Teaching for Generalization in the Natural Environment

Jolin Jackson, MS, BCBA
Miguel Ampuero, MA, BCaBA
PaTTAN Autism Initiative ABA Supports Consultants

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Pennsylvania Training and Technical Assistance Network

PaTTAN's Mission

The mission of the Pennsylvania Training and Technical Assistance Network (PaTTAN) is to support the efforts and initiatives of the Bureau of Special Education, and to build the capacity of local educational agencies to serve students who receive special education services.

PDE's Commitment to Least Restrictive Environment (LRE)

Our goal for each child is to ensure Individualized Education Program (IEP) teams begin with the general education setting with the use of Supplementary Aids and Services before considering a more restrictive environment.

Presentation Agenda

1. Conceptual Base for NET Instruction
   - Motivating Operations
   - Generalization and Discrimination

2. Comparison of DTT vs NET

3. Application and Programming for NET
   - Level 1
   - Level 2
   - Level 3

4. Data Systems

5. Implications for NET training in home

6. Video examples

Applied Behavior Analysis

"The science in which tactics derived from the principles of behavior are applied systematically to improve socially significant behavior and experimentation is used to identify the variables responsible for behavior change"

- Cooper, Heron, & Heward 2007

ABC Analysis

Antecedent	Behavior	Consequence
Motivation - Increases value of reinforcement - Evokes behavior	What the individual does Not always negative!!	Reinforcement -Increases future probability of behavior - Positive and negative
Discriminative Stimulus (SD) -Signals the availability of reinforcement	MOVEMENT	Punishment - Decreases future probability of behavior
		Extinction - Schedule of reinforcement – Sr+ stops – Behavior fades

Antecedent = Immediately before

Consequence = Immediately after

Reinforcement

- Consequence that INCREASES future probability of behavior
- Reinforcement ALWAYS INCREASES future probability of behavior – never decreases
- Two types:
  - Positive Reinforcement – Consequence that increases future probability of behavior by ADDING something
  - Negative reinforcement – Consequence that increases future probability of behavior by TAKING SOMETHING AWAY

Skinner's Analysis of Verbal Behavior

- Book Verbal Behavior – B. F Skinner 1957
- Functional approach to language acquisition (functional = why it happens rather than how it looks or what happens)
- Language is "learned behavior" that is acquired, extended, and maintained by the same environmental variables that control non language behavior (SD/MO)

Skinner's Analysis of Verbal Behavior

- Verbal units: Mand, Tact, Echoic, Intraverbal
  - Non verbal units: Listener Response, Match to sample, Motor imitation
- All skills or skill sets can explained and taught in relation to the verbal operants.
- "Behavior that is reinforced through the mediation of another person's behavior"
  - » B.F. Skinner, 1957

Motivating Operations (MO)

- Enrironmental variable (**always in the environment!!!**) that: a) alters the effectiveness (value) of some stimulus (reinforcer) and, b) alters the frequency of all behavior reinforced by that stimulus (reinforcer)
- In other words – it is an antecedent that will alter the value of reinforcers and evokes behavior
- Factors that alter MO – Deprivation/Satiation
- Critical component in NET training

Types of Conditioned Motivating Operations (CMO)

- Variables that alter reinforcement effectiveness as a result of learning history
  - **CMO- T (transitive)** – Motivation is established for another object/activity in order to contact terminal reinforcer (e.g. if the terminal reinforcer is opening your house door – in order to do so you need your keys so motivation is established for your keys)
  - CMO-R (Reflexive)- Motivation is established for behaviors that will REMOVE item/activity or unpleasant stimulation
    - Increases value of escape as a reinforcer

Practice Examples of CMOs

- Child wants to play with bubbles but lid too tight establishes value for .... (CMO – Tor R?)
- Child is asked to cut shapes in order to get a cookie but no scissors are given – establishes value for …. (CMO-T or R?)
- Child sees a teacher approach with worksheets and runs away – establishes value of ..... (CMO-T or R?
- Temperature really high (90 degrees) child running with sweater – establishes the value of ..... (CMO T or R?

