

# **Understanding Children with Autism**

**Tracey Teo and Robert Jackson  
Edith Cowan University  
Western Australia**

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## **Title: Understanding Children with Autism**

### **Autism Spectrum Disorder**

Autism is a psychological and biological brain disorder which usually appears during the first three years of life in 5 out of every 10,000 children and is more commonly found in boys than in girls. Children with autism commonly show little emotional attachment, absent or abnormal speech, retarded IQ, and social deficits, although there are considerable individual variations. Autism can be related to maternal rubella, measles, whooping cough and even lack of oxygen at birth. Evidence from research shows that autism affects brain structure, brain function, or brain chemistry. There is no cure known for autism.

### **Early Intervention with children with Autism Spectrum Disorder**

Early intervention programs for children with autism have been around for several decades. The most successful approach appears to be Applied Behaviour Analysis (ABA). (Lovaas (1987) reported that with approximately 40 hours of intense behavioural intervention per week from two to five years resulted in dramatic improvements in the development and function of children with autism. Forty seven percent of the children achieved normal intellectual and educational functioning, 40% were mildly retarded with only 10% of the children remained profoundly retarded. The program was home-based with volunteers working intensively with children with autism.

Birnbrauer and Leach (1993) replicated the early intervention program designed by Lovaas for children with developmental disabilities and autism. Parents and volunteers worked closely with the children with autism for 30 hours per week. The result showed equivalent gains to Lovaas (1987) in domains of compliance, cooperativeness, independent and social play.

While these results are very encouraging, a program to run 30 –40 hours a week intensively in the home with volunteers coming and going has the potential disadvantage of disrupting family lifestyles and causing considerable inconvenience.

### **Direct Instruction (DSTAR)**

The Direct Instruction Reading Programs (DSTAR) was developed by Engemann and his colleagues in the early 1960s. It has not been used specifically with a group of children with autism, although some children with autism may have been included in some studies. As Direct Instruction has been shown to be effective with a wide variety of groups, it is probable that it will have similar outcome for children with autism.

### **Parents as home-based tutors/therapists**

In teaching very young children, there are strong reasons to work with families in the home to maximise the learning advantages. Research over several decades has shown the benefits of early intervention, with the impact often seen to continue for many years after the intervention. Early studies in this area showed that parents were faced with many challenges in parenting children with autism, but early intervention programs seem to alleviate parental stress when parents are provided an effective way of teaching their children and reducing inappropriate behaviours often associated with autism.

### **Current Study**

In the current study, the aim is to work in the home with families to assist them to teach their children reading skills, with the expectation that teaching reading will have an impact on the overall development of the child. It is also predicted that the program will have the impact of reducing parental stress, and will be able to avoid the disruption to home life that occurs with some alternative programs.

### **Materials**

The Reading Mastery Program (Becker, Engemann & Thomas, 1975) will be used as the teaching material.

Specifically the materials used will be:

1. Reading Mastery 1 (Books A-C);
2. Behavioural Objectives;
3. Teacher's guide book;

4. Take home reading Mastery 1 (Books A-C);
5. Alpern Boll Developmental Profile will be used to measure developmental changes over time.

