Reflections from Applied Behavior Analysis on Inclusion of Preschool Children with Autism Spectrum Disorder

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Abstract. The most promising and positive results for autism spectrum disorder (ASD) are qualified special education services that start as one-to-one from early ages and continue in inclusion environments. The use of evidence-based interventions based on Applied Behavioral Analysis (ABA), which is recommended to be used in the education of individuals with ASD, is important for successful special education. In this context, this review study provides information about differential reinforcement, natural environmental education, activity schedules, story-based interventions, which are main interventions based on ABA in preschool environments. This review will be expected provide guidance toall practitioners, families and researchers, especially preschool teachers with children with ASD in their classroom, and suggestions for practice and further research.

Keywords: Evidence-based interventions, mainstreaming/inclusion, preschool, autism spectrum disorders, applied behavior analysis.

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1. INTRODUCTION

ASD is a lifelong special needs group that is covered under childhood neurodevelopmental disorders. ASD refers to a diagnostic group characterized by repetitive and characteristic patterns of behavior which appears as difficulties in two fields; social communication and interaction (American Psychiatric Association [APA], 2013; Motavalli Mukaddes, 2013). Difficulties in communication and interaction skills appear as; problems in social and emotional fields, issues in verbal and non-verbal behavior, difficulties in building relationships with peers, and inability to demonstrate age appropriate play skills. Symptoms in repetitive behavior, interest and activity pattern are reported as; having obsession for uncommon interests (i.e, building same forms using blocks), having certain non-functional rituals and/or routines (e.g., eating the same meal every day), demonstrating self stimulating and repetitive behavior (e.g., swinging a plastic bag on continuous basis) (APA, 2013; Güleç-Aslan, 2019; in print; Kırcaali-İftar, 2012; Motavalli Mukaddes, 2013).

American Centers for Disease Control Prevention [CDC] has identified prevalence of one in 59 for ASD, with boys are being four times more likely to be diagnosed than girls in the last report (Baio, Wiggins, Christensen et al., 2018). There is no extensive study on ASD prevalence in Turkey yet, therefore prevalence rate are not clearly identified but it is estimated to be aligned with the global rates (Çolak, 2015). There are studies conducted on the number of individuals with ASD by several organizations. Accordingly, total number of individuals with ASD is reported as 107.834 (General Directorate of Handicapped and Senior Services, 2019). On the other hand, Ministry of National Education (MoNE) reported 2.407 students with ASD who are attending to inclusive education. Number of children with ASD and attending to inclusive education with their peers in preschool institutions is reported to be 1.224 (Ministry of National education [MoNE], 2018; Tohum Autism Foundation, 2019).

In the field of highly prevalent ASD, it is of utmost importance to identify individuals with ASD symptoms at the ages as early as possible, and provide them with special education services even if they do not meet all the criteria for ASD in early ages for any development to be attained by these children (Diken, 2008; Güleç-Aslan, 2017, 2018, 2019; in print; Kırcaali-İftar, 2012; Nadel ve Poss, 2007; Tohum Autism Foundation, 2017). Therefore, for the success of these services, it is important that special education are based on the ASD-specific curriculum, contain evidence-based interventions and ensure parental involvement. Additionally, since providing education to individuals with ASD in inclusive environments is one of the primary objectives of special education offered for those children, education should start as one-on-one basis in separated environments and should be planned gradual transition to inclusive preschool environments These environments where children find the opportunities to learn through observing peers and practice their learning from one-on-one environments play an important role in terms of ASD individuals to overcome difficulties, live as independent as possible, and for their progress (Güleç-Aslan, 2019; Lindsay, Proulx, Scott, & Thomson, 2014; Mastropieri &

