

TEACCH supported Individualized Education Program in mentally retarded children and autistic children

Tsuey-ling Lee

National Hsin-Chu University of Education

The purpose of this paper is to describe a successful TEACCH (Treatment and Education of Autistic and Related Communication-Related Handicapped Children) strategy supported IEP (Individualized Educational Program) process for 1 pre-school child with mental retardation and 2 pre-school children with autism. The old and present IEP documents, interviews with teachers, and class observations were used to collect data and evaluate the IEP goals. The TEACCH strategies including weekday routines, task organization and visual-oriented teaching materials were integrated in class management and instructions to approach children's IEP goals. The results indicated that the percentage of children's abilities in communication, social production, self-help and motor skills have been raised in their IEPs. Based on exploratory analyses, the use of the TEACCH strategy is effective in IEP process not only in autistic children but also in mental retarded children.

Keywords: TEACCH, IEP, Mental retardation, autism, case study

Introduction

The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) program has been specifically designed for children with autism; it takes into account the features of the disorder and tries to minimize the child's difficulties using structured and continuous intervention, environmental adaptations, and alternative communication training (Schopler, 1994). The program was founded in 1971 at the University of North Carolina at Chapel Hill when the Department of Psychiatry enlisted the help of parents of children with autism as co-therapists for their own children (Schopler & Reichler, 1971). Since then TEACCH has evolved into a statewide, community-based program (Campbell, Schopler, Cueva, & Hallin, 1996).

The framework for TEACCH is structured learning that emphasizes development of learning through the use of visual prompts or cues in the environment that capitalized on visual processing strengths of children with autism. Four major components of structured

teaching are physical organization, schedules, work systems, work systems, and task organization (Schopler et al., 1995). Within each component, considerations are given for the child's developmental levels (e.g. preschool or adolescent) and the child's individual needs.

Today TEACCH is recognized as one of the most valid treatment programs for children with autism as well as the children with mental retardation. Several studies have shown its effectiveness in different countries.

In the USA, several studies have been carried out to prove TEACCH effective in children with autism and severe intellectual disability (Panerai et al. 1997, 1998) in reducing self-injurious behaviors (Norgate, 1998) in high-functioning autistic students with Asperger syndrome (Kunze & Mesibov, 1998) and in individuals who are entering the job market through support programs (Keel et al. 1997). A few studies have compared the TEACCH program with other interventions. Ozonoff & Cathcart (1998) on pre-school children and the performance of the experimental group was reported to be four fold better than that of the control group on the basis of some PsychoEducational Profile – Revised (PEP-R) subtests, i.e. imitation, gross and fine motor skills and non-verbal concepts.

In Italy, An investigation of a 4-year-old child with autism associated with severe ID revealed a remarkable progression during the application of the TEACCH program, and several episodes of regression were observed subsequent to the interruption of the program and the integration of the child in a regular state school. At the Oasi Maria SS Institute, Troina, Italy, the TEACCH program has been applied for several years to children and adolescents with autism, as well as severe and profound ID. All the staff members have been trained by the Opleidingscentrum Autism of Anversa. The results have been encouraging: indeed, several studies have revealed statistically significant improvements in all PEP-R and Vineland Adaptive Behavior Scale subtests, validating the effectiveness of the TEACCH program in the present sample. Panerai, Ferrante & Zingale (2002) compared the effectiveness of TEACCH and the integration program for individuals with autism associated with severe intellectual disability and found the scores of the TEACCH group increased more than the integration group on the Psycho-Educational Profile – Revised and the Vineland Adaptive Behavior Scale.

In Taiwan, several studies were completed in pre-school and primary school levels to explore the effectiveness of TEACCH. Wang & Zuang (1998) examined the effects of TEACCH on pre-school children with autism and reported positive outcome in cognitive dimension. Nee (1999) and Wang et. al (2001) found a significant improvement in

autistic pre-school children's learning. In primary school level, Zeng et al (2000) and Yang (2000) used TEACCH to organize class management and showed very satisfactory.