### **Procedures**

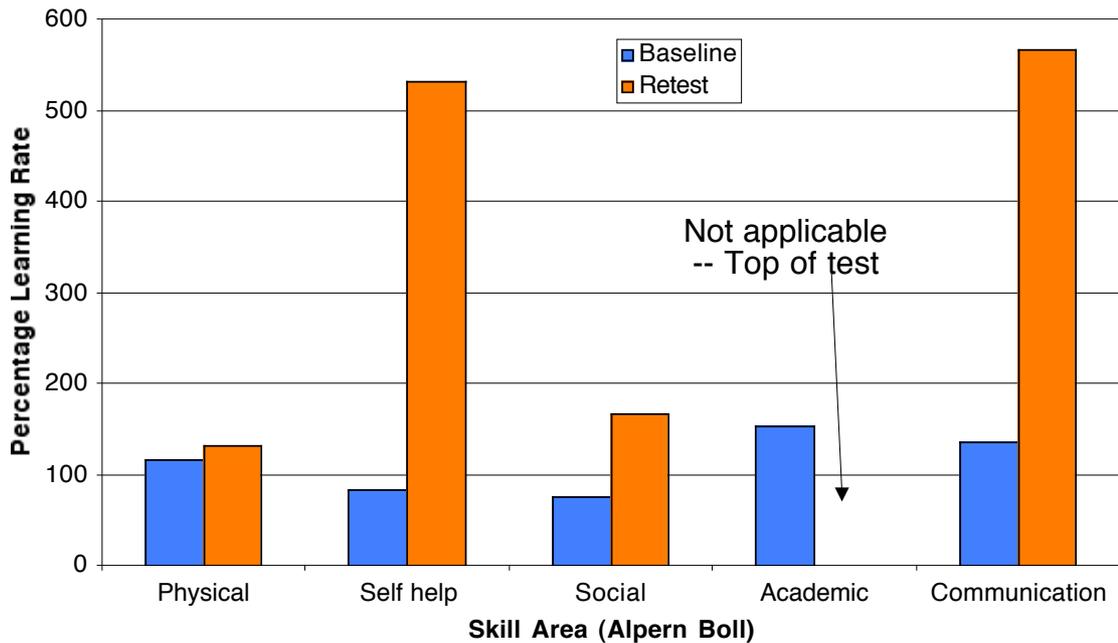
1. Interested parents call the Centre for Disability Research and Development (CDRD) to obtain information about the program.
2. The support worker and the parents make an appointment to meet and discuss the program. If the parents show continuing interest, they will make another appointment for detailed information and preparation.
3. Baseline assessment using Alpern Boll Developmental Profile.
4. Two-hour training workshop with parents at their home or place of convenience agreed by both parents and support worker. Some topics covered are: Importance of families, primacy rule, what effective learning is determined by, the place of compliance, mistakes and misbehaviour, the teaching cycle, the critical importance of errors, and school inclusion.
5. Setting parent priorities on needs for the child.
6. Modelling Direct Instruction lesson.
7. The parent doing a lesson with the child while the support worker gives feedback to the parent after the lesson is conducted.
8. Weekly visit to the home with feedback to the parents (Appendix A-feedback form)
9. Re-assess the child after 40 lessons Alpern Boll Developmental Profile.
10. Once reading skills are established assess the child using Woodcock Reading Mastery Test to determine reading level and any areas of strength and weakness so the program can be modified accordingly.

### **Results**

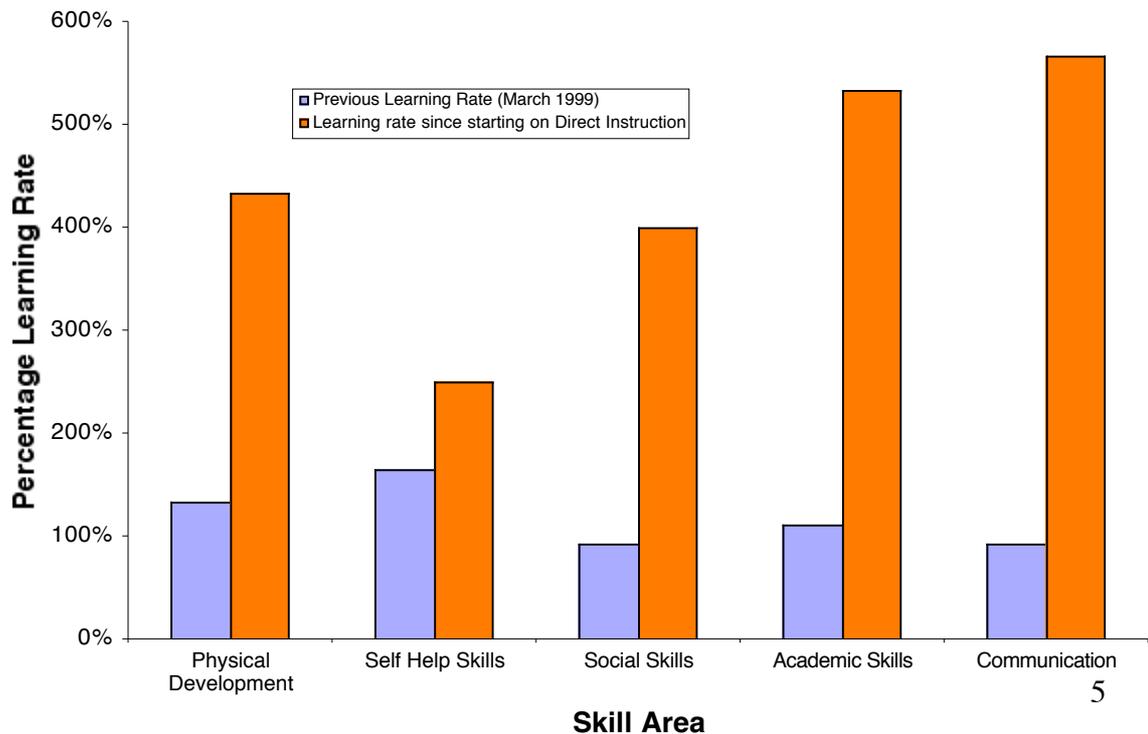
Early results of some of the children on the program are given below. The key measure employed is learning rate, as it is essential that the child develops at faster than 100% (normal development) so that he or she can 'catch up' the delay that has already occurred. Learning rate is determined by dividing the child's assessed developmental level by the child's chronological age, or the child's development in