Scruggs, 2004; Richardson-Gibbs & Klein, 2014; Sucuoğlu & Bakkaloğlu, 2018). In review of educational environments where individuals with ASD receive education in Turkey, some of these individuals are found to be getting education in separated environments while others are getting education in inclusive environments. To this end, preschool education is mandatory for all children with special needs aged between 37-72 months in the early childhood. Based on educational assessment and placement studies conducted by Guidance and Research Centers (GRCs) operating under the body of Ministry of National Education (MoNE), children who meet the criteria for education in inclusive environments by GRCs are directed to those environments. Other children who are not directed to these environments are sent to Early Childhood Special Education Centers and/or other special education institutions. Children younger than 37 months old and not subject to mandatory education can get education services at home and/or at special education institutions (Güleç-Aslan, 2019; Ministry of National Education [MoNE], 2017; 2018; Sucuoğlu & Bakkaloğlu 2018).Special education services offered to individuals with ASD both in separated and inclusive environments are being conducted in line with the educational interventions based on various methods. These interventions are mentioned in the following sections.

Educational Interventions in the Field of ASD

There is a variety of educational interventions addressed for children with ASD in early childhood. Making the right decision on which one of these educational interventions to choose is important for the development of children. To this end, interventions which are identified as the main criteria in selecting educational interventions for ASD particularly in 2000s and developmental effects of which are supported by researches on the individuals with ASD are referred as 'evidence-based interventions'. Reports of National Professional Development Center on Autism Spectrum Disorders [NPDC] and National Autism Center [NAC] conducting intensive studies on evidence-based interventions and achieving matching study findings shed light on evidence-based interventions. Since their positive impacts on developments of individuals with ASD are supported by research, educators are recommended to use evidence-based interventions (Güleç-Aslan, 2018, 2019, in print; NAC, 2009, 2015; NPDC, 2014; Kırcaali-İftar, 2012; Kırcaali-İftar & Tekin-İftar, 2012; Kurt, 2012; Odom & Connie, 2015). National Autism Center [NAC], in their extensive studies, has examined the researches on practices used in education of individuals with ASD in two stages. Accordingly, 775 researches conducted between the years of 1957-2007 are reviewed as part of the first stage, while 378 researched conducted between the years of 2007-2012 are reviewed as part of the second stage, and reports are issued based on those reviews. Information on practices considered within evidence-based category and research findings are detailed in reports for the both stages (Güleç-Aslan, 2018, 2019; in print; NAC, 2009, 2015). Research findings included in those reports (NAC, 2009, 2015) (e.g., Angell, Nicholson, Watts, & Blum, 2011; Anson, Todd , &Cassaretto, 2008; Asaro-Saddler & Saddler, 2010; Cotugno, 2009; Kasari, Gulsrud, & Wong, 2010; Kurt & Tekin-Iftar, 2008; Luiselli, Ricciardi, Schmidt, &Tarr, 2004; Lydon,

