purnama, Safitri, and Zwagery (2019), on the contrary, found that the PECS method could not significantly improve communication skills in children with autism.

Table 1. Summarized research that focuses on PECS and SS in students with ASD.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Research Focus</th>
<th>Findings</th>
</tr>
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<tbody>
<tr>
<td>Sunandar et al. (2019).</td>
<td>The test is the effectiveness of visual aid methods (PECS and Visual Schedule) on children’s communication skills and basic behavior</td>
<td>The use of visual support (PECS &amp; Visual schedules) can improve the communication skills and behavior of children with autism</td>
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<tr>
<td>Putri, Hastuti, &amp; Adi (2018).</td>
<td>The effect of the PECS method toward the communication ability of autistic children</td>
<td>The conclusion showed that the PECS method affects the communication ability of autistic children</td>
</tr>
<tr>
<td>Vistasari, &amp; Patria (2019).</td>
<td>To increase structure speaking in children with autism using PECS</td>
<td>The results showed an increase in structured speaking skills in both participants through the PECS program that had been carried out</td>
</tr>
<tr>
<td>Purnama, Safitri, &amp; Zwagery (2019).</td>
<td>Improvements in communication skills in children with autism by PECS method</td>
<td>The PECS method cannot significantly improve communication skills in autistic children</td>
</tr>
<tr>
<td>Goa, &amp; Derung (2017).</td>
<td>To determine the expressive communication skills of children with autism using the PECS</td>
<td>The results obtained showed an increase in children’s expressive communication with autism after using the PECS method</td>
</tr>
<tr>
<td>Bondy, Horton, &amp; Frost (2020).</td>
<td>Promoting functional communication skills within homes</td>
<td>Describes nine essential communication skills and provides examples of how families can improve the use of these important skills</td>
</tr>
<tr>
<td>Paul, Kalyanpur, &amp; Harry (2012).</td>
<td>The value of a PECS image and visual communication strategy in autistic children</td>
<td>Communication has additional sub-components, namely expressive and receptive. The evidence presented throughout the book shows that communication systems other than language improve speech development and provide other significant benefits, such as reducing frustration over the current availability of effective alternative communication strategies</td>
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Table 1. Continued.

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<tr>
<th>Author(s)</th>
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<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jusoh, &amp; Majid (2017).</td>
<td>This study aimed to see the improvement in pronunciation of words by autistic students by using PECS</td>
<td>PECS is successful in stimulating speech among students</td>
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<td>Ling (2017)</td>
<td>Social stories concepts, goals, functions, and guidelines for creating social stories guide for kids</td>
<td>Social stories are ready to be used according to the situation and problems of each child</td>
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<tr>
<td>Da Silva, Arantes, &amp; Elias (2020).</td>
<td>Social stories in class affect presenting social stories in appropriate learning and reducing inappropriate behavior of children with ASD in the hall</td>
<td>Change is reducing challenging behavior and increasing positive behavior</td>
</tr>
<tr>
<td>Meister (2020).</td>
<td>Evaluating the effectiveness of social stories for autistic children</td>
<td>The social story method is more effective in reducing challenging behaviors, and the results are more variable when used to improve the behavior to be developed or social skills</td>
</tr>
<tr>
<td>Aldabas (2019).</td>
<td>Examine the effectiveness of technology integration when using social stories</td>
<td>Social stories are effective in reducing inappropriate social behavior among these children. Several studies have been about applied social stories with the use of technology</td>
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<tr>
<td>Garzotto, et al (2018).</td>
<td>Education for subjects with neurodevelopmental disorders (NDD) to help them gain an accurate understanding of social situation interventions, develop autonomy, and learn appropriate behavior</td>
<td>Exploiting Wearable Immersive Virtual Reality (WIVR) technology is called creating a new form of the social story called Wearable Immersive Social Story (WISS) This study was designed to control for the learning benefits of wearable immersive social stories and traditional social stories. All of these support the use of interventional photography activities to teach social skills to children with ASD. We discuss the inconsistent findings of the effectiveness of social stories</td>
</tr>
<tr>
<td>Daneshvar, Charlop, &amp; Berry Malmberg, (2019).</td>
<td>To compare the effectiveness of the two procedures, the Photo Activity Schedule Intervention, and the Social Stories Intervention, in teaching social skills to four children with Autism Spectrum Disorders (ASD).</td>
<td>The findings of this study indicate that the use of social stories to increase the social interaction of children with ASD has a positive impact</td>
</tr>
<tr>
<td>Balakrishnan, &amp; Alias (2017).</td>
<td>Use of social stories to encourage social interaction in children with autism spectrum disorders</td>
<td>This paper argues that using SS as an invaluable teaching method that can be integrated into the teaching and learning process, especially for children with ASD, special educators use SS and thus can contribute to children acquiring and developing social and communicative skills</td>
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<tr>
<td>Riga, Ioannidi, &amp; Papayiannis (2020).</td>
<td>A brief overview of the use of Social Stories (SS) as a strategy to support students in achieving communicative skills</td>
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The social story method also showed effectiveness in change, reducing challenging behavior, and increasing positive behavior (Da Silva, Arantes, & Elias 2020). Social skills also positively impact (Aldabas 2019; Balakrishnan & Alias 2017; Meister 2020) social interaction and communication (Riga et al. 2020). Therefore, Ling (2017) pays attention to social stories by formulating concepts,
functions, and guidelines for making social stories. Several topics or themes can be used according to each child’s situation, problems, and needs. Furthermore, Garzotto, Gelsomini, Matarazzo, Messina, & Occhiuto (2018) utilize Wearable Immersive Virtual Reality (WIVR) technology to create a new form of the social story called Wearable Immersive Social Story (WISS). This media is used for educational interventions for children with autism to help them gain an accurate understanding of social situations, develop independence, and learn to adapt to new behaviors. This study was conducted to determine the benefits of learning WISS compared to more traditional social stories tailored to each person’s specific needs with NDD. However, the findings of Daneshvar, Charlop, & Berry Malmberg (2019) are highly controversial, which compared the effectiveness of two procedures, the Activity Schedule intervention in the form of Photographs and the Social Stories Intervention, in teaching social skills to children with disabilities. “Autism Spectrum Disorders (ASD)” stated that support for its findings is inconsistent concerning social stories. More details about the articles are summarized in Table 1.

