



An independent outcome study of a 'Treatment and Education of Autistic and related Communication-handicapped Children' (TEACCH) intervention for children with autism

An Autism Spectrum Australia (Aspect) model class pilot project

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Project Summary

Background

Aspect schools have a history of rising to the challenge in the field of special education for children with autism spectrum disorders (ASD). This is true of the Aspect Vern Barnett School and the Aspect Central Coast School. Both schools agreed to help trial components of the educational approach called TEACCH (Treatment and Education of Autistic and related Communication-handicapped Children). The trial involved considerable preparation and data collection, but the schools' efforts were rewarded by overwhelmingly positive outcomes. In the case of the Aspect Central Coast School the TEACCH-based trial took place when staff were teaching two classes in one demountable classroom whilst new school premises were being constructed.

The following paragraphs will trace some of the major signposts of this project, particularly the "why", the "when and where" and the "how" of the initiative. Although, for convenience, the pilot will be referred to as "TEACCH" throughout this report, the pilot was really restricted to the structured teaching aspect of TEACCH. The full TEACCH program would involve other features such as parent collaboration which were beyond the scope of the pilot.

Why TEACCH?

Aspect is known for its comprehensive educational approach (ACEA), and its preference for taking the best elements from a number of different educational approaches rather than relying exclusively on a single intervention model. Nevertheless, it was appropriate to single out TEACCH for evaluation, because TEACCH elements permeate Aspect service delivery particularly in relation to the use of structured environmental supports, where the research of key TEACCH proponents (including Mesibov, Shea, Schopler, Marcus) is used to support Aspect's practices.

Accordingly, in order to provide an independent appraisal of the outcomes, the data were evaluated by Dr Chris Kilham from the University of Canberra which has particular expertise in teaching and researching the TEACCH approach.

Structured Teaching and TEACCH

TEACCH is probably best known for developing an intervention approach called Structured Teaching, which is widely applied in education (Mesibov & Howley, 2003; Mesibov, Shea, & Schopler, 2004). The principles of Structured Teaching include:

- Understanding the culture of autism.
 - Developing an individualized person and family-centered plan for each client or student, rather than using a standard curriculum.
 - Structuring the physical environment.
 - Using visual supports to make the sequence of daily activities predictable and understandable.
 - Using visual supports to make individual tasks understandable.
- (Source: <http://www.teacch.com/whatis.html>)

When and where was TEACCH implemented and evaluated?

The Aspect model class pilot project ran over the 2008 school year following 5 days of training for teachers and 2 days of training for most of the teaching assistants. In the early stages of the project, there was a learning phase while staff created resources and received mentoring so that program fidelity could be established. Consequently, the data were split into pre-TEACCH (early 2008) and post TEACCH (second half of 2008) which were then compared to determine the impact of TEACCH.

The project was centred on two classrooms in two of the special schools operated by Aspect. Two classrooms from both schools catered for younger students (5 or 6 years old) and two classes from both schools were for older students.

How was progress measured?

- Once each term in 2008, all staff were asked to complete the *TEACCH Preschool Curriculum Guide: A Curriculum Planning and Monitoring Guide for Young Children with Autism and Related Communication Disorders*. The Preschool Curriculum Guide (PCG) is a comprehensive guide that assesses the child's use of elements of structure as well as cognitive readiness skills. The child's response is scored as "Fail" "Emerging" or "Pass" for "visual structure" skills such as using their daily schedule to transition independently, using a work system to help them complete work, and following visual instructions appropriately. The PCG also measures cognitive readiness skills such as attending, matching, number, pre-reading, communication, social, play, fine motor, imitation and group skills.
- Three times in the year in 2008 (at the beginning, middle and end of the year), all staff were asked to film their pupils for approximately 15 minutes. The DVD footage comprised interactions of the student with peers, staff and learning materials. The DVDs could thus be used to assess progress in skills and behaviour and could also help to assess fidelity, by examining the teachers' actions.
- Throughout the year, all staff were asked to keep a digital diary (blog), about significant interactions in the classroom. These were moderated by the Aspect TEACCH mentor.
- Staff participated in a teleconference/focus group for approximately an hour at the end of the project.
- All staff were asked to evaluate their own knowledge and application of TEACCH or general classroom strategies.
- the TEACCH mentor provided feedback and commentaries on the teachers' skills.
- Parents were invited to complete an anonymous questionnaire at the end of 2008.

