Volume: 4 Issues: 27 [March, 2019] pp.115-124]
International Journal of Education, Psychology and Counseling
eISSN: 0128-164X
Journal website: www.ijepc.com

IMPROVING SCHOOL ENGAGEMENT STUDENT WITH AUTISM SPECTRUM DISORDER USING FLIP-THROUGH AND FOLLOW METHOD IN SOCIAL STORY AND VISUAL SCHEDULE

Rizka Ramadhani Savira Tatyagita[1]
Dewi Retno Suminar[2]

[1, 2] Faculty of Psychology, Universitas Airlangga (UNAIR), Indonesia.
(E-mail: [1] tatyagita25@gmail.com, [2] dewi.suminar@psikologi.unair.ac.id)

***Accepted date**: 27-01-2019*
***Published date**: 08-04-2019*

To cite this document: Tatyagita, R. R. S., & Suminar, D. R. (2019). Improving School Engagement Student with Autism Spectrum Disorder Using Flip-through and Follow Method in Social Story and Visual Schedule. *International Journal of Education, Psychology and Counselling*, 4(27), 105-124.

***Abstract**: The aim of this study is to investigate the effectiveness of Flip-through and Follow method for students with Autism Spectrum Disorder (ASD). The research is being conducted by applying Flip-through and Follow method for students with autism to improve school engagement. School engagement is active participation of the student in the academic and non-academic area which is being assessed through behavioral, emotional and cognitive engagement. Flip-through and Follow Method is an intervention that combines social story and visual schedule. Social Story is a short story which can support individuals with autism to comprehend social situations. Visual Schedule is a visual representation of a daily agenda or a sequence of task or activity to be followed. The visual schedule will be tucked in the story as the social story ads information about why they should behave appropriately during school activities. This research is conducted using multiple baseline designs across conditions. The participant in this research is an elementary school-aged child, diagnosed with mild autism, having difficulties engaging with school activities and able to communicate verbally. The data will be collected using an observation form written by the author adjusted for school engagement for a student with autism. Data will be analyzed using a descriptive statistic and Wilcoxon T-Test. The result shows that Flip-through and follow method is not entirely effective in improving school engagement. Flip-through and follow is effective in improving engagement in classroom learning activities and scout activities, however flip-through and follow is less effective in improving physical education activity.*

***Keywords:** Autism, Social Story, Visual Schedule, School Engagement*

A Brief Overview of Autism

Autism is a neurodevelopmental disorder that is commonly called Autism Spectrum Disorder. Autism usually emerges in the first three years of life and the cause of this disorder is still unknown but genetic factor seems to contribute to this disorder (Poliakova & Palkhivala, 2008). The number of autism spectrum disorders increased for over the past two decades. According to the data in UNESCO, throughout the world, the prevalence of individual with autism in 2011 is 6 out of 1000. Whereas according to the data in U.S Centers for Disease and Control Prevention (CDC), 1 out of 88 American children are identified with autism. This is a ten-fold increase in prevalence over the past 40 years (Autism Speaks, 2012). In Indonesia, cases of autism have increased. In 2015 According to a pediatrician named Widodo Judarwanto, it is estimated around 12.800 children with autism and 134.000 children with autism spectrum disorder in Indonesia (Jumlah Penderita Autis di Indonesia, 2015).

Autism Spectrum Disorder is a neurodevelopmental disorder characterized by difficulties in social interaction and social communication across multiple contexts as well as restricted, repetitive patterns of behavior, interests or activities. Students with autism spectrum disorder show inflexibility and compliance with certain routines that can lead to difficult behavior when making a transition. The tendency to bring up problematic behavior during transition can cause difficulties for students with autism and for their immediate environment, such as teachers and friends (Lequia et al., 2015). Problematic behavior that is usually shown by students with autism when making a transition is disobedient behaviors, being aggressive towards teacher or other students or even tantrum to avoid changing activities. Of course, these problematic behaviors are a challenge for classroom teachers because they can reduce the time for giving instruction in the classroom (Sterling-Turner & Jordan, 2007).