The applied treatment intervention is based on the fundamental principles of TEACCH methods, i.e. an individualized educational program, environmental adaptation and alternative communication (Panerai & Zingale, 2002). Hence, the TEACCH can potentially to support IEP process.

Recently urges development of goals encourage IEPs that meet the unique needs of the child and that are meaningful and functional in the variety of contexts within which the child participates (Nortari-syverson & Schuster, 1995). The Individualized Education Program (IEP) emphasizes that the education should meet the special needs for students with disabilities.

There are a number of programs focusing on how to meet the students' special need in IEP. Horn, Lieber, Li, Sandall & Schwartz (2000) used 3 case studies to assess the feasibility for teachers in inclusive early education programs support young children's learning objectives through embedded learning opportunities and it proved effective after conducting the study. Kohler & Strain (1996) examined the merging naturalistic teaching and peer-based strategies to address the IEP objectives of preschoolers with autism and found that teachers often conducted instructional episodes in a 1:1 fashion during the naturalistic teaching phase.

IEP has been becoming the curriculum core nowadays. It's created intentionally to help the individual student with special needs to fulfill his or her own potential. In this situation, IEP goals and objectives have to be based on student's special needs. Thomson, Bachor and Tomson (2002) used a decision-making model in means of identifying the student's current instructional needs initially, extended instructional materials and methods afterwards. Finally, the progress of the child was examined. The teachers who participated in this study showed positive in developing IEPs based on curriculum-oriented model. It tends to enter an era to connect the student's unique needs, goals, objectives and class dynamical activities in IEP. The approach related to environment, ecology and curriculum has been addressed for wider application across all areas of school provision.

This study is intended to implement the IEP process of linking the student's unique needs with goals and intervention i.e. TEACCH program by presenting three case studies, one of whom has mental retardation and two of whom have autism.

Methodology

Subjects

Three pre-school children in San Francisco were selected as case studies to support IEP goals by means of TEACH. Table 1 shows their features

Table 1 Features of the subjects

Subject	Nick	Sex	CA	Ethnicity	Category	Severity
Ford	F	M	4.9	Indonesia	autism	severe
Mac	M	M	4.4	Tagolog	autism	severe
Tom	T	M	4.10	Africa	Mental redardation	severe

Instruments

Observations, interviews, records and IEP documents were used for eliciting the students' present levels of performance and the unique needs. The TEACCH were used by the students' teacher to evaluate the effectiveness and understand the attainments to the IEP goals.

Role of researcher

I played multiple roles in this study and they are:

1. Observer: I'm a classroom observer. I'm also a class helper.
2. Interviewer: I interviewed the class teacher Frank and my co-worker Spring who is an associate professor in San Francisco State University. Spring, 45, female, was Frank's adviser when Frank was doing his master degree before.
3. Scholar: I was a Fulbright exchange scholar doing IEP research in USA. The students' parents expected me to find out their children's special needs and empowerment. Teacher Frank expected me to offer him suggestions related to the implementation of TEACCH on his students. I hope my research can entail no more than a feasibility of the application of an innovative approach to supporting and resourcing students experiencing learning difficulties for my students in Taiwan.

Data Analysis

All data were collected and analysis simultaneously. This is constant comparative method. The method of coding shows as: case + methodology (OB----observation; IT----interview; Individualized Education Program ----IEP) + date (month/day/year). For example: **F-OB-12/7/04 means observation record about Ford on Dec. 7, 2004.**

Credibility and transferability

In order to deal with the credibility, following methods were used:

1. Continuing observations: There were 3 days observations per week and the observations continued 3 months from Nov. 2004—Mar. 2005. It's trying to use rich and continuing observation records to raise the credibility.
2. Triangulation: The observations, interviews and IEP files were used for test triangulation.
3. Class teacher and my co-worker helped to check the observation records. The reports about students after completing this study were presented to parents and class teacher as a feedback.
4. Reflections: I wrote class diary since entering the classroom.

