Effective Inclusive Classroom Practices for Students with High-Functioning Autism
that Foster Positive Social and Academic Learning Outcomes

Allison Klein
Department of Psychology, Arcadia University
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Dr. Marianne Miserandino
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Inclusive Classroom Procedures for Students with High-Functioning Autism

As of 2003, approximately 27% of all children with autism spent 80% of their full educational day in general education classrooms (27th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, 2007). The number of public school children in the United States diagnosed with an autism spectrum disorder (ASD) has increased and may now be as high as 1 case per 110 students (Center for Disease Control, 2010). Autism is becoming more prevalent in public schools and because of this there is a question of whether or not these students should be included in general education classrooms.

Students on the autism spectrum are often isolated from neurotypical students in classroom settings, which can hinder their development, both academically and socially. The intended purpose of this academic isolation is to create an environment where all students are within the same level of cognitive development; however in doing so it creates a seemingly greater divide among the other students in typically developing classrooms. Given these challenges, most students with high-functioning autism require supportive educational interventions throughout their academic careers, despite their diagnosis of higher functioning abilities in reference to the autism spectrum.

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) does not subdivide the different facets of autism based on intellectual capabilities which introduces the issues associated with treating all students with autism the same and not as individuals. Autism is classified as having significant difficulty with social interaction as well as unusual patterns of behavior. This includes difficulty maintaining conversations and
eye contact as well as exhibiting stereotypical, repetitive behavior or speech (DSM-V).

Students with High Functioning Autism Spectrum Disorder (HFASD) are more commonly included in the neurotypical classroom setting. Individuals with High-Functioning Autism exhibit no intellectual disability, but may exhibit deficits in communication, emotion recognition and expression, and social interaction (Sanders, 2009). This neurological disorder inhibits social development, emotional regulation and communication; however this neurological condition is often not as severe, allowing students with high-functioning autism to better adapt to and participate in a traditional classroom setting.

Inclusion in the classroom is designed to promote academic and social skills for students with autism and develop positive learning outcomes. Students with autism can learn from their neurotypically developing peers when they are in the same class by mirroring their behaviors, engaging in conversations, and observing appropriate social skills. Through inclusion, these skills can be developed through demonstration of social and academic skills of the neurotypical students. Through peer intervention, in addition to one-on-one interventions, directly targeted to students with autism, these students are able to gain valuable knowledge and apply it in the real world settings of the classroom. Inclusion is a way to provide positive learning outcomes for students with autism by allowing them to develop academic and social skills that can prepare them for higher education and the adult world.

This paper will investigate how an inclusive classroom environment fosters positive learning outcomes and social interactions for students with high-functioning autism. We will look into the use of structured learning methods in the classroom including, token economies,
remedial education programs, and pre-practice. We will also explore the limitations and controversies associated with programs for autistic students in public schools, including the No Child Left Behind Act of 2001 and the characteristics of autism within the DSM-V. The social characteristics of parents, teachers, and peers in promoting a successful inclusion environment by looking at teacher variables, parental involvement, and peer to peer relationships. As well as some of the best inclusive classroom practices that are currently in use and their different applications.

Structured Learning Methods in the Classroom

Autism Spectrum Disorders (ASD) can inhibit a student’s efficiency in the classroom, sometimes to a point where it is imperative to separate the student from the rest of the class. As such, this can inhibit a student’s ability to acquire new skills in the academic environment. Structured learning methods within an inclusive classroom environment aid the teacher as well as the students, with both neurotypically developing students as well as students with autism, by creating a more streamlined learning process for all. There are many known effective interventions for classroom learning for children with autism. This includes the overall practice of inclusion in the classroom among all students to boost social skills and social development.