The major difficulty for students with autism is being actively engaged with their environment (Simpson & Myles, 1998 in Leach & Duffy, 2009). Students with autism have difficulties in following, initiating and interacting with their environment which cause them to lose the opportunity to learned (Dunlap, 1999). The researcher has observed the inclusive school which accepts students with autism and the results of the observation shows that the school does not provide facilities which can support students with autism to actively engage in class and teaching them appropriate behavior during a school activity. The results of the observation data are not accordance with the General Guidelines for Implementing Inclusive Education in Indonesia (2007) which state that materials, teaching techniques or equipment and / or special facilities are needed. Therefore, a strategy that is efficient and direct is needed to accommodate students with autism, so they can be actively engaged and received positive outcome in learning (Salvia & Ysseldyke, 2003 in Hart & Whalon, 2008). Strategies that could be implemented to support students with autism in school are social story and visual schedule.

Definition of Social Story

Social story is a short story that contains instructions and appropriate responses that must be done in a significant social situation (Gray, 2002 in Bozkurt & Vurant, 2014). Social stories are usually implemented for individuals with autism spectrum disorder and are designed to provide new information that must be learned or to understand a different social situation, so they can function better in their environment (Gray & Garand, 1993 in Bucholz, 2011). A social story are short stories that are individual in nature and consists of two to five sentences that describe the conditions in which behavior occurs, the individuals who are involved and the appropriate behavior that must be done. If applied in an educational environment, social stories can be used as a way to improve the skills needed in a general education. The skills needed are raising hands

to ask or answer a question, contributing in a class discussion and accept changes in a routine (Hart & Whalon, 2008).

Definition of Visual Schedule

Visual schedule is an intervention used by individual with autism which helps them to follow a routine, making transition from one activity to another activity, to develop new skills and to reduce dependency to caregivers during daily activities. Visual schedule consists of a sequence of activities and is presented in photograph, video, line drawings, symbols, writing or any other visual forms to show a student what must be done. The pictures are organized into sequence according to the orders that must be done (Havlik, 2017). Visual schedule is a form of structured teaching to provide information about a sequence of activities. Schedules may also contain other essentials information such as who to work with, what changes occur in that particular day, etc. Moreover, schedules could also provide reminders and rules for individuals with autism about appropriate behaviors. It is suggested that reminders could decrease verbal prompts (Howley & Arnold, 2005).

The Purpose of the Study

The aim of this research is to investigate the application of social story and visual schedule to improve school engagement of student with autism spectrum disorder. School engagement is an active participation in academic and non-academic activities. The aspects of school engagement consist of behavioral engagement, emotional engagement and cognitive engagement. Behavioral engagement is an involvement in a form of participation such as being involved in academic and non-academic activities (extracurricular activities) and is considered to be crucial thus to produce positive academic results. Emotional engagement includes positive and negative reactions towards teachers, classmates, schools that are associated with the willingness to complete academic tasks. Cognitive engagement is a form of effort to understand an idea and master a difficult skill (Fredricks., et all, 2004).

The researcher intends to combine social story and visual schedule to improve school engagement on students with autism spectrum disorder. The combination of social story and visual schedule is called flip-through and follow method and this method is developed by the researcher. Flip-through is a synonym of the word read and follow is a synonym of the word understands. In combination it has a meaning when a child with autism read the social story and the visual schedule, the child is expected to read, understand and follow the given information. The intention to combine social story and visual schedule together relates to the characteristics of individuals with autism which experience difficulties in social interaction causing them to experience challenges in behaving appropriately. Furthermore, individuals with autism have strength in memory and the ability to use information visually (Janzen, 2003 in Schneider & Goldstein, 2010). Instead of using auditory processes, individuals with autism are able to use information meaningfully when presented in a visual form. When learning a routine, if the steps are presented in a clear order, individuals with autism could follow a routine (Schneider & Goldstein, 2010).

Social story serves as a source of information for student with autism on how to behave appropriately during school activities. Another characteristic of individual with autism is inflexibility to routines and difficulty in making transitions during activities. Visual schedule serves as a complementary strategy which contains the daily agenda so as to help them in making transition in activities. It also serves as a reminder which is expected to decrease verbal

prompts. Visual schedule will be attached at the front page of the social story as a school agenda and will also be tucked inside the social story.

Method

The effect of flip-through and follow method was evaluated using multiple baseline design across conditions. Intervention was initiated under three different conditions. The conditions referred to in this design can be in the form of time dimensions, activities, teaching models, places, etc. (Koening & Ross, 1991 in Sunanto, et al., 2005). This design only measures one target behavior in one participant to at least three different conditions. The three different conditions in this research are classroom learning activities, scout activities and physical education activities.