Generalization and Discrimination

Genearalization

- Generalization – Transfer of a response due to SIMILARITIES of stimuli
- The occurrence of relevant behavior under different, non training conditions or situations
- Any meaningful behavior change must occur:
  - Over time, persons, settings
  - Should spread to a variety of related behavior

BE CAREFUL - NOT A NATURAL OUTCOME !!

Generalization

- "There is a NEED to actively program for generalization rather than passively expect it to be the result of any teaching technology or training procedure" (Stokes & Baer, 1977)
- Generalization is NOT the training that occurs outside original training conditions – it is the exhibition of a particular trained skill in an untrained or novel scenario or circumstance.

Stokes & Baer, 1977

- Described generalization as an ACTIVE process with its own training technology and procedures
- Stresses that generalization is NOT a natural outcome of training
- Provided us with nine (9) lines of research in generalization that helps with organization and conceptualization of generalization and its programming

Stokes & Baer, 1977 (continued)

- Train and Hope
- Sequential Modification
- Introduce Natural Maintaining Contingencies – (perhaps most important – MO based)
- Teach Sufficient Exemplars
- Train Loosely
- Use Indiscriminable Contingencies.
- Program common stimuli
- Mediate Generalization
- Train to "Generalize"

Stokes & Baer, 1977 (continued)

- Recommendations
  1. Look for a response that enters a natural community – teach subjects to cue their potential natural communities to reinforce their desirable behavior
  2. Keep on training multiple exemplars – diversify them
  3. Loosen experimental control – train multiple exemplars concurrently – vary SDs and reinforcers

Stokes & Baer, 1977 (continued)

- Recommendations:

4. Make unclear the limits of training contingencies – use intermittent schedules.
5. Use stimuli likely to be found in natural environments in training settings as well
6. Reinforce accurate self reports of desirable behavior – apply self recording and self reiforcement when possible
7. Reinforce when generalization occurs

Discrimination

- Discrimination – Selecting or emitting a response based on a difference between stimuli
- Involves tight stimulus control
  - These two are in constant tension
    - Too much generalization leads to discrimination errors
    - Too much discrimination leads to lack of generalization

Discrimination in LR

- Touch the flower.

Teaching for Generalization: An Initial Tact

- What is it?

Multiple Exemplar Training

- What is it?

Generalization or Discrimination?

- What is it?

Genearlization or Discrimination

- What is it?

Generalization or Discrimination?

- What is it?

Genearalization or Discrimination?

- What is it?

Genearalization or Discrimination?

- What is it?

Generalization or Discrimination?

- What is it?

Fluency Training and Generalization

- Research suggest that fluent responding or teaching to fluency will foster performance of trained skills in controlled settings to naturally, untrained settings or untrained stimuli (Young et al., 1986; Roest, E. R., 2008)
  - Dressing skills
  - Tact acquisition

Discrete Trial Instruction

- Discrete trial instruction (DTI) has been demonstrated to be an effective method of treatment and education for persons with autism (Smith, 2001).
- The instructional method includes a teacher presenting instructional material in a precise and sequenced manner so that it evokes frequent responses to the material by the learner.
- Following each learner response the teacher presents a consequence that usually takes the form of some type of feedback that either indicates the responses are correct or incorrect.
- Correct responses usually result in a suspected form of reinforcement to strengthen the responses.

Discrete Trial Instruction (continued)

- Following incorrect responses the teacher provides feedback indicating an error and usually conducts an error correction procedure.
- The instructional demands could be in the form of presentation of verbal responses of the teacher (What is it? Touch your nose, etc.), nonverbal stimuli (pictures, objects to match), or some combination of both (Tell me which one you drink from).

What Skills are Taught in DTI ?

- DTI instruction can be used to teach almost any skill in any environment.
- In this context we are talking about teaching skills that are representative of the core deficits of persons with autism.
- The skills taught during DTI at an instructional table usually include the following:
- listener behavior (commands and selection)
- tacting (labeling)
- motor imitation
- visual performance (matching, sorting, etc)
- intraverbal behavior (responding to what is said)
- echoic responses

Natural Environment Training (NET)

- Format of instruction in which verbal and non verbal skills taught are presented throughout the day across settings, instructors, exemplars, and circumstances.
- NET training MUST be guided by variables that are related to motivation
- Depending on student skill level, NET training may occur only in the natural environment or a transfer of skills acquired in discrete trial instruction.