What were the outcomes?

In the current evaluation, there were eight major questions:

1. **What are the outcomes for students, of the TEACCH pilot?** To answer this question, the children's behaviour was observed directly (from the DVDs) and the view of teachers and parents were also solicited.
- The PCG revealed that there were highly significant positive changes over time ($<.001$ and $p<.01$) for all the TEACCH classrooms, for 12 of the 13 skill categories. Skills linked to structured teaching, such as using daily schedules and work systems independently, showed the greatest improvement. This was consistent with expectations and supported program fidelity – that the teachers really were "doing TEACCH".

- Similarly, the DVDs suggested there was an increase in independence, because the teachers significantly decreased their verbal prompting as the year progressed.
- The blogs provided examples of the students' positive responses to the introduction of structure, particularly for engagement and independence.
- The focus group provided further affirmative examples of student engagement and behavioural improvements.
- The parent responses to the questionnaire were generally positive.

2. What are the outcome effects on student independence in particular?

In the evaluation, independence was targeted because TEACCH aims to help the person with autism to learn to visually "read" the environment (including their schedule or diary). Hence, they should no longer have to be prompted by teachers, caregivers and other individuals to tell them what to do.

An increase in independence was supported by an analysis of the DVDs which revealed that the staff spent less time "hovering" near the student over the latter part of the year.

The blog and focus group were also consistent with this interpretation. A content analysis of the blogs was conducted.

Blog comments included:

"To my surprise it worked. The children knew exactly what to do, the teachers just watched as the class worked. TEACCH is fantastic!"

"It was an eye opener to see how even this one part of TEACCH was so amazing for those that do not know TEACCH to see. Realising this made me think that I should be reporting back to my own colleagues more regularly about how TEACCH is going in my room"

Focus group comments included:

I loved everything about TEACCH. There was a lot less stress on staff in the classroom. The kids were calmer because of structure.

TEACCH made me focus more on the individual, whereas before they used to use a group timetable.

TEACCH is good for the whole school. It helps all teachers believe that even high needs students can be independent.

Those who were more able couldn't get enough independent work, once they grasped what was required.

They could take a task on even if could not quite understand it. They would attempt it and put in the finish box. They were not getting frustrated.

It stopped a lot of anxiety in knowing what was to happen throughout the day. The classroom seemed to run more smoothly.

The PCG analysis indicated that the students understanding of visual structure increased – which suggests that students will be more independent of adult guidance as long as the teacher provides them with visual structure.

3. Program fidelity - Is TEACCH being implemented as intended?

The evaluation had to determine that Aspect staff were actually implementing TEACCH as it was meant to be implemented. Any program that deviated from Division TEACCH's recommended philosophy and practices could not have its outcomes attributed to TEACCH.

The data indicated that the teachers were implementing structured teaching at an acceptable level of fidelity by the latter half of 2008, the intervention year. An improvement over time was noted in the DVD analysis, and staff also assessed their own practices as being more "TEACCH-like" by the end of the year. In addition, an examination of the Aspect TEACCH coordinator's comments noted an exchange of views that showed understanding of TEACCH principles.

That means that TEACCH must be considered a possible factor in the outcomes noticed for students and teachers.

Importantly, the data also indicate that teachers need time to become accustomed to a new approach, and that follow-up monitoring and support is important to help increase their skill levels and confidence, and reach a satisfactory level of program fidelity, even after an extensive 5 day (or 2 day) professional experience workshop. Maintenance of skills is also important.

4. To what extent do teachers use elements of structure? In the TEACCH context, structure includes:

- physical structure of the setting;
- individual schedule;
- individual work system;
- routines and strategies;
- visual organisation.

The PCG showed that the students improved in their use of structure – because the teachers were using it in their own teaching. There were more instances of the use of visuals in the DVDs, but room for improvement in the variety of visual instructions used by teachers.