Healy, & Leader, 2011; Wong & Kwan, 2010) indicate that individuals with ASD demonstrate developments in the fields of social, communication, academic, motor, play, transition and self-management skills. Furthermore, findings (e.g., Anderson & Le, 2011; Blair, Lee, Cho, & Dunlap, 2011; Britton, Carr, Landaburu, & Romick, 2002; Hung & Smith, 2011; Massey & Wheeler, 2000; Mechling, Gast, & Cronin, 2006; Sidener, Carr, & Firth, 2005) provided in these reports (NAC, 2009, 2015) state that evidence-based interventions eliminate or otherwise decrease behavioral issues among these individuals. The reports prepared based on the researches reviewed in studies of National Autism Center [NAC] state that 14 practices are evidence-based interventions (NAC, 2009, 2015). These practices are namely behavioral interventions, cognitive behavioral intervention package, comprehensive behavioral treatment for young children, language training (production), modeling, naturalistic teaching strategies, parent training package, peer training package, pivotal response treatment, activity schedules, scripting, self-management, social skills package and story-based interventions. Majority of these evidence-based interventions are based on behavioral theory principles and/or applied behavior analysis (ABA) which is an educational approach mainly based on behavioral theory (Güleç-Aslan, 2018; 2019; in print; Kırcaali-İftar &Tekin-İftar, 2012; Kurt, 2012; NAC, 2015; Tohum Autism Foundation, 2017). In addition to aforementioned evidence-based interventions, these reports also identifies 18 interventions as emerging interventions (NAC, 2009, 2015). Emerging interventions are those which have some scientific research evidence of their effectiveness but not yet have enough scientific basis to be included in the category of evidence-based interventions. It is highlighted that these interventions may have adequate scientific basis in the light of future research findings, and once provided with such basis, they may be reliably used in education of individuals with ASD (Kurt, 2012; NAC, 2009, 2015; Odom & Connie, 2015). Hence, in the first stage study report of NAC, some of the interventions included in the category of emerging interventions (e.g. cognitive behavioral interventions package) for the first stage appears to have transited into evidence-based interventions category in the second stage study report by providing with sufficient scientific basis in the following years. Emerging interventions are namely, augmentative and alternative communication devices, developmental relationship-based treatment, exercise, exposure, functional communication training, imitation-based interaction, initiation, language training (production and understanding), massage therapy, multi-component package, music therapy, Picture Exchange Communication System, reductive package, sign instruction, social communication intervention, structured teaching, technology-based intervention and theory of mind training (Güleç-Aslan, 2018, 2019; Kırcaali-İftar & Tekin-İftar, 2012; Kurt, 2012; NAC, 2009, 2015; Odom, Collet-Klingenberg, Rogers, & Hatton, 2010). In conclusion, the fact that evidence-based interventions have positive changes on individuals with ASD is stated in scientific reports (NAC, 2009, 2015). Since the evidence-based interventions are based on ABA fully or from certain aspects, use of ABA interventions in education provided to individuals with ASD both in separated and inclusive environments has vital importance (Güleç-Aslan, 2019, in print; Kırcaali-İftar &

Tekin-İftar, 2012; Kurt, 2012; NAC, 2009, 2015; Odom & Connie, 2015; Simpson, 2004). Accordingly, providing special education services that include evidence-based ABA interventions that start on a one-to-one basis in early childhood and continue in inclusive settings in preschool institutions can improve the development of these children (Lindsay, Proulx, Scott, & Thomson, 2014; Eldar, Talmor, & Wolf-Zukerman, 2010; Grossi-Kliss, 2006; NAC, 2015). Henceforth, educators' knowledge and skills about ABA methods, that is professional competence in such methods, is a crucial element in offering ABA (Grossi-Kliss, 2006; Scheuermann, Webber, Boutot, & Goodwin 2003; Simpson, 2004). There are limited number of studies found on knowledge and skills of educators in preschool institutions. Lian, Ying, Tean, Lin, Lian and Yun (2008) have conducted a quantitative study with 503 preschool teachers working in classrooms where children in developmental disorders are present. Findings of this research indicated that teachers are lacking knowledge about special education, inclusion and interventions. Furthermore, it was stated that those teachers needed training. In another qualitative research, perceptions of three preschool teachers towards inclusion for children with ASD. Findings indicated their lack of knowledge and skills for about the ASD methods (Razali, Toran, Kamaralzaman, Salleh, & Yasin, 2013). In another study, knowledge of preschool teachers (N=471) on ASD is examined quantitatively. Results demonstrated that teachers have insufficient knowledge on evidence-based interventions, and they needed training (Liu, Li, Zheng, Zaroff, Hall, Li & Hao, 2016). Although findings of limited number of researches conducted with preschool teachers having experience with ASD children in Turkey do not contain direct results pertaining to evidence-based interventions and ABA, these researches emphasize teachers' lack of knowledge and skills on ASD in general and inclusion of children with ASD. In a qualitative study carried out by Yazıcı and Akman (2017), opinions of 20 preschool teachers on inclusion of children with ASD are taken. Research findings indicated that majority of the teachers believed in benefits of inclusion, and some of the teachers wanted to have children with ASD in their classrooms. The teachers who did not wish to have children with ASD in their classrooms explained that they didn't have any ASD experience and knowledge about interventions. In another qualitative study, knowledge of preschool teachers on ASD is examined. Total of 270 preschool teachers, branch teachers and assistant teachers filled out forms that include questions about ASD. Findings indicated that participants didn't have sufficient knowledge on ASD and inclusion, and they needed in-service training (Er-Sabuncuoğlu, 2016). In a qualitative study, opinions of 26 teachers working in classrooms with ASD children at preschool institutions on inclusion are examined. Findings revealed that teachers didn't have sufficient knowledge on inclusion, and particularly teachers with negative opinions on inclusion needed to acquire knowledge (Bozarslan & Batu, 2014). The findings of another qualitative study indicated that teachers needed to increase their knowledge and skills about ASD as well as in-service trainings (Özaydın & Çolak, 2011).