In order to deal with transferability, the descriptions of physical environment in classroom and the reflection diary were presented to the readers for judging it's use in different situation. .

In dealing with dependability, using overlapping method to prove it's dependability.

Results

Case 1: Ford

Ford is using a picture schedule (TEACCH) at school and he is using it throughout the day to help him transition. This has helped him decrease his temper to turn during transitions. Ford still stitches affection with peers picking to play with toys by himself.

(I) Present levels of educational performance and needs

	2003	2004
Strengths	Strong visual skills, some indications of a good memory, learns by watching others, enjoys being with other children and watching them. Learns with pictures. (F-IEP-03)	Ford is a sweet, happy boy who enjoys school and the routine of the classroom. Ford's ability to navigate throughout the day and perform classroom activities are enhanced with the use of visual supports. Ford is able to communicate w/peer to request

		items that he wants. He also enjoys participating in classroom activities such as circle time (F-IEP-04)
Needs	Cognitive, motor, self help, communication, social emotional skill are delayed (F-IEP-03)	Communication, self-help, learning readiness, gross motor , social interaction. (F-IEP-04)
Behaviors	Affective with family members; prefers specific adults; plays near peers and sometimes watches them; can get frustrated with requests not understood ; cries and pushes people away; may join peers in running game outdoors. (F-IEP-03)	Ford will engage in parallel play & is aware of others in a structured routine. He is more aware of adults than children. He is attached to his parents and brothers. (F-IEP-04)
Communication	limited use of words, pictures and perverted behaviors; inconsistent responses to and use of words. (F-IEP-03)	Ford uses picture exchange communication alone with words, pictures, visuals help him follow directions. (F-IEP-04)
Health	Gets sick easily; gets ear infections; flu and disorder after stays sick for 10 day (F-IEP-03)	Freddy gets rashes easily. He is allergic to cow milk & is on a gluten & caisson free diet. (F-IEP-04)

(II) Measurable annual goals & short term objectives (benchmarks)

1. Self-helping

Area	Year	baseline	Annual goal	Objectives	standard
toileting	2003-04	wears diaper at school	75% of the time on a daily basis	1. Ford will sit on the toilet when taken by an adult 2. Ford will use the toilet when taken on a regular schedule 3. Fordwill use a card and /or picture to indicate his need to use the toilet	80% 75%
feeding	2003-04	eats limited types of finger foods.	Freddy will feed himself a variety of foods.	1. Ford will eat a variety of finger foods during snack/lunch time. 2. Ford will feed	on a daily basis on a

				<p>himself with a spoon for specific foods he likes.</p> <p>3. Ford will eat the foods presented during snack/lunch time using foods/fingers as appropriate</p>	<p>daily basis</p> <p>on a daily basis</p>
Self-help	2004-05	<p>1. Will not use toilet when taken</p> <p>2. Inconsistently taken off backpack & jacket, unable to put on.</p> <p>3. spills large amount of meal, using spoon</p>	Ford will improve his self-help skills and independent functioning.	<p>1. Ford will use the toilet when taken by an adult.</p> <p>2. Ford will take off jacket and backpack and put on backpack and jacket during school day.</p> <p>3. Ford will eat with a spoon without minimal spilling during breakfast and snack.</p>	<p>80%</p> <p>80%</p> <p>80%</p>

2. Communications

Area	Year	baseline	Annual goal	Objectives	standard
Language comprehension	2003-04	follows some routine directions with picture prompts	Ford will respond to a variety of single directions during classroom activities.	1. Ford will respond to single verbal classroom directions when given picture prompts.	80%
				2. Ford will respond to single verbal classroom directions when given gestural cues.	80%
				3. Ford will respond to single verbal classroom directions when given only verbal	80%

