



# Behaviour Problems in Children with Autism: How They can be Reduced by Applied Behaviour Analysis (ABA)?

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## Abstract:

*This study examines the common features and behaviour of children with Autism and explores the use of Applied Behaviour Analysis in managing these behaviours. This essay also addresses the use of Positive Behaviour Support, which is closely linked to Applied Behaviour Analysis (ABA), in supporting the child to develop improved behaviour such as social interaction. The primary form of ABA addressed in this essay is the model developed by Ivar Lovaas, who is widely considered as one of the lead contributors to the development of ABA as a technique in addressing behavioural and learning difficulties in Autistic children. This essay will also address the issues around ABA as well as the pros and cons of the technique. Lastly, It will examine how ABA is used to deliver the curriculum in schools. ABA is a beneficial technique to be employed by teachers to manage the behaviour of their students as well as delivering planned teaching material, thus developing and educating the child.*

**Keywords:** Autism, ABA, Behaviour problem and curriculum

## 1. Introduction

Autism as a word and as we currently understand it in the modern world was first used by Leo Kanner in 1943. In a paper on the study of Autism, Kanner examined eleven children and described symptoms that are still present in Autistic children today. Since then the diagnostic criteria has been refined but behavioural problems in areas such as communication and social situations are very much prevalent.

With regards to communication, children with Autism may have difficulty communicating with others, understanding what's being said to them and or understanding non-verbal communication like facial expressions and body language (May 2005). Because of this difficulty to communicate with others themselves and to understand those around them, children with Autism often experience learning difficulties.

Similarly, social situations can be difficult for Autistic children as they struggle to integrate into social situations, which can be viewed as stressful and even demanding. Autistic children can become withdrawn and isolated in their behaviour particularly during playtime where their activities can become repetitive. These behaviours can serve a purpose. Philip Whitaker argues that such behaviour may be an indication of a child trying to tell you they are tired, stressed or annoyed (Whitaker 2001).

These behaviours can all hinder a child's progress in school and to develop socially as well as academically. Since 1987, Dr. Ivar Lovaas has developed and built up a methodology that has come to be known as Applied Behaviour Analysis. This method through scientific study and data seeks to teach young children new behaviours and to gradually eliminate problem behaviours (such as those above). Whilst ABA is the name given to this methodology a number of other methods are touched upon such as Positive Behavioural Support as well as Discreet Trial Learning. All of these work together to help address problem behaviours and even to deliver teaching material developed by teachers and those bodies setting the national curriculum.

## 2. Defining Terms

### 2.1 Autism and Behaviours Problems

I will start by defining what we mean when we talk about Autism. However, it is worth keeping in mind that Autism is a variable disability, affecting people in different ways. Autism (and Aspergers' syndrome, often referred to as high-functioning Autism) is a developmental disorder that affects individuals' ability to attend to and monitor social elements in the environment (Clough 2004). The fourth edition of the Diagnostic and Statistical Manual of Mental Disorders by the American Psychiatric Association, also places Autism in the category of Pervasive Developmental Disorders, which is viewed as a smaller group of disorders (Zager 1999) as compared to the wider term "developmental disorders". There are three common features in pervasive developmental disorders or PDD's. These are:

- Impaired reciprocal social interaction
- Impaired communication skills
- Restricted, repetitive, and stereotyped patterns of behaviour, interests, and activities (Zager 1999)

Other behaviours associated with children who have Autism are hyperactivity, impulsiveness, aggressiveness and self-harming, amongst others. Children may exhibit all or a combination of these behaviours depending on their age as well as the severity of their condition. Elaborating on Autism as a variable disability, Autism is also classified as a spectrum condition, meaning that whilst different children may experience the same symptoms as those mentioned above, these symptoms affect them in different ways. It is also common for people with Autism to be highly sensitive to sensory stimuli such as sound, touch, and taste and light. Children with Autism may also have additional learning disabilities, which can add to difficulties in learning and adapting to new ways of behaving.

## 3. Applied Behaviour Analysis (ABA)

### 3.1 Defining Applied Behaviour Analysis (ABA)

Whilst Autism is not curable a number of techniques exist to manage it as a disability and to help children develop socially and academically. One of the most predominant techniques is Applied Behaviour Analysis or ABA. W. David Pierce and Carl Cheney detail the scientific foundations underlying ABA:

“Behavioural principles, research designs, observational techniques, methods of analysis, and so on transfer readily to applied science. When this is done to improve performance or solve social problems, the technology is called applied behaviour analysis [...] Thus, applied behaviours analysis is a field of study that focuses on the application of the principles, methods, and procedures of the science of behaviour.” (Pierce 2004).