Token Economies

Students with autism often have issues processing sensory information, integrating academic ideas with their daily relevancies, and adapting to unpredictable schedules, which can impact their ability to stay on-task in a classroom (Jones et al., 2003). Students who lack on-task skills often struggle in inclusive classrooms which are often not set up to
accommodate individual learning needs, but can succeed if teachers modify classroom procedures to incorporate effective strategies, such as a token economy. Token economies can be free, based on tally marks and rewarded with activities such as, free time, extracurricular activities, lunch accommodations, social privileges, or another activity suggested by the student. It is low maintenance and does not interrupt the teacher assisting other students, while still providing accommodations for students with the need for more extensive learning structure.

The implementation of token economies can help achieve behavioral and academic goals that may be set for students on the autism spectrum who have Individualized Education Programs (IEPs). When rewarded with privileges as part of the token economy established within their classroom, teachers are able to see a clear increased on-task proficiencies, specifically for written tasks, as well as asking appropriate questions during a lesson. Although it is not clear as to which token economy rewards specifically work for the students, as it is tailored to the individual, there is an improvement in these measured behaviors (Jones et al., 2003). Using token economies in an inclusive classroom can be helpful for the instructor as a way to quietly remind the students of their goals without disrupting the lesson. Token economy reward systems are a helpful motivator for students in order to engage them more frequently in lessons, and reinforce the appropriate behavior while ignoring the undesirable behavior.

**Remedial Education Programs**

Students with autism spectrum disorders have an increased difficulty with understanding and responding to social cues which makes learning in a group setting more
challenging. As a result, these students are often faced with academic hindrances which can lead to their withdrawal from general education classes and the school altogether (Probst & Leppert, 2008). In recent years, remedial education programs have been developed for use in general education classrooms so that students with autism can be included in the classroom with neurotypical students and succeed in their academic achievement.

Common remedial education programs teachers use for students with autism are video and slide presentations, exercises for creating classroom structure, such as daily picture schedules, and group discussions. In the classroom, using these programs to create order for students can increase the productivity of the lessons. Students with autism have a significantly easier time learning and paying attention to lessons when presented with visual stimuli rather than auditory stimuli (Probst & Leppert, 2008). The use of daily picture schedules, and video and slides presentations can improve the retention of information from the lesson. Adding remedial education programs into the lessons for students, as well as instructors, allows for more order and flow to the lessons. Students have the capability of referencing their picture schedules during the lesson in preparation for the next lesson, reducing the anxiety that may be associated with new content. After the implementation of these interventions, there was an overall effect in the reduction of teacher stress reactions, where the teachers felt as though they were able to deliver the lessons more effectively with these interventions implemented than before the interventions were introduced (Probst & Leppert, 2008). The use of remedial education programs in the classroom, showed increased competence by teachers' ability to provide these methods to the students.

Pre-practice
Primming, or pre-practice, as it is often referred, is the method in which teachers facilitate the lesson to one student before the lesson is introduced to the larger group of students (Harrower & Dunlap, 2001). This effective intervention for classroom learning for students with autism allows the teacher or teaching assistant to instruct the targeted student on the lesson being presented in advance so that the student is aware of the upcoming tasks. In doing so, the instructor can begin to ease the anxiety this student may feel with the presentation of new material. Not only can this increase the likelihood that this student participates in the lesson, this intervention also has the ability to increase the learning outcomes for the other students within the class by creating a more focused environment in which the lesson can take place (Harrower & Dunlap, 2001). This process is effective in the inclusion model of classroom learning because it links individual instruction to larger classroom group activities, which is a fairly common feature of general education classrooms.

**Limitations and Controversies of Inclusion in the Classroom**

There are areas of interest and debate within the public school system regarding the quality of education for students with autism as well as other learning disabilities (Simpson, 2005). Most commonly, parents and educators are discussing the effectiveness of the application of academic interventions for students with these disabilities and the quality of these interventions on an individual level.

**No Child Left Behind Act of 2001**

Currently, the No Child Left Behind Act of 2001 (NCLB) does not effectively address the variety of academic interventions and treatments that are needed for students with more
severe learning disabilities, such as autism. Many educators and parents with children who have autism vocalize that these students are not being rightfully included within this Act and are still, in fact, falling behind when it comes to their learning in the classroom (Simpson, 2005). This act outlines the interventions and treatments of students with ASD and their effectiveness through objectively measured standards and their outcomes. These interventions must align with the needs of the individual student rather than a population of students with similar learning disabilities, in addition to its overall effectiveness.