months since starting the program divided by the number of months of intervention. In all cases the result is expressed as a percentage. Hence a learning rate of 75% would indicate that the child is developing at three-quarters the rate of the average child. A learning rate of 200% would indicate that the child is learning at twice the rate of the average child.

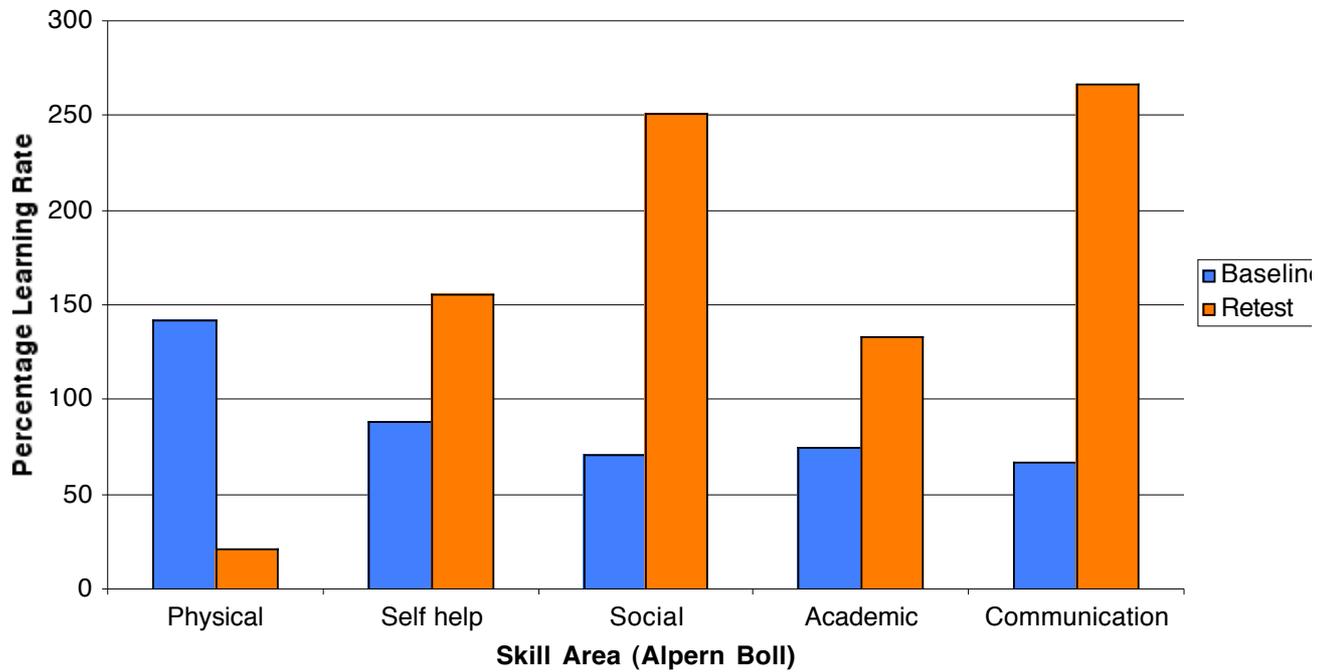
**Learning Rate (Percent of normal)  
SG: Age 4 years 8 months  
Six months of intervention.**