Pierce and Cheney are quick to point out that ABA “cannot be characterized by a single definition” (Pierce 2004). There is however three characteristics that help define ABA. ABA should be:

- Applied = Principles applied to socially significant behaviours
- Behaviour = Based on scientific principles of behaviour
- Analysis = Progress is continually measured and intervention adapted (Lovaas Institute 2011)

These central characteristics have been added to over the years, most notably in the works of Donald Baer, Montrose Wolf and Todd Risley. However these three characteristics offer a solid foundation and guide to ABA as a technique.

John Cooper elaborates on ABA as the science in which the principles of the analysis of behaviour are applied systematically to improve socially significant behaviour, and in which experimentation is used to identify the variables responsible for change in behaviour (Cooper 1990). We can see from these varying characteristics and definitions that ABA involves the analysis of a subject's overt behaviour alongside their environment and examines ways to introduce change to the subject's

behaviour. When applied to children with Autism, ABA can be used to introduce change to their behaviour with the intended benefit of developing the child socially and academically.

### **3.2 The Lovaas Model of (ABA)**

The Lovaas Model of applied behaviour analysis was developed by Dr. Ivar Lovaas as an early intervention therapy for children with autism. The method is an intensive one, commanding as much as forty hours of therapy per week (Anderson 2007). In her seminal study *Tales from the Table*, Margaret Anderson draws on the elements of best practice (Anderson 2007) from various previous studies in Autism using applied behavioural analysis. Early in the study, Anderson lays out perhaps the most simplified way of explaining the process of ABA (however this will be elaborated on later in this essay), which is comprised of a three-part chain or trial (which will be discussed later)

The instruction / request → The child's response → A consequence (generally a reward) (Anderson 2007)

Based on the analysis of the child's behaviour, a parent or tutor is able to identify an opportunity to introduce change in the form of an action or a request. If the child changes their behaviour for the better, there are a number of consequences or results, such as rewards, which can be material or emotional. In her study, Anderson discusses the instance of a young boy becoming withdrawn and increasingly controlling during playtime. Tutors were able to identify an opportunity for change by integrating a games book into his play. The child was involved in the creation of the games book and his response was positive to the point where he adopted better playing behaviour. The consequence or result was not in the form of a material reward, but that he was that the able to engage better with others around him.

From a critical standpoint it is clear to see why this process is not only effective but also time intensive on the part of the parent / teacher and the student. In its very nature as a chain process there is room for repetition until the desired outcome or change in behaviour is achieved. This is where the time intensive factor comes into play. Whilst this can be challenging, it should be regarded as an opportunity to introduce new knowledge and skills to the child. It also enables a therapist or teacher to identify ways to get the most out of the children they are working with through data collection at the end of each cycle.

As mentioned previously, Autism is a spectrum condition, with those with the disability taking different positions within the spectrum. The Lovaas model takes into account the student's position in the spectrum as well as their strengths (Anderson 2007). In short, one of the key benefits to the Lovaas model is that it is an arrangement of optimum learning environments for each individual (Greer 2001).

One consideration to keep in mind with the Lovaas technique (that will be addressed later in this study) goes back to what has already been mentioned about it being a time intensive technique. The further consideration is not just how many hours of teaching or engagement is required per week, but how long the Lovaas technique should be employed for. Whilst Anderson suggests a period of two years, other studies have indicated that as an early intervention technique, the Lovaas technique can be used for as long as six years.

From yet another critical perspective the Lovaas model is also beneficial in helping the student develop socially and academically. It has been further noted in studies that students receiving ABA improved significantly on IQ, visual-spatial, language comprehension, expressive language, social skills, motor skills and adaptive behaviour (Hayward 2009). This is in part credited to the use of discrete trial learning which forms a major part of the Lovaas model of ABA. Discrete trial learning is defined as the breaking down of complex skills and teaching each sub-skill through a series of massed teaching trials (Stahmer 2003). Discrete trial learning is the term applied to the above chain process

where a trial is introduced to the child and repeated several times until the new skill is mastered. As seen in the case study examined earlier, the young boy was given a play book introducing a series of trials with the aim to getting him to master the skill of social integration and playing by the rules as opposed to playing in isolation and playing to his own rules. These discreet trials form the basis of the scientific foundation of ABA as data on each stage of the trial can be collected. For example, what instruction was given, how was it worded, was a prompt required and what was the outcome. Analysis of this data guides the therapist and informs them how best to move forward and supports the argument that ABA is very strong in individualizing treatment (Rosenwasser 2001) for Autistic children.