The most important issue discussed within this topic area is that most interventions for students with autism are targeted to the autism population as a whole. Rarely do students with autism within the public school system receive interventions that are designed for their specific, individual academic and social needs (Yell et. al., 2005). This would be creating a plan that is designed for one student who may have low-functioning autism, which would be a different plan that is designed for another student who may have high-functioning autism. The design of these interventions should reflect the need of the individual student and not the needs that are reflected, rather stereotypically, within the autism student community.

**DSM-V**

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) does not divide autism into enough separate facets that would correctly constitute the use of the autism spectrum (Sanders, 2009). Having been revised since the DSM-IV, autism is defined as one whole neurological disorder where the varying implications of having autism are not clearly labeled. Within the DSM-IV autism was characterized into one of four neurological disorders: autistic disorder, Asperger’s disorder, childhood disintegrative
disorder, or the catch-all diagnosis of pervasive developmental disorder not otherwise specified (APA, 2013). This umbrella diagnosis continues within the DSM-V where it is believed to be a better reflection about the diagnosis of autism given the state of knowledge about the disorder. High functioning autism, which is diagnostically different from Asperger's Syndrome, is not specifically defined in the DSM-V (APA, 2013). This raises the argument that autism is not truly recognized as a spectrum disorder if the various facets on the spectrum are not clearly defined.

**Social Characteristics among Students and Teachers for Promoting a Successful Inclusion Environment**

Social characteristics within an inclusive classroom include those of the students, teachers, and parents. The disposition of the teachers and their flexibility and willingness to assist students carries great weight in the inclusive classroom environment (Segall & Campbell, 2012). Parental and educator disposition and behavior are consistently important to a successful inclusion environment. The dynamic among teachers and students is important within the classroom in creating a positive learning environment. The willingness of parents to assist in the educational success of their student is equally imperative for fostering positive social characteristics and learning outcomes.

**Teacher Variables**

There are many specific challenges that teachers, working with children with high-functioning autism, face. Within the inclusive classroom, teachers are tasked with evaluating the social, academic and behavioral skills and approaches of the students with autism in their school, which can affect the disposition and overall demeanor of the teacher
The integration of students with learning disabilities and those without creates a diverse learning environment where one student can learn off of and mirror the other. This promotes new skills, social, academic and the like, among these students who are lacking such skills.

Teacher variables are important to the success of classroom inclusion practices. Variables already identified are consistently important to successful inclusion are: teacher disposition and behavior. Personality traits, such as kindness and patience were identified as the minimum traits needed in the inclusion process (Segall & Campbell, 2012). Inclusion methods revealed that general, and special education teachers as well as school counselors favored inclusive learning for students with autism. Predictability of the teacher’s behaviors, as well as their consistency and concern for the student’s social development, in addition to academic development, is just as important in creating successful classroom inclusion for students with autism.

Teacher training level

Inclusion encompasses a need to foster participation among learners in mainstream classes and to focus on the quality of the students educational experience. Teachers with a strong sense of efficacy are more willing to modify their teaching methods to accommodate learners’ needs. Teachers who have a high sense of teaching efficacy are more likely to be supportive of inclusive placements (Anglim et al., 2017). However, the ability to make these informed decisions on behalf of the student depends on the availability of necessary resources, such as reports to track student progress, hindered the teacher’s ability to feel as though they provided a comprehensive academic experience to their students.
Teacher Perceptions of Parent Involvement

Teachers’ perceptions of parental involvement in the educational career of their child can range from “under” to “over” involved parents (Schultz et al., 2016). Parents actively seeking interventions (IEP accommodations) are considered over involved parents. Parents who struggle to accept the diagnosis (especially seen at the elementary level) are considered under involved parents. What is known as “careful conversations” are frequently used so as to not impose more shame or guilt upon them for their child’s diagnosis through conferences with parents using constructive techniques. These techniques are mostly used with parents who are considered under involved or with those whose child is newly diagnosed. Teacher perceptions are an important factor in fostering constructive learning outcomes of students with autism by shaping how the teachers interact with their students within the classroom, based on parental involvement outside of the classroom.