Natural Environment Training (cntd.)

- Necessary component of student programming (cannot be solely discrete trial or solely NET)
- Careful consideration must be made in order to determine appropriateness and readiness for NET training.
  - Early learner
  - Intermediate learner
  - Advanced learner

Natural Environment Training (NET)

- Careful selection of targets relevant to student home/school life and or context the student participates in.
  - E.g. Teaching to mand for a fork during lunch
  - Teaching the student to label scissors during arts and craft activity
  - Teaching a student to engage in social comments when working with a peer

NET vs. DTI (adapted from Carbone)

NET	DTI
- Loosely structured sessions paced by the student (e.g., typical play setting) - Free operant responding - No pre-specified order for instruction; target stimuli selected based on the student's motivation - Target stimuli are varied every few trials - Reinforcers are functionally related to responses - Loose shaping contingencies; any vocalization is reinforced - Decreased need for specific procedures to target generalization because target stimuli, reinforcers, and prompts are present in natural environments	- Highly structured sessions paced by the teacher (e.g., student seated at table across from teacher) - Discrete learning trials - Specific scope and sequence for instruction; target stimuli selected irrespective of the student's motivation - Target stimuli repeated until criteria are met - Responses and reinforcers are not functionally related - Correct or successive responses are often reinforced - Requires special procedures for generalization because target stimuli, reinforcers, and prompts are not present in natural environments.

Reasons to teach in the NET

- Because many students with Autism fail to generalize skills that were taught or acquired from one setting to another or from one set of stimuli to others
- If the skills taught were only taught during DTT, it would be unlikely that the skills would generalize (transfer) to the student everyday natural environment (Delprato, 2001)

Reasons to teach in NET

- No transfer (generalization) – no functional use of skills
  - Development of rote skills
- Could likely foster the acquisition and development of more complex social and non social behaviors as well as academic skills
  - Mands for information
  - Responding in a group format
  - Acquiring skills in a group format

Procedures for Teaching in NET

- Even when NET training presents a bit looser than more controlled instructional formats (like discrete trials), specific procedures for teaching as well as for correcting errors must be taken into consideration

Errorless teaching

- Procedure used to teach new skills in which the learner is not allow student to make errors
- Allows for faster learning (no guessing or trial and error)
- Prevents problem behavior

- Errorless teaching sequence:

PROMPT TRANSFER DISTRACT CHECK

  - Can be modified based on circumstance as well as students' VR schedule

Teaching procedures – Types of errors

- Incorrect Response - Student emits a completely wrong response (e.g. What is it? – picture of ball – student says CAT)

- Self Correction – Production of multiple incorrect responses or form of responses until the correct one is emitted (e.g. what is it? Picture of tiger and student says CAT/TIGER)

- Delayed or NO response – response does not occur or occurs after 4-5 seconds of SD presentation

Error Correction Procedure

- When the student has made an error on a previously mastered skill teacher must attempt to correct skill using the same stimulus, and in the environment and or format in which it was presented
- Error correction sequence:

END PROMPT TRANSFER DISTRACT CHECK

  - Could be modified based on circumstance as well as students' VR schedule

Practice operants in the NET

- Video

Mand and NET

- Since NET training must account for variables related to motivation and or students interest, it is well suited for the teaching of novel and generalization of acquired mands
  - Even when mand training INITIALLY may start at the table or in a more controlled setting or environment, it SOON should move to a more natural setting

APPLICATION

Guidelines when developing NET

- Remember ALL programming needs to be guided by an assessment to ensure that target selection is at the appropriate instructional level
- All programming should be guided by data based decisions
- Target selection needs to be individualized and relevant for the student
- Environment is set up to contrive motivation and capture teaching opportunities
- Critical to teach across all of the verbal operants

NET Level 1 Learner Skill Development

- Level 1 learner profile; limited to no mands, no tacts, poor echoic control, weak motor imitation, some LR and MTS responses, limited vocals
- Teach new skills in the natural environment-motor imitation, listener response, tact, echoic, and match to sample
- Sound inventory of vocalizations
- Generalization checks of previously mastered skills from DTT
- Strong emphasis on mand programming
- Continue to strengthen approach behavior and reinforcer identication
- Maintain individual VRs