5. What is the staff attitude to the culture of autism? In the TEACCH context, the culture of autism refers to respecting and understanding the distinctive information processing styles of people on the spectrum and responding to their behaviour appropriately.

Analysis of data showed that an appreciation of the different learning styles was communicated in the focus group and the blogs. The DVD qualitative analysis also revealed that teachers understood the importance of individualising materials and using the child's strengths and interests.

6. What are the teachers assessment practices? Division TEACCH advocates that staff should use assessments as a guide to understanding their students, customising the programming for each individual student, and monitoring outcomes.

The teachers' assessment practices were not observed directly. However, the teachers' ability to utilise the students' strengths and interests in the DVD material suggested that they must have conducted adequate informal assessments. Nevertheless, there is room for improvement because a relatively large amount of the PCG was filled out differently by different teachers, and there was a relatively large amount of missing data.

7. Training over time. Conventionally, the preliminary hands-on TEACCH training covers five days. Over and above this, Aspect added a mentoring element, using a coordinator with TEACCH expertise who had trained at Division TEACCH in the USA. The teachers spoke positively about their initial 5 day training, but the many questions covered by the expert coordinator in subsequent months showed that time for consolidation was necessary, and that a vigilant expert coordinator or mentor paid dividends.

8. What is the social validity of TEACCH? The social acceptability of goals, procedures and outcomes of TEACCH is related to whether those programs will be used.

The predominantly positive comments by parents in the questionnaires, and their desire to implement TEACCH at home, suggests that the TEACCH social validity is high. Most of the teachers were also positive about TEACCH in the focus group, although two caveats are worth mentioning. The first is that teachers found the preparation of visual supports to be very time consuming, which was a deterrent. The second is that some staff found that when the students were working independently and were engrossed in a task, they were not interested in engaging socially with those around them. Further clarification of the role of structured teaching and how it can promote social interaction would be appropriate. Nevertheless the generally positive response suggests that the TEACCH principles and assumptions are valued, so are likely to be implemented.

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It should also be mentioned that the evaluation did not include control classrooms and therefore it is impossible to rule out the interpretation that the student outcomes were due to the children becoming more capable simply because they were older. However the teachers' observations that the students' progress outstripped their previous development, and the fact that so many results consistently pointed to improvements in targeted areas suggest that TEACCH - not maturation - was responsible. Based on the above results, a number of recommendations were made to Aspect. These included:

- TEACCH should continue to be used in Aspect special schools, with the option of expanding to the whole school.
- Time needs to be allowed for teachers to develop expertise, make resources and complete documentation.
- Record keeping should be rigorous and consistent, and forms should be developed so that it is minimally onerous.
- The practice and function of prompting, particularly verbal prompting and prompt dependence, needs to be clarified with teachers.

- Parents should be involved to a greater extent. Most parents indicated that they desired this, and parent involvement is part of the TEACCH philosophy.
- Limitations in the physical environment, such as cramped classrooms, make the program more difficult to implement.
- The role of Coordinator/Mentor or similar position is essential to the success of implementing a new program.

In summary, the TEACCH program was associated with some significant improvements in teacher skills and student abilities. In the time since it was first implemented, teachers have expressed the view that it is necessary to spend time (on creating resources) to save time.

References

Mesibov, G. & Howley, M. (2003). *Accessing the curriculum for pupils with Autism Spectrum Disorders*. David Fulton Publishers.

Mesibov, G.B., Shea, V., & Schopler, E. (2004). *The TEACCH approach to Autism Spectrum Disorders*. Springer

The Aspect vision for research

Aspect is committed to improving the lives of individuals with ASDs through service provision and evaluation for continuous improvement. As the largest ASD-specific service provider in the country and one of the largest in the world, Aspect is well positioned to facilitate and conduct such evaluation. Aspect undertakes and supports research to evaluate Aspect's and other programs, practices and interventions in order to provide improved services and interventions for children and adults with ASDs. Aspect also promotes research at state and national levels and facilitates tertiary students' research. As our mission is to develop our knowledge of what can be done to support individuals with ASDs, research findings will also make a significant contribution to the field of international research into ASDs. Aspect requires ongoing funding to support these key initiatives and is always keen to talk to potential new partners and donors.



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