The participant in this research is an eight-year-old elementary child, diagnosed with mild autism, is not yet able to engage in school activities and is able to communicate verbally. The participant was assessed using Childhood Autism Rating Scale and DSM V Checklist by the researcher. Based on the assessment results, he has limited vocabulary, able to communicate verbally by saying one to two words but still has remnants of echolalia. He is able to comprehend simple instructions being given to him, but the instructions must be given once at a time. During lessons in class, he needs pretty much verbal prompts to do his work, to stay on his seat and to take out his books. In physical education lesson, he often does not want to join with the ongoing activities and likes to walk around the field or buy food in the school cafeteria. In scout activities, he often needs to be reminded to follow the instruction and to join the ongoing activity.

A partial interval time sampling observation form was designed by the researcher to assess the school engagement on student with autism spectrum disorder. There were six to seven target behaviors being measured in the observation form. The three activities (classroom learning activity, physical education and scout activity) have different but similar target behaviors. During data retrieval, the researcher was assisted by college colleagues. Reliability was collected during baseline and intervention phase and was calculated by dividing number of agreements by the number of agreements plus number of disagreements. According to Sattler (2002) consider a percentage agreement of 80% or above as satisfactory.

Table 1. Interobserver Agreement Classroom Learning Activities

Baseline1	Baseline 2	Baseline 3	Intervention 1	Intervention 2	Intervention 3
93.33%	86.67%	80%	93.33%	86.67%	80%

Table 2. Interobserver Agreement Scout Activities

Baseline1	Baseline 2	Baseline 3	Intervention 1	Intervention 2	Intervention 3
80%	93%	80%	86.67%	86.67%	86.67%

Table 3. Interobserver Agreement Physical Education Activities

Baseline1	Baseline 2	Baseline 3	Intervention 1	Intervention 2	Intervention 3
86.67%	86.67%	86.67%	100%	93.33%	100%

During baseline, the participant engages in the regular school activities. During intervention, an educational psychologist helped with the process of implementing the flip-through and follow method. The visual schedule in the flip-through and follow method was read to the participant and continued by reciting the social story. The participant was then asked questions relevant to the stories being read. Afterwards, the participant was asked to do a role-play based on the social story being read. There were three different social stories being read to the child each week. Social story was read prior to the three activities (classroom learning activity, physical education and scout activity). After reading the story, data was collected to see the effect of the intervention on the participant.

Results

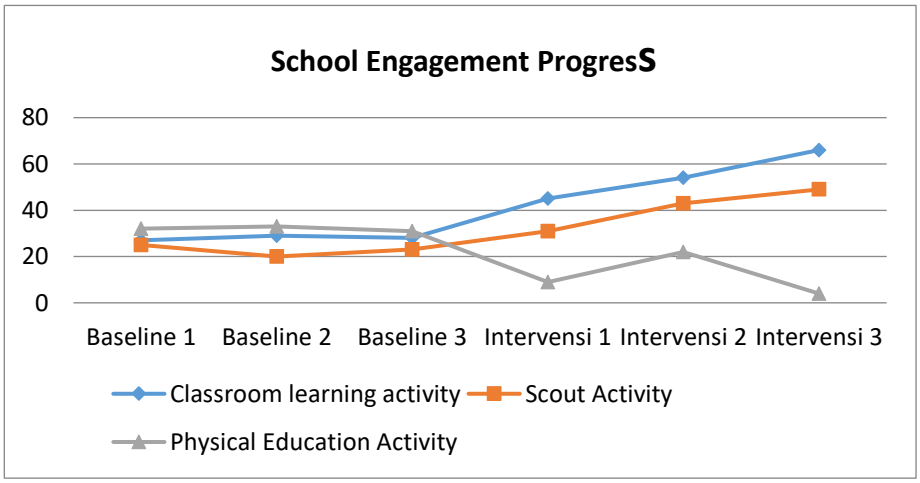

Figure 1: School Engagement Progress

Data collection was conducted from baseline stage to the intervention stage. In classroom learning activities the graph shows a tendency to increase gradually. In addition, there is also a tendency to increase gradually in scout activities. But for physical education activities, the direction of the graph shows a stable line in the baseline phase, but there is no improvement such as in classroom learning activities and scout activities. After being given an intervention in physical education activities, it showed lower results compared to the baseline phase. Based upon the three activities mentioned above (classroom learning activities, scout activities and physical education activities) it can be seen that the classroom learning activities showed considerable increase.