Level 1 learner VBMAPP

NET Level 1 Learner -Programming

- Lessons based off of motivation
- Consider different ways to teach skills; books, arts/crafts, music/movement, ADLs (chain development)
- Programming ideas for young, middle, and older learners with level 1 skills
- Interrupted chains
- Reinforcer identification
- Can be done individually or in a small group (with individual targets)
- Teach skills that will transfer to the general education setting/special area classes

Level I video

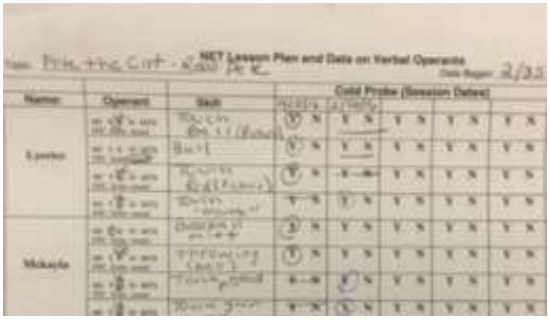
- Video sample; circle time story with signs

Data system level I

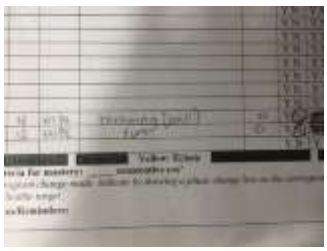
- Mand frequency–graph daily
- Mand prompt levels for specific targets –graph separately and daily
- Cold probe of NET targets that were previously mastered in DTT -if Y on the first trial considered mastered in NET and if N then work for 3 consecutive Y in different activities (e.g motor imitation shake egg, motor imitation shake maraca, motor imitation shake pom pom)
- If targeting new skills in NET-then cold probe and once 3 consecutive Y-check in DTT using a variety of stimuli and varying the Sd to be sure the student can do it across instructors, settings, and materials for generalization of the skill
- DTT Skills tracking sheets are used to select NET targets
- Create NET skills tracking sheets
- Graph all NET skills mastered (options)

Sample data sheet for Level I learner

- Book theme:



Sample Data sheet for Special Area



NET Level 2 Learner

- Intermediate learner profile;
- Several mands, some of which are emitted under the control of the motivating operation (MO) and the transitive conditioned motivation operation (CMO-T)
- Tact items and actions, tact features, tact class, generalized motor imitation, generalized echoic behavior, LR items and actions, basic intraverbals
- Group and emerging pre academic skills

NET Level 2 Learner-Programming

- Programming considerations; generalization checks from skills mastered in DTT, teach skills in the NET and move to DTT
- Remember to keep NET lessons based off of motivation
- Discuss programming ideas for young, middle, and older learners with level 2 skills
- Individual and/or group lessons
- Program across all verbal operants
- Emphasis on mand programming with the CMO-T (mands for missing items)
- Job tasks/ ADLs
- Maintain individual VRs

VBMAPP Level 2 Learner

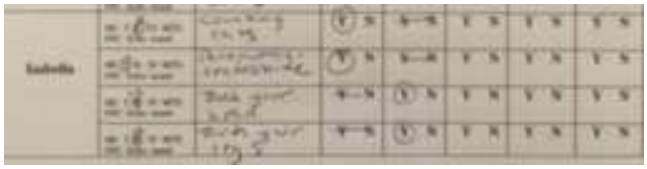
NET Level 2 Learner

- Video samples;
  - generalization checks from previously mastered skills- individual lesson (bathroom parts and features)
  - Group NET lesson "setting the table" (teaching a new concept using previously mastered skills from DTT- individual targets derived from program books)
  - NET specials; music and gym
  - Group snack/story with adv tact and LR
  - Mixed session mastered adv tact and LR plus mands

Data Systems Level 2 learner

- Mand frequency in natural environment-graph daily
- NET targets- skills tracking sheet and graph
- NET cold probe sheet
- Cold probe of NET targets that were previously mastered in DTT -if Y on the first trial considered mastered in NET and if N then work for 3 consecutive Y in different activities (e.g tact action "what am I doing" squeezing, glue bottle, paint bottle, koosh ball)
- If targeting new skills in NET-then cold probe and once 3 consecutive Y-check in DTT using a variety of stimuli and varying the Sd to be sure the student can do it across instructors, settings, and materials for generalization of the skill
- NET lesson plans with individual targets