In the light of these information, providing education that employs ABA methods as part of evidence-based interventions in inclusive environments to preschool children with ASD plays a significant role in development of these children (Lindsay et al., 2014; Grossi-

Kliss, 2006; NAC, 2015). Accordingly, teachers of these children should acquire knowledge on ABA methods in order for them to offer ABA education (Scheuermann et al., 2003; Simpson, 2004). However, literature emphasize preschool teachers' need to acquire knowledge and skill on teaching children with ASD, inclusive environments, evidence-based interventions and ABA (e.g., Lian et al., 2008; Razali et al., 2013). Thus, this study containing explanatory information, examples and researches on ABA and particularly in preschool inclusive practices is carried out to guide preschool teachers. In particular, considering that preschool teachers receive limited amount of lessons on special education and inclusion throughout their undergraduate programs and there are no classes dedicated to ASD in undergraduate programs (Rakap, Balikci, Parlak-Rakap, & Kalkan, 2016; YüksekÖğretimKurulu [YÖK], 2018), information contained in this research can be a source to provide information regarding ABA methods as an evidence-based intervention for teachers. Additionally, this review study is expected to given an idea on ABA to all practitioners working with ASD children and the parents, and serve as a guidance on the implementation. Accordingly, purpose of this study is to provide explanatory information about ABA and basic ABA methods used in teaching and behavior changing processes at preschool as well as to provide recommendations for practitioners and researchers. To this end, general use of ABA in ASD field is examined, and followed by basic ABA principles and methods widely employed in preschool institutions.

ABA and ASD

ABA, an approach based on behavioral psychology and built on principles of operant conditioning in particular, aims behavioral changes through modification of environmental events associated with the behavior (Boutot & Hume, 2012; Tekin-İftar, 2014; Trump et al., 2018). ABA is an evidence-based intervention that has been long used to increase appropriate behaviors and decrease negative behaviors among individuals with ASD (Boutot & Hume, 2012; Kurt, 2012; Tekin-İftar, 2014). There are focused ABA interventions for teaching a specific skill to individuals with ASD and comprehensive ABA interventions that incorporates different focused interventions to teach various skills. Discrete trial teaching (DTT) and activity schedules can be given as an example for focused interventions; early intensive behavioral intervention (EIBI) can be given as an example for comprehensive practices (Güleç-Aslan, 2019; in print; Kırcaali-İftar & Tekin-İftar, 2012; Kurt, 2012; Kurt & Subaşı-Yurtçu, 2017; Odom, Collet-Klingenberg, Rogers, & Hatton, 2010).

ABA in Inclusive Practices for Preschool Children with ASD

ABA is used in inclusive environments at preschool institutions for development of children with ASD in the field of skills that challenges their inclusion into inclusive environments at preschool institutions as well as for reduction of problem behaviors. In the following sections of the study, information on differential reinforcement, naturalistic teaching strategies, activity schedules and story-based interventions widely used in preschool institutions are provided (Kırcaali-İftar & Odluyurt, 2012; NAC, 2015; Sucuoğlu, 2012; Trump et al., 2018).