The descriptive statistic results showed an improvement in two school activities which are classroom learning activities and scout activities. In classroom learning activities, in the baseline phase, the score ranges from 27-29. After intervention the score increases. In the first session of intervention the score is 45, the second session of intervention the score is 54 and the

third session of intervention the score is 66. In scout activities, in the baseline phase the score range from 20-25. After intervention the score increases. In the first session of intervention the score is 31, the second session of intervention the score is 43 and the third session of intervention the score is 49. The score of intervention results only occur in two activities only. In physical education activities, in baseline phase the score range from 31-33. After intervention, the score is unstable and decreases. In the first session of intervention, the score is 9, the second session of intervention the score is 22 and the third session of intervention the score is 4.

The researcher also analyzed the data by conducting a different test using The Wilcoxon T Test. The results showed there is a significant difference before and after intervention in classroom learning activities $p = 0.001$ ($p < 0.05$). There is also a significant difference before and after intervention in scout activities $p = 0.001$ ($p < 0.05$). Whereas in physical education activities also showed significant difference before and after intervention $p = 0.001$ ($p < 0.05$) but the significant difference is caused by the intervention score is lower than the baseline score.

Discussion

Based on the statistical analysis, flip-through and follow method is not entirely effective in improving the three activities in school engagement. Flip-through and follow is only effective in improving classroom learning activities and scout activities but less effective in improving physical education activities.

So far there has not yet been a research that examines school engagement on students with autism spectrum disorder. However, there are previous researches that explore engagement on students with autism spectrum disorder through a social story intervention. The significance difference in classroom learning activities and scout activities is correspondence with the research conducted by Cihak., et all (2012) which stated social story could improve task engagement on student with autism spectrum disorder. Furthermore, a research conducted by Ozdemir, et al (2008) also stated social story could also improve social engagement on students with autism spectrum disorder.

A supportive teacher is one of the supporting factors which cause improvement in engagement. The quality of relationship with teacher is an essential factor. Teachers can build a strong relationship by showing a caring and considerate attitude (Fredricks, 2011). In classroom learning activities, the homeroom teacher and the special needs teacher showed a caring attitude towards the child by giving him guidance during learning in class. In scout activities, the coach also gives attention to the child.

The second supporting factor is positive relationship with peers. Each morning before the class begins, the homeroom teacher always reminds the students in the class to establish a positive attitude towards other students such as apologizing when a student did something that upset other student. The homeroom teacher also asked the other students in class to give attention to the child (the participant) by giving him constant reminders when he has not done something that is expected by teachers. For example, during scout activities, his classmate helped him when he experienced difficulty when the coach asked him to fix his shirt collar. Peers can provide reinforcement and encourage a positive attitude towards school (Fredricks, 2011).

The third supportive factor is adequate management and structured classroom. There is a seating arrangement in the classroom and the child is seated in the front groups. The special need

students which require extra guidance are seated together in the front group of the class. This seating arrangement helps the homeroom teacher gives attention to the special need students. The homeroom teacher and the special needs teacher always give consistent attention, guidance and reminders to the child. Moreover, the homeroom teacher also consistently applies written regulations and applies consequences to students who violate these regulations. Teachers who have clear expectations and provide consistent responses leads the students to understand what are expected (Fredricks, 2011).

In physical education activities, the teacher did not show supportive attitudes towards the child which leads to no improvement in engagement even though intervention had been given. Besides that, physical education is an outdoor activity which has many distractions that interferes with the child's concentration in following the activity such as the noise of other students who are also doing activities outside the classroom. During outdoor activities, the child can move unimpeded which cause him refusing in participating physical education activities. Students with ASD have deficits in emotional regulation, which is the ability to regulate emotion to meet the learning demands (Sparapani., et al, 2016). Deficits in emotional regulation cause the students with ASD to experience challenges in regulating their internal states for optimal levels of learning in class (Laurerent & Rubin, 2004; National Research Council, 2001 & Prizant., et al, 2006 in Sparapani., et al, 2016). It also causes difficulties tuning out irrelevant information and focusing on classroom content (Conor., et al, 2010; Ponitz., et al, 2009 & Sektnan., et al, 2010 in Sparapani., et al, 2016). All of this refers to executive function deficit which is one of the information processing theories in individuals with ASD. Children with ASD have deficits in planning and managing their behavior (Russell, 1997 in Mash & Wolfe, 2016).