				input .	
Expressive Communication	2003-04	uses a few food pictures to request limited food choices	Ford will use words/pictures to request, label and respond.	<ol style="list-style-type: none"> 1. Ford will use words or pictures to request food/people/activities. 2. Ford will use words to request and label food/people/toys. 3. Ford will use pictures and/or words to request, label and regard to single questions. 	<p>10X</p> <p>15X</p>
Communication	2004-05	Requests during structured activities, not yet free play-does not greet	Communicate to request, greet classmates throughout the day	<ol style="list-style-type: none"> 1. Request toys, books during free play, reading time using picture exchange or words. 2. Request activities, toys during outside play using picture exchange or words. 3. Greet classmates & teachers by 'name', 'hi', 'bye', using words along with pictures. 	<p>5/per day</p> <p>3/day in play</p> <p>picture cues 4 of 5 opportunities during structured activities.</p>
Receptive and expressive communication	2004-05	Responds to 'what do you want' with pictures & phrase 'I want.....' during structured activities	Use a picture sequence, word or verbal phrase to respond to questions	<ol style="list-style-type: none"> 1. Respond to 'what do you see' using pictures or words to express 'I see a 2. Respond to 'do you wait' and 'is it a ...' with 'yes' or 'no' using word or icon. 	<p>4/5 in structured activities</p> <p>4/5 class activities</p>

				3. Respond to ‘what is he/she/it (the girl, boy, dog etc) doing’ ‘ Using ‘he/she/it (girl, boy, dog, etc.)’ With words or pictures.	responds conversations with words or pictures
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3.Cognitive/pre-academic

Area	Year	baseline	Annual goal	Objectives	standard
Cognitive /pre-academic	2003-04	1. Emerging gathers red objects together, matches 2 sets of identical objects	To increase cognitive/pre-academic skills	1. Ford will match colors when given toys and objects that include red, black and white or another color /colors that he likes during teacher led activities.	80%
		2. see above		2. Ford will match shapes, including , , during teacher led activities.	80%
		3. Ford corrects by rote to at least ten.		3. Ford will give one or two of many when asked by adult with verbal prompt and gestural and picture support	80%
Cognitive /pre-academic	2004-05	Ask to rote count 1-10 when looking at number	Ford will improve his pre-math skills and demonstrate an understanding of mathematical	1. Ford will stack items in order, using a variety of toys or teacher made materials 2. Ford will count up to 10 objects during familiar and novel	80% 80%

			concepts.	<p>activities throughout the day and will count objects at home but inconsistent at school</p> <p>3. Ford will give one, two, or three objects using words or pictures during a variety of classroom activities.</p>	80%
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Case 2: Mac

Teacher Frank indicated the TEACCH supported Mac’s learning and his progress showed as:

- 1) Mac follows routine directions with physical/ gestural / contextual cues.
- 2) Mac is beginning to request food/ toys using pictures. He is using a picture discriminations.
- 3) Mac request at snack, breakfast, speech with some adult help. We are continuing to find things he likes for requesting.

(I) Present levels of Performance and special needs

	2003	2004
Strengths	<p>1. Mac is a sweet boy who likes to play with toys that make sound, he communicates nonverbally by pushing, grabbing hand & directing others to his interests, eye contact is improving, likes to look at himself in the mirror. Social: reaches for his father & another, shows affection to familiar people. Self-help: can feed himself, search for straw & drink from a glass. (M-IEP-03)</p> <p>2. Motor: no difficulties in fine motor – grab & manipulates objects. Gross motor: can climb, walk up & down stairs. Imitates movements on TW. Likes movement & sounds</p> <p>3. Learning routines sequences on T. V. responds to music but can be distracting for him. Very physical child.</p>	<p>Likes sensory play, sound toys, tickling game, books, alphabet activities. Will focus and work on individual fine motor tasks for such as matching, puzzles and pegboards for up to 20 minutes. Recognizes name symbol to transition. Currently is in phase 1 of PECS which is requesting desired item with icon. Mel is compliant and follows the classroom routine with gestures and adult guidance. (M-IEP-04)</p>
Needs	<p>1. Communication: limited nonverbal repetitive, pushing, pull, grabbing, no joint attention. Limited play repetitive – like toys with sound. Preoccupation with dad's hands & shoes.</p>	<p>1. Communication: Uses gesture: hand manipulation, handing toys; combines with eye contact if adult waits; combined with / de /or repeats some CV syllables to request, gives picture to request</p>