Sample Data forms Level 2 learner



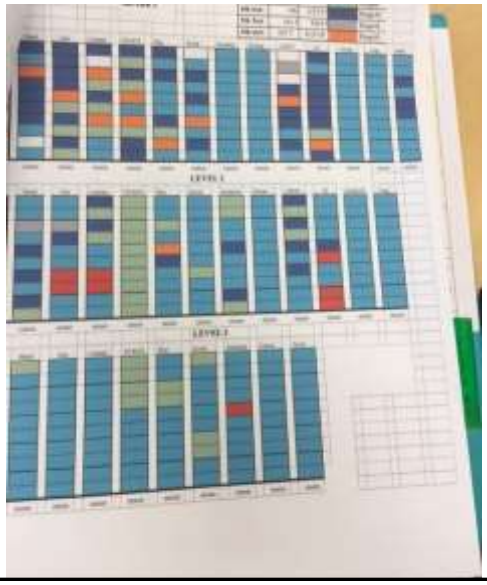
Pete the Cat-
Tact Action-counting cats
Tact features- spokes (bike)
LR-touch head
LR-touch legs

Mastered in DTT
NET table setting lesson check
Basic tact-Chair
Tact features-seat, back, legs, arms
Basic tact-Table
Tact features-legs, top

NET Level 3 Learner

- Level 3 learner profile;
  - Advanced manding repertoire; manding for items/actions, missing items, and information
  - Advanced tact repertoire; 2 component NV, FFC, prepositions, adjectives, adverbs, pronouns, multiple word tacts
  - Intraverbal; rotating questions, webbing, advanced FFC, recall/retell
  - Listener response; following multiple step directions
  - Generalized motor imitation for novel movements/sequences
  - Ability to learn basic skills across the operants within 1 teaching trial

VBMAPP Level 3 Learner



Programming NET level 3

- Programs and lessons based off of motivation
- Development of social and leisure skills
- Job skill development
- Building independence with ADLs
- Advanced manding; peer to peer, social comments, information, conversations
- Generalization of skills in a group of 3 or more students
- Generalization of skills across all instructors, materials, and setting

Programming NET Level 3

- Advanced protocols for prepositions, adjectives, adverbs, and pronouns
- After mastered in DTT critical to assess in the natural environment for generalization
- may need to do multiple checks across settings, instructors, and stimuli

Data systems level 3

- Mand frequency in natural environment-graph daily
- NET targets- skills tracking sheet and graph
- NET cold probe sheet
- Task analysis for job skills and ADL activities
- Data systems for advanced mand programming
- Data systems for advanced tact programming
- Cold probe of NET targets that were previously mastered in DTT -if Y on the first trial considered mastered in NET and if N then work for 3 consecutive Y in different activities (e.g tact multiple component; green ball bouncing high, dirty towel on the table, open book on the shelf)
- If targeting new skills in NET-then cold probe and once 3 consecutive Y-check in DTT using a variety of stimuli and varying the Sd to be sure the student can do it across instructors, settings, and materials for generalization of the skill
- NET lesson plans with individual targets

Sample Advanced skills tracking sheets

	Date Introduced	Date Mastered
Target:		
Target Sets		
Novel Set:		
Net:		

Tact prepositions

	Date Introduced	Date Mastered
Target:		
Identical Sets		
Novel Set:		
Non-Identical Sets:		
Non-Identical Sets:		
Net:		
Intraverbal Opposite:		