4 DISCUSSION

One of the main symptoms of children with autism is difficulty in social communication. The kind of social communication problems include difficulty understanding what is happening in their environment, difficulty understanding instructions, difficulty expressing wants and needs, difficulty using and understanding language so that they often use behavior as a form of communication to express basic needs. The same thing was also conveyed by Skinner (1957). Paul (2012) said that all behaviors are crying, hurting yourself, snatching, eye contact, smiling, and using pictures or symbols, and others, which are as a result of communication. The judgment is needed to find the trigger or antecedent “what caused the behavior to occur?”, “why did this behavior occur?”. and “how to solve it?”.

PECS is one of the media and a method for analyzing behavior and understanding and developing language or verbal behavior more positively. PECS was first initiated to change complex behavior and form positive behavior to develop expressive communication using symbols or verbal in children with autism, sentence structure, and language stimulation. PECS consists of six phases that show the process of practicing the communication of these behaviors to form and develop positive behavior, which is communication, both verbally and or through images with a better structure if able to reach that stage. Each phase in PECS is adjusted to the progress of each child and the stimulus is given. Moreover, then children understand what to do if they want to get what they like. This exercise is based on Skinner’s theory of operant conditioning (Bondy & Frost, 2010 in Thiemann 2020).

A social story is a teaching media that can be integrated into the learning process at school and home, especially for children with autism. So special education schools can use social media stories to develop social and communication skills (Riga, Ioannidi, & Papayiannis 2020). It can only be done if children with autism have successfully passed the PECS protocol. Meanwhile, listening to a good understanding requires a good one. At the same time, receptive communication is the basis for development of expressive communication (Breitenbach, Armstrong, & Bryson 2013). The social stories using technology can be a choice for behavior and communication development in educational interventions so that children can gain an accurate understanding of social situations, development of independence, and adjustment of new behaviors.

The Aided Language Stimulation (ALS) is also used to develop vocabulary and sentences in children with autism. This method also provides benefits for developing receptive communication in understanding words through pictures, objects, and actions by imitating communicators according to relevant situations simultaneously. So, the facilitator and communicant combine Augmentative and Alternative Communication in realistic and concrete situations. The teacher or communication partner points to the picture on the communication sheet and stimulates with words. At the same time, movement or modeling is relevant to the activity (Acheson 2016). In addition, the strategies to teach communication is using visual support based on activities in a contextual environment (Fitzgerald 1994 in Dada & Alant 2009).
Both the PECS method and the social story media have the same properties, namely the formation and development of positive social behavior and the development of receptive and expressive communication in parallel, improving structured speech skills, stimulating language or oral students in parallel their age class. Good social stories are used before the child passes the PECS protocol. Social stories refer to the effectiveness of development, both behavior and social communication. Augmentative and alternative communication (AAC) in ALS is also a communication medium used to develop receptive and expressive communication. At the same time, technology-based social stories can be used as an alternative to shape and develop social behavior and communication in children with autism. Children with autism required routine and intense personal interrelation so that social behavior and communication are formed and patterned correctly through PECS as a holistic and natural strategy and approach.

The PECS approach is recommended to be used to develop pre-cursor skills on a regular and consistent basis. Before passing the PECS protocol, use social media stories to develop social behavior and communication to develop on an ongoing basis according to the problems and needs. To develop more effective expressive communication, people can use ALS and technology-based social stories as alternative media.

REFERENCES