	<p>No interest in cognitive skills like puzzles, or a variety of toys. Few imitative skills will wave bye bye with prompting (M-IEP-03) 2. Language: Receptive language: responds to sounds – locates source some understanding of request to ‘come up’. No responding to name or no (50%) of the time responds to some cookies request ‘wipe Expressive language: uses nonverbal communication. Makes choice of food, pushes, pulls his parents, hand to an activity, enjoys T. V & will laugh & imitate some actions, some bobbling sounds no words, protest by crying. Gets parents to get him what he wants. Operates on his own agender. _ 3. May dert into street but fine if holding his hand.</p>	<p>about 5-10 food/objects (continued in p.3). 2. Needs adult prompting to transition and engage in free play activities. Imitation, increase interest in toys and activities and interact with adults and peers. Improve in attention to group activities, individual activities and free play. Increase level and motivation (M-IEP-04) 3. Waves bye in response, signs ‘more’. Needs physical /contextual / gestural cues to follow directions. Becomes more living with ‘people games’ such as tickling & increases vocalizations. Protests by pinch or crying.</p>
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(II) Measurable annual goals & short term objectives (benchmarks)

1. Self-help

Area	Year	baseline	Annual goal	Objectives	standard
toileting	2003-04	will use potty when placed on seat	Mac will use the toilet independently request use with picture.	1. Mac will sit on potty & release himself on a schedule. 2. Mac will request using gestures/ pictures when he needs to use toilet. 3. Mac will use the toilet independently as needed.	4/5 90% 100%
Put-on Take off Jacket backpack	2003-04	0 times	Learn to put on, take off and put away jacket when requested.	1. Will go & get jacket when requested. With assistance will let it be zipped	2X

				& unzipped. 2. Will go get jacket & put it on himself. 3. Will go & get jacket, put it on himself and put it away in designated area.	4X 4X
toileting	2004-05	Will be allowed to be led to toilet & will relieve himself inconsistently.	Mac will independently use the toilet as needed	1. Mac will sit on toilet & relieve himself on a schedule. 2. Mac will request a toilet icon or gesture when he needs to use toilet. 3. Mac will independently use toilet as needed	4/5 4/5 100%
Put-on Take off Jacket backpack	2004-05	Will take off jacket & backpack with adult prompt. Will not put on.	Mac will take off and on his jacket & backpack when he arrives and leaving school.	1. Mac will take off and put on jacket and backpack with verbal & gestured cues & physical prompts 2. Mac will take off and put on jacket and backpack with no more than 2 gestures & verbal cues. 3. Mac will independently take off and put on his jacket & backpack.	4/5 4/5 4/5

2. Communications

Area	Year	baseline	Annual goal	Objectives	standard
Res & exp. language	2003-04	pushes, pulls, grabs/cries to request & protest, knows a few routine commands	Mac will follow routine simple directions and use a expavel his his repetoire of nonverbal communicatio n.	1. Mac to will follow routine directions and in habit to 'no'. 2. Mel will increase use of gestures (pointing), signs, pictures to make requests for a variety of objects / food. 3. (see as above)	4/5 15X 15X
Res & exp. language	2004-05	Needs physical guidance, imitating 'stand up' in singe	Mac will follow basic verbal directions in context with gesture cue only.	1. Follow 'stop, 'go', 'come here', 'wait', 'stand up', 'sit down' with physical cues & model/picture & gesture. 2. Follow 'stop' 'go' 'come here' 'wait' 'stand up', 'sit down' with model or picture & gesture 3. Follow 'stop, 'go', 'come here', 'wait', 'stand up', 'sit down' with gesture only.	4/5 4/5 4/5