Social Characteristics of Students

The social characteristics of students with autism across classroom settings varied among full-inclusion and non-full inclusion classes. Students in a full-inclusion classroom style have a significant advantage with social competence specifically in elementary students with autism, than a classroom set up in the non-full inclusion style. Higher social competence was indicative of being placed in full-inclusion classes. Autism severity predicted social competence & quality of friendships, where social competence is the effective integration into a peer group within the larger classroom setting (Lyons et. al., 2011). Students on the high-functioning end of the autism spectrum demonstrate a higher level of social competence going into this inclusive environment and are therefore more
likely to create stronger friendships with other students. However, the severity of autism is the key predictor in whether students are placed in full-inclusion classrooms (Lyons et. al., 2011). This can even be argued that students with low-functioning autism need these social interactions as well, in order to build up their social competence, but are less likely to be placed in the same full-inclusion classroom due to the lack of these skills.

**Peer-to-Peer Relationships**

Relationship quality of neurotypical students varies greatly among the relationship quality of students with autism, most notably because students with autism have a harder time forming meaningful relationships among their peers both neurotypical and not (Locke, et al., 2010). These students also experience strained friendships due to their inability to read social cues that could help them form close bonds between friends, such as knowing when or how to initiate a conversation. Neurotypically developing adolescents are less likely to initiate friendships among their peers who have autism.

Similarly, students with autism are less likely to create friendships with their neurotypically developing peers due to their lack of social skills and overall confidence to approach students who are already part of a group. Due to the social skills limitations among students with high-functioning autism, there is a higher risk of being socially isolated by their peers, which can create the need for additional support from educators in order to help facilitate peer interactions (Locke et al., 2010). In addition, many students can become easily stressed out and emotionally unstable when faced with abrupt changes in their environment, leading to an increased risk of tantrums, noncompliance, and possible aggressive behaviors (Myles, 2005). Children and adolescents with autism, specifically those that are
high-functioning, are often aware of their social status within their school environment and frequently desire a reciprocal high-quality friendship that is observed among their neurotypically developing peers. When their expectations of this closely bonded, high-quality friendship are not met, feelings of loneliness and isolation may surface.

**Pre-arranged Setting Variables**

Pre-arranged setting variables, such as adult versus child initiated contact conditions, can influence the peer-related social behaviors of children with autism (Boyd et al. 2008). At least five identified categories of classroom antecedent variables can influence the social interactions among children with autism. These behaviors include, reducing the amount of physical distance between children in play areas, when appropriate to promote interactions. This would make it easier to focus on one-to-one conversations between peers by reducing physical distance, which subsequently reduces outside distractions and can increase focus within the conversation. Engaging students with neurotypically developing peers, which can allow students with autism to pick up on and begin to mirror appropriate social cues and actions. Providing students with appropriate classroom materials and toys in order to promote tactile and visual learning among students. This is, in part, the responsibility of the instructor to provide these materials to the students, as well as the student knowing when it is appropriate to use certain toys or technology.

Participating in group activities to promote working together in a larger group setting consisting of a mixed group of neurologically developing individuals. As well as, limiting adult engagement in peer situations, when appropriate, to promote peer facilitation of conversations without the need for adults to initiate or conduct the conversation or activity.
Trained vs. Untrained Peers

Due to their social deficits, students with autism may not participate in recreational activities during free periods with other students even when they are in a mixed class setting with their neurotypical peers (Owen-DeSchryver, 2008). Peer training is an intervention not commonly used in an inclusive classroom, but one that is effective. These strategies to train peers include providing neurotypical peers with a rationale to reach out and befriend their atypical peers. This can be done by explaining certain behaviors these students exhibit or providing ways to initiate conversation with these students, usually through organized group activities or games provided by an instructor.