Differential Reinforcement

Differential reinforcement is one of the widely used methods in the process of reducing or eliminating behavioral problems and/or increasing proper behavior to children with ASD (Olçay-Gül, 2014; Sucuoğlu, 2010; Trump et al., 2018). To this end, it is important to carry out functional assessment that is the first step in all behavior changing plans, before appliying differential reinforcement. Because the very basic step in dealing with problem behaviors and gaining proper ones is the functional assessment. Functional assessment is a decision-making process for behavior intervention plan and data collection carried out to identify causation of a behavior demonstrated by the individual. Accordingly, functions of behavioral problem are identified through a variety of methods such as interview, observation and behavior assessment scales. After the function of the behavior has been determined, the most effective method is identified, and a behavior intervention plan is implemented (Cooper, Heron, & Heward, 2007; Sucuoğlu, 2012; Trump et al., 2018). Since the intervention is not based on punishment but based on reinforcement of the individual's appropriate behavior, the primary method recommended for use in behavior intervention plans is differential reinforcement. Although there are various types of differential reinforcement, the main two principles in all are reinforcing the appropriate behaviors and withholding reinforcement of the inappropriate behavior. In day-to-day life, individuals learn behaviors through differential reinforcement based on discrimination between which behaviors are accepted and reinforced, and which behaviors will be omitted and receive no reinforcement (Akmanoğlu, 2012; Alberto & Troutman, 2009; Olçay-Gül, 2014; Sucuoğlu, 2010; Yücesoy Özkan, 2013; Walker, Shea, & Bauer, 2007). Differential reinforcement is often used with extinction. Extinction includes giving no reaction to problem behavior, in another words, giving no reinforcement to problem behavior particularly in the case of attention seeking behavior (Sucuoğlu, 2012; Trump et al., 2018). Accordingly, differential reinforcement target decreasing and extinction of non-reinforced behaviors of the individual, and emerging and/or increasing appropriate behaviors of individual by reinforcement (Olçay-Gül, 2014; Sucuoğlu, 2012). The process can be better understood with an example. A preschool teacher who reports that a child with ASD in the classroom cried during play time activities can systematically observe this behavior to identify function of the behavior. If the teacher identifies that function of the child's crying behavior is to reach the toy he/she wants to play during play time activities, teacher may teach the child an alternative method to ask for the toy (e.g. pointing out with finger) and give applaud to child or say well-done upon demonstration of this behavior. Additionally, since the child will be able to reach the toy he/she desires through appropriate behavior, there will also be a natural reinforcement process for the child.

There are several researches indicating effectiveness of this method (e.g.; Buckley & Newchok, 2005; Dixon, Benedict, & Larson, 2000; Karsten & Carr, 2009; Thompson, McLaughlin, & Derby, 2011). Some of these studies were conducted with preschool children with ASD. Allison, Wilder, Chong, Lugo, Pike and Rudy (2012) compared

effectiveness of differential reinforcement and non-contingent reinforcement methods to treat food selectivity of a child with ASD. This single subject research indicate that both methods were effective in increasing bite acceptance and reducing inappropriate behavior. Another single subject study results indicated that amount of bite and variety of food eaten by a five year old child with ASD has increased via differential reinforcement (Valdimarsdottir, Halldorsdottir, & Sigurdardottir, 2010). The other study is conducted with two children with ASD, who demonstrate the transition-related problems behaviors. The study compares the separate and combined effects of visual schedules and extinction plus differential reinforcement. Findings indicated that use of visual schedules alone was not effective in decreasing problem behaviors. Problem behavior reduced when extinction and differential reinforcement were used in combination, regardless of whether visual schedule were use (Waters, Lerman, & Hovanetz, 2009). Results of another single subject study reported that combined use of differential reinforcement and extinction has been effective in decreasing a variety of behavioral problems and increasing appropriate communication in two children with ASD (Neidert, Iwata, & Dozier, 2005).