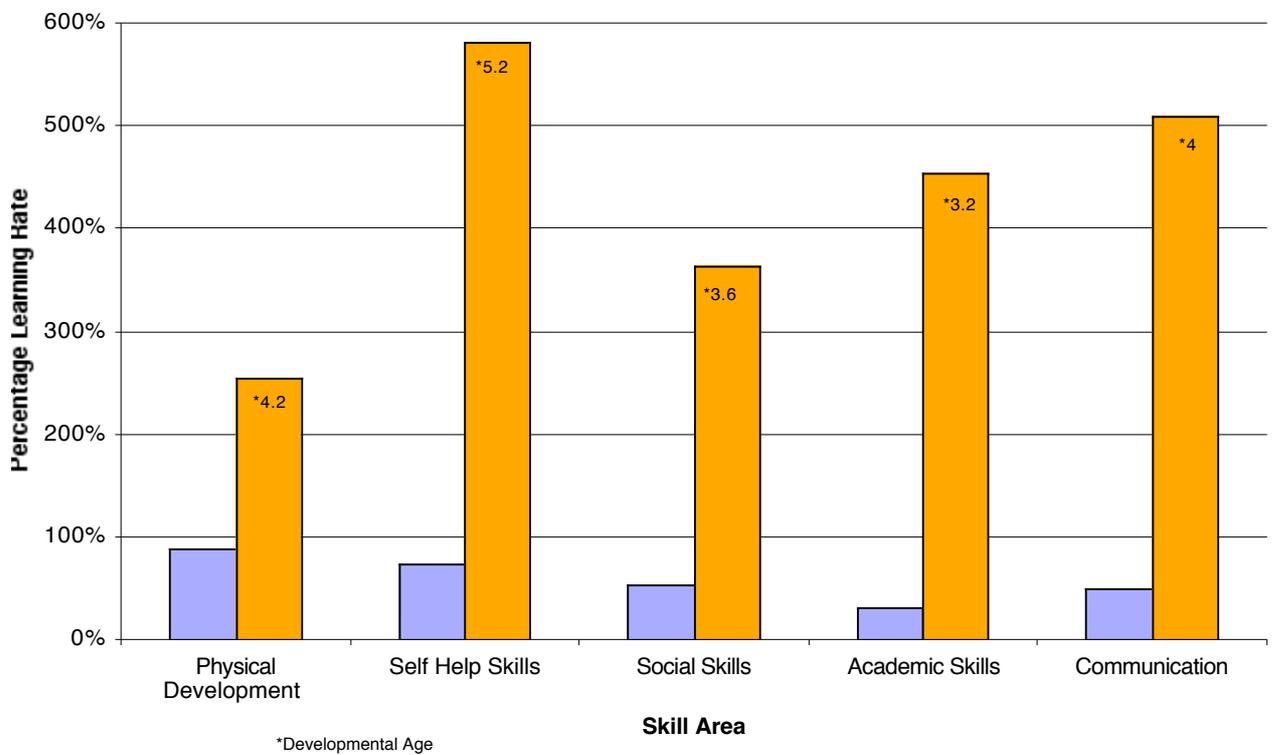
**RC: Learning Rate Before and After Direct Instruction  
March - October 1999**



**Learning Rate (Percent of normal)  
RS: Age 4 Years 6 Months.  
Eight months of Intervention.**



**HA: Learning Rate Nov 1999 to May 2000  
CA: 3.11**



## **Discussion**

It needs to be stressed that these are early results, which may not be able to be replicated with all children. However, the fact that these results have been consistent across all of the children so far engaged on the Direct Instruction reading program leads us to believe that our hypothesis that reading training will have broad developmental effects is soundly based. Also, with the 'pre-post' type of experimental design, we cannot establish at this stage that the results have not been due to other factors. This is unlikely as equivalent results have not been reported in the literature for overall developmental gains, but similar results have been demonstrated in the literature for academic gains following Direct Instruction programs. With additional replication of the results with other children and analyses such as correlation of developmental gains with number of lessons taught, we will be able to be much more confident about our data, but at this stage we can only say that our early results are very promising.

The graphs above show that with one exception in one area (RS on physical skills), learning rates have been boosted well above 100%. This means that the children, all of whom have a classification of autism spectrum disorder, are demonstrating learning rates considerably above those achieved for non-disabled children. In several cases, children are now developmentally ahead of their chronological age, which augurs well for their future. In addition, all children of school age on the program are attending neighbourhood schools.

The gains have been particularly marked in communication (which might be expected with the focus on reading), but has also flowed over into areas not directly taught under the program such as self help skills, social skills and even physical skills with most children. This supports the hypothesis that teaching reading has much broader impacts than the development of reading skills alone.

All parents on the program are asked to complete a minimum of four lessons per week of the Direct Instruction program, as well as to generalise the skills learned into the normal daily routines. Similarly, if the child is at school, school staff are advised of the child's capabilities and asked to generalise the learning to the school environment. Parents are also given training in how to use as many normal interactions in the home

as ‘teaching interactions’ and to build up the rate of positive input to the child. Our aim is to bring parents to a ratio of at least four positive statements to every correction so that the child is ensured of getting a lot of positive attention which will highlight the difference when parents correct mistakes or misbehaviour.