### ***3.3 Positive Behavioral Support (PBS)***

As examined in the previously mentioned study by Anderson, we can see a clear example of positive behavioural support in the Lovaas model. It is well acknowledged that positive behavioural support has its foundations in ABA and so there is an overlap or shared emphasis between the two perspectives (Dunlap 2008). In the simplest of terms, positive behavioural support is used to reinforce good or improved behaviour through rewards and or other positive stimuli. For a more comprehensive definition, positive behavioural support or PBS can be described in the following terms:

“PBS is an approach that blends values about the rights of people with disabilities with a practical science about how learning and behaviour change occur. The overriding goal of PBS is to enhance quality of life for individuals and their support providers.” (Horner 1999)

In the previous example, the young child was rewarded with a sense of enjoyment and satisfaction by behaving in a more open and social way. PBS is a dynamic form of behavioural treatment in that it should respond to and address the needs of the child or student. PBS does this by bringing together evidence based skills and methods as well addressing the unique conditions or lifestyle of the subject. Critically, this is of the utmost importance as this model of behavioural adjustment or support becomes a tailored solution rather than being delivered in a purely prescriptive or mechanistic way. In addition to this studies have shown that PBS can be utilised in various settings, for example at school or at home (Blair 2011). This allows parents to pick up where teachers or therapists have left off and vice versa.

There are four defining features to PBS, which contribute to PBS as an empirically validated practice (Sailor 2009). The first of these is that PBS applies behavioural science. PBS seeks to establish environments that promote positive behaviour. In turn, negative behaviours are minimised with a view to eliminating them. The key driving force behind this practice is the belief that human behaviour can be taught and thus changed through instruction. The focus is very much on the individual, which again means PBS is set apart from other mechanistic methods. Individual needs are identified and incorporated into sessions. As Autism is a spectrum condition, PBS is ideal in supporting children and students whose disability is as unique as they are.

Another critically important point of PBS is that it is focussed on being delivered across the full range of activities, locations and time of day (Sailor 2009) in the child's life. This ensures that PBS can be utilised at any time and in multiple situations to progress the child's adaptation to improved behaviour. In addition to this, parents, teachers and other care workers and support personnel can deliver PBS. Sailor also points out that PBS draws on multiple theories, which can lead to diverse interventions that are measurably practical (Sailor 2009). Because PBS can be employed anywhere and draws on a multitude of theories it is extremely well suited to addressing children with Autism, due to Autism being a spectrum disorder.

One of the most beneficial outcomes of PBS and its third feature is that it not only looks at reducing problem behaviours but also looks to develop positive ones. Simply reducing negative behaviour does not add much to the quality of life to the Autistic subject or those around them. Through the



development and learning of positive behaviour, the individual's quality of life is improved, as they are able to benefit from improved social interaction with peers, family and carers etc. Sailor sums up this central theme by drawing attention to the fact that ultimately the success of PBS is determined by the person's quality of life.

The fourth and final central feature of PBS is that the systems that surround and are engaged with by the child with Autism are taken into account. Again this brings to light the fact that PBS is a comprehensive method of behavioural support, which reaches across a multitude of individuals, organisations, settings and contexts. This is essentially what Sailor refers to as "person centred planning". Further Beth Rosenwasser and Saul Axelrod argues that ABA emphasizes the placement and teaching of children with disabilities in integrated environments (Rosenwasser 2002). The goal is not simply to manipulate ones surroundings but to understand that a multitude of factors will determine and influence the success of the support being provided. Critically this is of significant importance as stated earlier children with Autism can be sensitive to external stimuli such as sound and light. In light of this, person centred planning is of vital to an Autistic child as it builds a firm foundation and structure upon which to support the individual and enable them to move away from problem behaviours.

### **3.4 Criticism of ABA**

Probably the largest criticism of ABA is that it is a time intensive therapy requiring up to forty hours per week. Whilst there are steps and measures that parents can take in the home, generally ABA is delivered by trained therapists and or clinical supervisors. As ABA is so time intensive the availability of therapists can be limited particularly in more remote or non-urban areas. This leads to another criticism of the therapy in that the treatment is not always readily available. Again, whilst parents can initiate ABA themselves the amount of time required to do so can be a deterrent. Some that do feel their life quality has been diminished, as they are devoted to the well-being and treatment of their child. The use of qualified therapists allows for the quality of life to improve for the child as well as parents, which is a distinctive benefit.

The cost of ABA can also be seen as another strike against the therapy. The costs associated with employing a therapist full time for the treatment of a child is often more than what most parents can afford.

One of the most striking allegations put to ABA by critics is that it develops robotic or mechanistic behaviour in children. This is often from a misconception that practitioners have in mind an exact idea of what end goals or positive behaviours they are looking to see in children to mark treatment as a success. As a result, the tailored approach mentioned earlier seems to have been abandoned. However, as mentioned, this is a misconception and those fully trained in the Lovaas model and adhering to its methods and values will be using its scientific foundations to inform treatment and not to simply prescribe it.