An additional strategy that is commonly used in this form of social interaction among peers is guided discussions. These can be prompts provided by the teacher to the neurotypical students with questions such as “What are some activities you can do with [student name] at recess?” (Owen-DeSchryver, 2008). This example of a guided question provides the student with a concrete strategy of how to involve their peers in a specific activity during the school day. Peer training is an effective strategy for increasing positive interactions between neurotypical peers and students with autism, by providing the students with the tools needed to include their peers into their social groups.

Inclusive Classroom Practices

In an inclusive classroom all students feel supported both intellectually and academically, while also providing an extended sense of belonging for the students regardless of identity, learning ability, or education. Schools that practice inclusive learning actively involve all students by utilising various ways of teaching to accommodate students’ learning
needs. Working to create an inclusion environment in school promotes the development of academic strengths and social interactions where every child feels they can succeed.

**Inclusive Environment Preparation**

While the main focus on inclusion is within the elementary school level, there are ways that the inclusive environment can reach high education, specifically high school and further into college (Brown and Coomes, 2015). Although these best practices commonly consist of separating these students from their classroom environment, this is done in order to promote equity among all students under specific circumstances. These circumstances are traditionally test-taking environments where the student is allowed extended test time or a quiet testing environment. These reasonable accommodations are offered to students on an individual need basis, based on each student’s IEP accommodations.

Recent trends in autism research have shown changes in the best interventions in use within inclusion general education classrooms (Crosland & Dunlap, 2012). These interventions and practices include individualized and group practices that promote positive and appropriate behavior for the students as well as conflict management to improve the learning environment for all students within the classroom. Some procedures, such as antecedent procedures, are proactive as they involve altering environments or routines prior to the occurrence of problem behavior. Antecedent procedures involve manipulating certain aspects of the classroom environment in order to reduce undesirable behaviors. Priming, prompt delivery, and visual schedules are three of the most common antecedent procedures implemented in the inclusion classroom in order to increase student participation. These procedures help to prepare the students and instructors for the lesson by reducing undesirable
actions as much as possible in order to focus the students on learning.

Effective Placement Strategies

Students with high-functioning autism in inclusive classroom settings require interventions consisting of meticulous planning due to the increasing trend for placement of these students in general education settings (Simpson et al., 2003). Individuals with Disabilities Education Act (IDEA), states that students with any disability, including autism, are entitled to educational services in normalized settings that offer the greatest opportunities for contact with neurotypical students to promote social and communication skills.

Students with high-functioning autism can be successfully integrated into the inclusive classroom when appropriate and effective interventions for academic and social support are present. There is an increasing acknowledgment that some students with high-functioning autism might benefit from time in segregated programs where they can develop skills that are difficult to train within general education classrooms, such as behavioral regulation and adaptive skills (Sansosti & Sansosti, 2012). Although considered “high-functioning” in regards to the autism spectrum, students with this classification of autism should not be regarded as having a mild disorder which only requires minimal educational support.

Access to and progress in the general education curriculum brings up the on-going debate of placement in general education, as opposed to special education (self-contained) classes, for adolescents with autism, within general education instruction (Kurth & Mastergeorge, 2010). Placement in inclusive classroom environments is associated with high levels of social interaction, academic skill development and communication skills for all students, with and without disabilities. When specifically focusing on academic areas,
students with autism who receive all of their math and english instruction in general education settings are more likely to outperform those students who receive their instruction in special education settings.

As such, inclusion in the general education classroom is academically beneficial to students with autism. Evidence suggests that adolescents with autism are often provided with a fragmented curriculum that focuses on activities, functional skills, or specific IEP objectives. This separates these students from effectively learning with their neurotypical peers who receive instruction based on the general education curriculum (Kurth & Mastergeorge, 2010). As a result, crucial learning objectives which are essential to both academic and social skill building, are often omitted due to their perceived challenging nature. It is necessary to provide these challenges and the appropriate curriculum to students with autism in order to foster their ability to learn a variety of new skills.