Another factor underlying the cause of absence improvement in engagement in physical education activities besides unsupportive teacher is an abnormal brain development in children with ASD. Based on previous research, it has been identified there is an abnormal brain structure in the cerebellum area and in the medial temporal lobe area as well as the structure of the limbic system (Bauman & Kemper, 2005; Courchesne, et al., 2007 in Mash & Wolfe, 2016). The cerebellum, which is a part of the brain that is quite large and located near the brain stem, is often associated with motor movements. In addition, the cerebellum also plays a role in regulating emotions, language, executive functions, and the process of learning, thinking and attention (Hodge et al., 2010 in Mash & Wolfe, 2016). It was argued that abnormalities in the cerebellum area were the underlying factor that children with ASD had problems in shifting attention quickly from one stimulus to another (Courchesne, et al., 2007 in Mash & Wolfe, 2016).

Another brain abnormality also occurs in the medial temporal lobe area and the connected limbic structure system area such as the amygdala and the hippocampus (Groen, et al., 2010; Johnson, et al., 2013; Schumann & Amaral, 2009 in Mash & Wolfem 2016). The brain area is associated with functions that interfere with children with ASD, such as learning, memory and emotional regulation (Mazefsky et al., 2013 in Mash & Wolfe, 2016). Amygdala has an important role in recognizing emotions that are significant to a stimulus, oriented to social stimulus, perceptions on the direction of eye gaze along with the hippocampus which serves to store long-term memory (Schulkin, 2007 in Mash & Wolfe, 2016).
Participation and engagement in performing school activities is a form of social situation that requires social interaction ability and there are several transitions in school activities thus social story and visual schedule are implemented and is called flip-through and follow methods.

Social story helps to give comprehension on how to behave appropriately in a social situation due to a deficit in social interaction in individual with ASD. Visual schedule gives information about the day agenda and helps in making transition for individual with ASD. Flip-through and follow method is implemented as a strategy of learning support to improve engagement in school. However, this intervention will not be effective without the role of a supportive teacher. Moreover, students with ASD also require directive instruction from adults. This aims to overcome the difficulties of attention and interactions found in children with ASD (Watson, 1998).

Conclusion

Based on the results, it can be concluded that flip-through and follow method is not entirely effective in improving school engagement in the three activities. Flip-through and follow is only effective improving the engagement of classroom learning and scout activities but less effective in physical education activities.

Limitations of Research

There were several difficulties found during data retrieval in this research which becomes the research limitations. Firstly, the researcher had difficulties obtaining a stable data. The baseline data for the third and second condition preferably should be more than three. Secondly, the participant had quite difficulties in understanding the sentences used in the social story and the questions being given thus needs to be repeated in a much simpler words. Thirdly, the data could only record the target behaviors during observation session but not the participant's entire behavior form the start to the end of the activities. Fourthly, not all intervention session could be conducted in the laboratory room at Faculty of Psychology in Airlangga University due to the refusal of the participant in this study. Therefore, intervention session was sometimes conducted in the school area in a less conducive condition. Fifthly, the time lag between the intervention process and the observation process after the intervention had been implemented. In physical education and scout activities, the intervention process was conducted one day before the activities. Those two activities were in the first period of the school lesson, whereas for scout activities, in the first period the participant had a pull-out session from the class by the special need's teacher.

Future Directions

For those who are willing to do a similar research about school engagement in children with ASD, there are several suggestions needs to be addressed. Firstly, a strict control for the baseline and intervention conditions by minimizing distractions. This aims to obtain a stable data in the baseline and intervention phase. Secondly, the sentences and the questions given in the social story should be suited accordance to the language ability of the participant in the study. Thirdly, the social story preferably implemented approximately an hour before the child engages in an activity. This aims to get optimum results of the intervention. Fourthly, a variety of school activities can be observed other than classroom learning, scout and physical education activities. This aims to obtain a wide range of data on the research. Fifthly, an expansion could be made in implementing the flip-through and follow methods in order to obtain more effective results in improving school engagement for children with ASD.