3. Cognitive/pre-academic

Area	Year	baseline	Annual goal	Objectives	standard
Cognitive /pre-acde mic	2003-04	no imitation.	Imitate motor actions / affection	1. Mac will imitate motor actions associated with age appropriate games and songs. 2. Imitate actions involving objects (push car, scoop sand).	4/5 4/5

				3. Imitate affective faces happy/ sad/ angry.	4/5
Cognitive /pre-academic	2004-05	n/a			

Case 3: Tom

Tom is tolerating various retribular, proprocetive activities that challenge his gravity balance insecurity. He likes to roll in the barrel at the therapy unit. Initiating jumping antrampoline. He has down the amount of toe walking at otherwise his gait, running patterns. Remain immature. He is going up and down stairs and rail when encouraged with supervision only. Fine motor skills are improving, he is helping to put on/off shoes, jacket, will carry various objects to certain area. Good progress observed.

(II) Present levels of Performance and special needs

	2003	2004
Strengths	Loves interacting with peers ---very social. Loves to sing, tries to sing words, affectionate, goes to grandmother for affection. Loves the bath tubs, can wash hands with help, tries to clean grandma more Sitting with the group + follows day routines.	Tom enjoys coming to school. He has adapted to the classroom routines & comes with some physical prompting, visual & contextual cues to all activities. He especially enjoys the activities of circle time, music & singing, turn-taking, helper jobs at circle, which he does with support. He participates with hand over hand, support for most activities. (continued)
Needs	Daily Living: Sleeping: wakes up in the middle of the night & doesn't go back to sleep. Eating: only kindacal formula from a bottle. Starting to introduce new texture + formula: 6,7 times a day. Helps with dress, can take off sock, can sit on potty.	Communication, Speech & Language Self-help, Learning Readiness Gross & Fine Motor

(II) Measurable annual goals & short term objectives (benchmarks)

1. Self-help

Area	Year	baseline	Annual goal	Objectives	standard
Potty training	2003-04	Sits on potty now	Tom will independently use the toilet to relieve himself	1. Tom will sit on potty on schedule with needs. 2. Tom will use	4/5 4/5

				potty on a schedule. 3. Tom will use potty independently or let adult help	4/5
toileting	2004-05	Will sit on potty, not compliant, will cry and frustrated.	Tom will use the toilet when taken	1. Tom will go to the potty when given a visual cue such as a diaper, icon or transitional object 2. Tom will sit on toilet when taken w/o tampers 3. Tom will use the toilet when taken.	4/5 4/5 4/5
Put-on Take off Jacket backpack	2004-05	Will walk and run when he arrived / cines without left anything	Tom will take off his backpack & jacket when he comes at school independently	1. Tom will go to his cubby or the area of his cubby /toilet to wait for physical assistance to take off backpack & jacket. 2. Tom will take off his jacket & backpack with minimal physical assistance. 3. Tom will go to his cusly independent .	4/5 4/5 4/5

2. Communications

Area	Year	baseline	Annual goal	Objectives	standard
Receptive language	2003-04	slow consonant	Tom will understand	1. Tom will show understanding of	3/4

		to 1 year.	and respond to routine classroom vocally + directions	names of familiar objects. 2. Tom will respond to routine classroom directions (come here, sit down, wash hands). 3. Tom will respond to routine verbal classroom directions with minimal cuing	8/10 8/10
expressive language	2003-04	gestures, cries, babbles, takes hand to desired object	Increase rate, means and functions of intentional communication.	1. Increase use of gestures, vocalizations / verbapplications to another person during play interactions 2. Request social routine and game by gaze vocalization, or word of conversational gesture or action. 3. Request desired objects & actions by word / pictures & gestures.	5X 5X 10X
				4.	

3. Cognitive/pre-academic

Area	Year	baseline	Annual goal	Objectives	standard
Cognitive /pre-academic	2003-04			n/a	
Cognitive /pre-academic	2004-05			n/a	

Conclusions

These results support that the TEACCH is a potential method for have access to IEP goals for children with autism and children with intellectual disabilities in implementing the IEP process. The key to ensuring success using TEACCH during IEP process is based on individual needs.

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