In the initial stages of the program, a Direct Instruction lesson takes approximately 15 minutes to complete. This means that we are requiring parents to provide a minimum of one hour of intensive instruction per week which can be a challenge in a busy household, but clearly much more achievable than 30-40 hours on alternative programs. As the child progresses, lessons can take up to 45 minutes each, but this has not been shown to be a problem as the children are generally very enthusiastic about the lessons and the parents are very supportive when they see the developmental gains made.

It should be stressed that these results are due to the implementation of a complete program, and are unlikely to be able to be achieved by a family purchasing the Direct Instruction teaching material and ‘going it alone’. The training, support, opportunity to discuss problems that occur and the general expectation of someone outside the program that the lesson rate will be maintained are seen to be very important by the parents. While a parent may be able to carry out the program in the short term, it is unlikely that they will continue over a long period, particularly if problems occur which a parent is not able to handle.

### **Family Day Carers**

For people working family day care, these results are important for a number of reasons:

1. The results demonstrate that children with autism are capable of learning and learning as fast as, or faster than other children, if taught properly. The program demonstrates that working in the normal family home with parents as the teachers and utilising the normal learning opportunities in the home combined with some intensive work, large developmental gains are possible. The program avoids using ‘special’ techniques as much as possible. Instead the focus is on using the normal family routines and knowledge of how all children learn to accelerate

development.

2. For people working in family day care, there are great benefits in working with children with developmental delay, including children with autism. It means that we have to know the task we are trying to teach very well if we are to be able to break it down so that a child with a delay can master it. We will have to learn to be consistent to ensure that our lessons are clear and unambiguous. We will have to seek out and capture as many teaching opportunities as possible in our teaching environment. All of these skills will be of benefit to our work with ALL children, not just the child with a disability.
3. It would be possible for a family day care to implement the Direct Instruction program if they could gain appropriate support and could be assured of maintaining the rate of four lessons per week. The material is relevant to all children if parents wish their child to learn to read, and it can be taught in small groups. A family day care may be able to take over a lesson or two per week if a parent is involved with such a program. Most important, they can ensure that lessons learned at home are generalised to the family day care environment.
4. There are also some clear lessons from this research for people in family day care on how to interact with children with autism or other developmental delay. These issues are important for all children, but may be critical for children who are delayed.
  - 4.2 Use clear instructions. If the instruction is not able to be clearly distinguished from background noise or a two or three part instruction is used when a child is only capable of complying with simple instructions, learning is likely to be inhibited. Ensure that your instructions can be clearly heard, you have the child's attention and you do not give instructions beyond his or her capacity to understand.
  - 4.2 Consistency: Most children learn to pick parent moods and behave accordingly, or know that they can 'get away with' different things with different adults. However, this is a complex range of skills to learn which may be not be currently possible for the child with a disability to learn,

making it much harder to understand his or her world. By being consistent, with all adults working on the same approach, the child can learn to belong in the world we have set up for him and is much more likely to learn appropriate social behaviour. A central point is that skills are best learned positively.

Rewarding a child for correct actions is much more powerful than ‘punishing’ a child for misbehaviour. However, ‘distracting’ a child has been shown to have long term detrimental effects on learning social behaviour, even though it might work in the short term.

4.3 Including a child in a family day care or any other social environment means that he or she needs to be *included in the same rules* that apply to other children. It is a very common mistake to forgive a behaviour with a child with a disability when such a behaviour would not be tolerated with other children. We may take longer to teach the child to conform to rules, but it is essential that these skills are learned. Poor social behaviour is one of the most common reasons for exclusion of a child with a disability, when early teaching might have avoided this.

4.4 For children with autism, a common difficulty is in social interactions. Children with autism will commonly choose to be alone and engage in solo activities rather than join in group play. While they may still choose to be alone when adults, it is essential that they learn the skills of social interaction so they can use them when they need to. In the family day care, this means setting up cooperative tasks, encouraging other children to join in with the child, encourage sharing and turn taking and many of the other social skills that are taught as a matter of course. This may even mean intervening in ‘free play’ sessions where you might not normally become involved. By focusing in on this social area, it is likely that you will notice that the child with autism is not the only child who tends to avoid contact. Children will often be near other children but not interacting, even though this may not be apparent until you watch carefully over time.

4.5 Using support workers. When working with a child with autism, additional support may be required, usually in the form of a support worker. How this person is used can be quite critical. If the support worker becomes in effect the child’s teacher, it can mean that effectively all of the interaction that

occurs is adult-child, with the adult actually getting in the way of the development of cooperative interactions between children. There will be times where 1-1 interaction with the support worker is both appropriate and desirable, but as a general rule the support worker should always be working towards becoming a support for the whole group, not just the child with autism.