**Evidence-based Interventions**

There are a variety of known, effective evidence-based interventions that are most commonly within the inclusive classroom environment all of which cannot be discussed within the constraints of this paper; however commonly practiced interventions are discussed below. These interventions assess and target symptoms of autism on a more comprehensive level, which allows for better assessment accuracy than interventions with a narrow focus (Koegel, 2011). Implementing a variety of interventions at once to target all areas that need to be modified is usually recommended in order to assess and modify more aspects for the individual at once. Programs are advised to be individualized based on a comprehensive assessment, which can vary depending on the skill set being assessed, either academic or
social. Interventions that are used for one student may not be effective for another student (Koegel, 2011). Therefore, an emphasis to regularly collect data and continually assess each student is imperative for providing the appropriate intervention for that particular child.

**Obstacles of Implementation**

When it comes to implementing these research-based interventions, there are various issues that need to be addressed; however, a full explanation of these issues is not provided due to the extensive nature of these issues, many of which are based on individual factors. Two common obstacles, assessment issues and teacher and classroom-related factors, are discussed in more detail.

**Assessment issues**

Standardized tests can be difficult for students with autism who have trouble focusing or who require one-on-one help with assignments (Koegel, 2011). In addition to standardized tests, observation or skill-based assessment within the natural classroom environment can be implemented. As well as assessing the students on multiple occasions and levels throughout the year to get an accurate interpretation of their skill acquisition and development. These additions to the required standardized assessments required by the school district can provide instructors as well as parents with a more accurate gauge as to the progress of their students.

**Teacher and Classroom Factors**

Certain interventions require that classroom procedures be adapted to support the learning of all students that are in the class (Koegel, 2011). These interventions can range from redesigning the layout of the classroom to spending one-on-one time with the student in a
pre-practice scenario. This can become a challenge for some educators who are now expected to adapt their current classroom environment to accommodate the needs of these students. If an intervention procedure does not match the current procedures within the classroom, the intervention is most usually adapted by the teacher in order to fit their needs and expectations. These adaptations often detract from the effectiveness of the intervention. As such, many teachers may find it too time consuming to do so and will forgo certain aspects of the intervention in order to make it work within the established classroom procedures; detracting from the learning experience of the students for whom the interventions were developed.

**Conclusion**

Inclusion in the classroom operates as a constructive learning technique to allow students with autism to learn among neurotypically developing students as well as from these students. As a result, students with autism in the inclusive environment are able to mirror their peers on what is acknowledged as acceptable classroom behavior as well as demonstrating learned social skills (Lyons et al., 2011). Among high-functioning students with autism, an inclusive classroom environment is conducive to fostering positive learning outcomes and social interactions. Even students with more severe cases of autism can be included if necessary and sufficient academic support is provided to these students in order to create an equalized learning experience (Harrower & Dunlap, 2001). These studies together provide a valuable source of inclusion intervention options that could show improvement for almost any student needing classroom support.

However, there continues to be a need for more research into the study of inclusive classroom practices for students with autism. Conducting studies within the classroom in a
naturalized setting provides very few studies that have done so, limiting the research within the daily classroom routines (Crossland & Dunlap, 2012). In that many of these studies need to be longitudinal and the length of time with which this information has been explored has yet to be long enough, and at a wide enough range to be conclusive in any certain way.

Additional research of the same caliber, mentioned above, will need to be conducted in order to decide if these “best practices” at present continue to be the best. With the current knowledge that autism is a case by case basis of treatment for each child, there most likely will be new interventions that are introduced to the classroom based on what is best in terms of social and academic practices in the future. As such, it is necessary to expand the current literature to accommodate these new interventions in order to demonstrate how this field of research is continuing to evolve.
References