Whilst ABA certainly has its share of criticisms, parents and therapists alike have started to take measures to counter these perceived drawbacks to ABA. Many families now run their own ABA programmes with the occasional support and guidance of a therapist. We can interpret this willingness and determination to use ABA as acknowledgement of what is widely accepted about it, in that it is one of the longest established and most researched early intervention therapies for Autism. Furthermore ABA has been recognised by the Surgeon General of America as the preferred therapy for children with Autism (Rosenwasser 2001). We need only look at Lovaas' earliest studies in ABA such as Behavioural treatment and normal educational and intellectual functioning in young autistic children (1987) and Long-term outcome for children with autism who received early intensive behavioural treatment (1993) for a clear indication of why it has become a leader in helping those with Autism and their families.

#### 4. Implications for Educational Practice

##### 4.1 How is ABA used to deliver the curriculum?

Teaching with ABA and PBS is a comprehensive approach to ensuring that a child will gain as much from their lessons or therapy sessions as possible. Recent studies have found that parents believe that ABA should be the main approach used when addressing the issue of which educational approach to use when teaching Autistic children (Grey 2005). As the two theories are closely interlinked already there is some overlap. Further, the use of discrete trial learning, which forms part of the structure of ABA, is utilised during teaching and informs the scientific approach that ABA is built on. It is during the implementation of discrete trial learning that data can be collected e.g. prompts or instructions used versus outcome etc.

There are numerous principles of discrete trial learning, but amongst them are:

- Teacher-student interaction is high
- Sequenced and structured materials and activities
- Utilizing powerful motivation or reinforcement
- Providing corrective and informational feedback
- Providing clear and concrete instructions
- Maximising student participation and learning outcomes (Ernsperger 2003)

If we assess these points from a critical perspective, we can see that they ensure the student is engaged in a dynamic learning process, which has them actively involved in their learning. This alone has the benefit of moving them away from withdrawn or isolated behaviour, which can be one of the symptoms of Autism as well as delivering the material on a school's curriculum. Separately from this though, the child has a well-structured and tested teaching method surrounding them, which has proven benefits. In terms of delivering curriculum material, tasks and learning material are broken down into small and measurable steps (Ernsperger 2003).

There are five steps in instructing a child using DTL.

1. Instruction
2. Prompt – when necessary
3. Response or behaviour from the student
4. Reinforcement or feedback
5. Between-trial interval (Ernsperger 2003)

To elaborate briefly on the above process, an instruction is given to the student followed by a prompt as a form of further instruction. Prompts should be used sparingly and only if necessary. A designated amount of time should be given to allow the child to respond before giving positive or negative reinforcement. The between trial interval (the time between one instruction - or trial – and another) is used to collect data and if present, allow time for the child to use a tangible reinforcer (Ernsperger 2003).

The breakdown of the process indicates a number of important factors. One is that teachers, parents and therapists etc can utilize this method of teaching. This ensures a degree of continuity in the teaching structure from one environment to the other. This is especially useful where ABA cannot be delivered to the suggested thirty to forty hours per week. The use of reinforcement or feedback is a central tenet of PBS and ensures there is a stimulus after the initial instruction to either support the child's response or feedback if the response was incorrect. It is also an opportunity to reinforce positive behavior. As reinforcements should not be delivered negatively or in the form of punishment (Ernsperger 2003) they act as a motivational force that many students with Autism may be lacking and so help to increase the rate at which they learn.

As mentioned, the between trial interval is significant as it allows the collection of data that makes up ABA's scientific foundation. As data is drawn from the interaction of the student, a therapist or teacher can develop a significant insight into the learning process of the child and develop teaching plans and strategies accordingly. This supports the argument that ABA is a tailored solution and not purely mechanical as posited by critics.

## 5. Conclusion

To conclude, This essay has examined Autism and the use of several techniques that make up ABA. As discussed, through ABA behavioral problems can be reduced and teaching material delivered using this controlled and scientific method. Whilst ABA has its critics and there are certainly perceived drawbacks to its use, its benefits far outweigh this. To elaborate on the comment put forward by Horner, I would suggest that ABA and not just PBS is aimed at improving the quality of life of a child with Autism. It is not simply about analyzing away problem behaviors but rather teaching new non-problematic behaviors that allow the child to develop socially and academically.

Further it is clear that the Lovaas model has provided significant results since Lovaas' report in 1987. Even in his 1987 study Lovaas was citing benefits such as:

- 47% of children in an experimental group passed first grade in a public school whilst receiving ABA.
- High rates of aggressive and self-stimulatory behavior were reduced.
- An average of 30 IQ points were gained by those in the experimental group. (Lovaas 1987)

ABA, its use and research around it has developed vastly since 1987 and it has now become a leader in assisting children with Autism. The aforementioned recognition of this by the Surgeon General along with the development of the Lovaas institute and the emergence of journals dedicated to the study are testament of this. And whilst Autism cannot be cured, ABA offers a real and viable solution to children and families internationally.

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