Naturalistic Teaching Strategies

Naturalistic teaching methods widely used in the process of teaching new skills as well as generalization and maintenance. Although these strategies have different types such as random education and embedded education, they all have common basic elements. There is a child-initiated teaching process involved in naturalistic teaching methods. Accordingly, teaching begins with communication initiative of the child and not the adult. For example, if the child is to be taught 'asking for the balloon verbally' behavior, teacher presents teaching trials after the child points out or looks at the balloon. Arrangement of the setting according to the child's interests and target behavior by teacher will ease initiation of the communication by the child. For example, placing the balloon at a high level location will ease initiation of the communication by the child. Once the child looks at or points out the balloon by hand, teacher will be able to complete teaching by following the stages of employed naturalistic teaching strategy (Aldemir Fırat & Ergenekon, 2018; Diken, 2007; Güleç-Aslan, 2017, 2019).

In addition to the research findings indicating that the method is effective on individuals with special needs (e.g.; Barton & Wolery, 2010; Kasari, Freeman, &Paparella, 2006; Macy & Bricker, 2007), there are also researches conducted with preschool children with ASD. Simpson and Keen (2010) aimed teaching receptively label animal symbols three preschool children with ASD using embedded instruction. Findings of this single subject research demonstrated that children were able to learn receptively labeling task. In another single subject study findings indicated that the effectiveness of incidental teaching in teaching use of appropriate social phrases to three preschool children (McGee & Daly, 2007). Charlop-Christy and Carpenter (2000) studied effectiveness of modified incidental teaching with traditional incidental teaching and discrete trial teaching methods employed by families to increase spontaneous speaking among children with

ASD in the range of six to nine. Results of this single subject research indicated that modified incidental teaching has been more effective in increasing spontaneous speaking skills among all children. Findings of another single subject study carried out by Rakap and Balikci (2016) demonstrated effectiveness of embedded teaching used to teach a variety of functional skills to a preschool child as well as maintenance of skills. In other single subject study, it was reported that incidental teaching has been effective in teaching three preschool children to demand their lost objects verbally (Horasan & Birkan, 2015).

Activity Schedules

Activity schedules is another ABA method widely used in preschool environments. Activity schedules are used to teach skills and deal with problem behaviors. Activity schedules contain steps necessary to accomplish target behavior as well as the visual and/or word gaining to the reinforce to be attained after completing the steps. Activity schedules can be used as an intervention containing the activities to be carried out through the day to help the child guess what is going to happen on a specific day (Birkan, 2013; Heward, 2012; McDuff, Krantz & McClannahan, 1993). For example, preschool teacher can prepare a visual activity schedule illustrating the steps of making a lego car for a child to support the child in performance of the activity.

Researches conducted using schedules on various age groups indicate effectiveness of the method (e.g.; Carlile, Reeve, Reeve, & DeBar, 2013; Krantz & McClannahan, 1993). Researches carried out on preschool children with ASB also report positive effects of the methods on children. Findings of a single subject research carried out by Massey and Wheeler (2000) showed that activity schedules have been effective in acquiring various skills and reducing behavioral issues of a four years old child attending to inclusion education at a preschool institution. Findings of another single subject research reported that use of activity schedules constituted of peer interaction games has been effective in increasing peer engagement of four preschool children with ASD (Betz, Higbee, & Reagon 2008). A single subject research conducted by Çuhadar and Diken (2011) indicated that activity schedules have been effective on engaging-in the schedule skill and fulfilling the activity skills among children with ASD in the age range of four to six.