References

About Autism (2012). *Autism Speaks* [on-line]. Accessed on 8th Desember 2017 from http://www/autismspeaks.org

Bozkurt, S.S. & Vuran, S. (2014). An Analysis of the Use of Social Stories in Teaching Social Skills to Children with Autism Spectrum Disorders. *Educational Sciences: Theory and Practice, 14, 1875-1892.*

Bucholz, J.L. (2012). Social Stories for Children with Autism: A review of the Literature.

Cihak, D.F., Kildare, L.K., Smith, C.C., McMahon, D.D. & Quinn-Brown, L. (2012). Using Video Social Stories to Increase Task Engagement for Middle School Students with Autsim Spectrum Disorders. *Behavior Modification,* 36, 399-425.

Direktorat Pembinaan Sekolah Luar Biasa, Direktorat Jenderal Manajemen Pendidikan Dasar dan Menengah, Department Pendidikan Nasional. (2007). Model Pembelajaran dan Pendidikan Penyelenggaraan Pendidikan Inklusif: *Pedoman Umum Penyelenggaraan Pendidikan Inklusif.*

Dunlap, G. (1999). Consesnsus, Engagement and Family Involvement for Young Children with Autism. *The Association of Persons with Severe Handicaps,* 24, 222 – 225.

Fredericks, J.A., Blumenfeld, P.C. & Paris, A.H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research,* 74, 59 – 109.

Fredricks, J. (2011). Engagement in School and Out-of-School Contexts: A Multidimensional View of Engagement. *Theory into Practice,* 50, 327-335.

Hart, J.E. & Whalon, K.J. (2008). Promote Academic Engagement and Communication of Students with Autism Spectrum Disorder in Inclusive Settings. *Intervention in School and Clinic,* 44, 116-120.

Havlik, K. (2017). *Visual Schedule: A Practical Guide for Families.* University of Utah, School Psychology Program.Howley, M. & Armold, E. *Revealing the Hidden Social Code: Social Stories for People with Autistic Spectrum Disorders.* London: Jessica Kingsley Publishers.

Jumlah Penderita Autis di Indonesia (2015, 6 Spetember). *Klinik Autis* [on-line]. Accessed on 16th Desember 2017 from https://klinikautis.com/2015/09/06/jumlah-penderita-autis-di-indonesia/

Leach, D & Duffy, M. L. (2009). Supporting Students with Autism Spectrum Disorders in Inclusive Settings. *Intervention in School and Clinic,* 45, 31 – 37.

Lequia, J., Wilkerson, K.L., Kim, S., & Lyons, G, L. (2015). Improving Transitions Behaviors in Student with Autism Spectrum Disorders: A Comprehensive Evaluation of Interventions in Educational Settings. *Journal of Positive Behavior Interventions,* 17, 146 – 158.

Mash, E.J., Wolfe, D.A. (2016). *Abnormal Child Psychology.* (6th .ed.). Boston: Cengage Learning.

Ozdemir, S., Universitesie, S., Fakultesi, G.E. & Bolumu, O.E. (2008). Using Multimedia Social Stories to Increase Social Engagement in Young Children with Autism. *The Turkish Online Journal of Educational Technology,* 7, 80-88.

Poliakova, N. & Palkhivala, A. (2008, Spring). Social Impairment in Children with Autism Spectrum Disorder. *Canadian Council on Learning.*

Schneider, N & Goldstein, H. (2010). Using Social Stories and Visual Schedule to Improve Socially Appropriate Behaviors in Children with Autism. *Journal of Positive Behavior Interventions,* 12, 149-160.

Sparpani, N., Morgan, L., Reinhardt, V.P., Schactschneider, C & Wetherby, A.M. (2016). Evaluation of Classroom Active Engagement in Elementary Students with Autism Spectrum Disorder. *Journal of Autism Developmental Disorder,* 46, 782-796.

Sunanto, J., Takeuchi, K., & Nakata, H. (2005). *Pengantar Penelitian dengan Subjek Tunggal*. University of Tsukuba, Center for Reasearch on International Cooperation in Educational Development (CRICED).

Sterling-Turner, H.E. & Jordan, S. S (2007). Interventions Addressing Transition Difficulties for Individuals with Autism. *Psychology in the Schools*, 44, 681 – 690.

Watson, L.R. (1998). Following the Child's Lead: Mother's Interactions with Children with Autism. *Journal of Autism and Developmental Disorders*, 28, 51-59.