Story-based interventions

Story-based interventions target development of many skills and deal with behavioral issues among individuals with ASD (Angell, Nicholson, Watts, & Blum, 2011; Gagnon, 2001; Olçay-Gül & Tekin-İftar, 2012). Practitioner writes a story that identifies appropriate target behavior as well as what individual needs to do to carry out those behaviors (Campbell & Tincani, 2011; Gagnon, 2001; Gray, 2002; Güleç-Aslan, in-print). For example, a teacher intending to teach a preschool child to wait for his/her turn in game environment can write a story. The story should contain importance of waiting for turns as a target behavior as well as the behavior expected from the child in that respect (e.g., you can join the game when teacher says "it is your turn"). Teacher may implement the method by reading this story to the child at certain times. There are researches that

show the effectiveness of these interventions on different groups with special needs (e.g.; Daubert, Hornstein, &Tincani, 2015; Keeling, Smith Myles, Gagnon, & Simpson, 2003; Olçay-Gül & Tekin-İftar, 2016; Özdemir, 2008). Additionally, positive effects are also observed in findings of the researches carried out on preschool children with ASD. Findings of a single subject research revealed that social stories increased prosocial behaviors in four preschool children with ASD (Wright & McCathren, 2012). The results of another single-subject study by Balçık and Tekinarslan (2012) showed that social stories were effective in gaining the ability to introduce themselves, ask for help and participate in daily activities in a four-year-old child with ASD. Findings of another single subject study demonstrated effectiveness of Power Card Strategy, a story based intervention, in teaching appropriate social skills on the playgrounds for a five years old child with ASD (Spencer, Simpson, Day, & Buster, 2008).

2. CONCLUSION AND RECOMMENDATIONS

ABA which is an important factor in dealing with core difficulties and in developments of children with ASD and primarily recommended for use in special education plays a significant role in success of inclusive environments (Kırcaali-İftar & Tekin-İftar, 2012; Kurt, 2012; Kurt & Subaşı-Yurtçu, 2017; NAC, 2015; Richardson-Gibbs & Klein, 2014; Sucuoğlu & Bakkaloğlu, 2018). To this end, this study presents information and examples pertaining to ABA based differential reinforcement, naturalistic teaching strategies, activity schedules and story-based interventions with the goal of aiding preschool teachers having children diagnosed with ASD in their classrooms in particular as well as all practitioners and families (Batu, 2010; Batu & Kırcaali, 2010; Kırcaali-İftar & Odluyurt, 2012; Sucuoğlu, 2012). Moreover, research findings indicating positive effects of the intervention on preschool children with ASD are also presented in this study (e.g., Campbell & Tincani, 2011; Simpson & Keen, 2010).

This study on ABA methods of which importance in development of preschool children with ASD as well as in a successful inclusive education has been demonstrated by researches (e.g.; Campbell & Tincani, 2011; Wright & McCathren, 2012) is considered as a take off point to guide preschool teachers, specialists, families and researchers. In the light of information presented in the study, recommendations for practice environments can be listed as: (a) Necessary precautions can be taken to improve the professional competence of educators working with ASD children and especially preschool teachers on ABA principles and methods (inclusion of lessons about ABA, organizing in-service trainings, etc.), (b) Trainings on ABA can be organized for parents, (c) Exemplar guide booklets or technological materials to include ABA can be prepared, (d) Researches that examine professional competencies of preschool educators on ABA can be conducted, (e) Researches on using ABA in preschool inclusive practices can be conducted, (f) Researches to examine in-service trainings about ABA can be organized to train preschool education institution personnel and families.

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In the writing process of the study titled "Reflections from Applied Behavior Analysis on Inclusion of Preschool Children with Autism Spectrum Disorder", the rules of scientific, ethical and citation were followed; it was undertaken by the authors of this study that no falsification was made on the collected data. "Sakarya University Journal of Education Journal and Editor" had no responsibility for all ethical violations to be encountered, and all responsibility belongs to the authors and that the study was not submitted for evaluation to any other academic publishing environment.