Tact adjectives

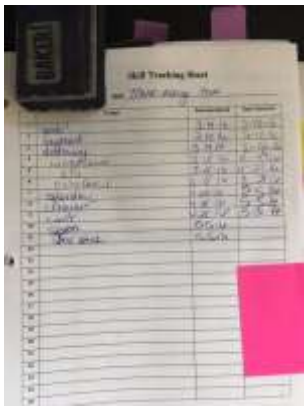
Sample Advanced skills tracking sheets

Tact complex pictures

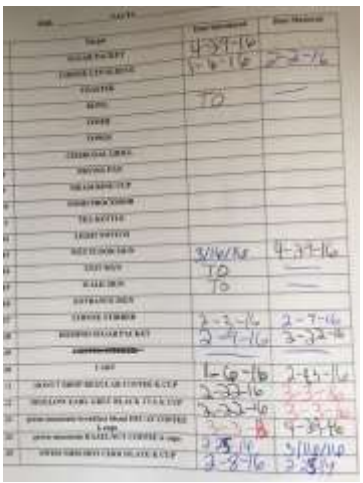
Target Picture:	**Date introduced**	**Date acquired**	**Date Mastered**
2 descriptions			
4 descriptions			
6 descriptions			
Novel Picture (from same book)			
Novel Picture (from same book)			
NET (outside of formal training)			

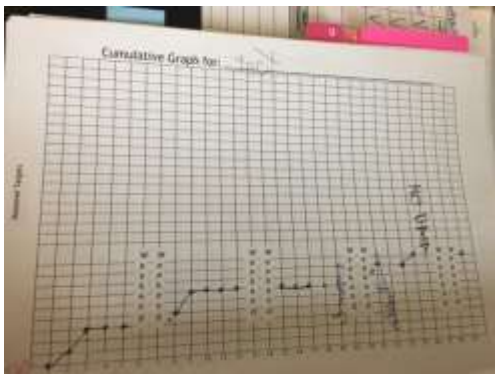
Coffee Cart Example

- Development and programming for coffee cart
- Mand for missing items video



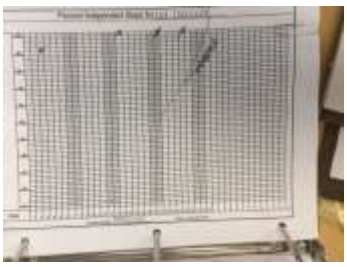
Coffee Cart Data Sheets





Sample Data forms

Sample data forms



Theme based NET

- Choosing NET lessons by theme can help with organization of target selection(music, movement, arts/crafts, books, ADLs)
- Can be done individually or in a group
- Theme may be repeated daily or weekly for multiple opportunities to practice the skill in the natural environment across settings, instructors, and exemplars
- Targets will stay the same until mastered but the activity itself may change which is why it will be important to keep the theme general
- Example; using targets related to a book can be done with multiple exemplars of books to work on tacting the parts of the book, LR responses (show me closing book), motor imitation, manding (turn page)
- Choosing targets too specific to a holiday, season, character will make it difficult to continue to work on the skill until generalization-if it is Winter you can still do a winter craft but the targets may focus on gluing, folding, cutting, shaking, etc rather than on the snowflake and snowman
- If a student is demonstrating difficulty with mastery in NET programs this may be an indication for the need of more practice in discrete trial instruction across multiple exemplars

NET Job Skills

- Foundation is critical for basic skills because some skills can only be taught in the natural environment
- Job related tasks and information can only be taught on site once student has a basic repertoire across all of the verbal operants
- Irrelevant and possibly not transferrable if taught only in DTT –e.g using a dishwasher

Individual or Group?

Group Lessons;

•NET can be done individually or in a group-keep in mind the instructional level of the student when running NET in a group-it is critical the student is able to follow the lead instructor in a group of 3 or more students; if the student still needs the instruction repeated by an additional staff member this may be an indication that the lesson should be done individually for that particular student

•When done in a group setting it is critical to have individual targets based off of student programming and previously mastered skills

•Keep students engaged with choral responses rather than all individual turns –this will require aligning skills tracking sheets across program books to be sure all students have the same skills mastered

•Follow individual VRs when running NET in a group

•Assess whether or not the student can acquire new skills in a group setting

Generalization from DTT

- It is critical to check skills for generalization away from the "table"
- If a student has mastered skills across multiple exemplars and instructors but is showing difficulty with generalization in the natural environment this may be an indicator to begin programming in the natural environment rather than starting with DTT
- For example student knows multiple exemplars of a broom but when shown an actual broom in the classroom can not tact the object-it would not be necessary to open the tact of broom in DTT this is not where the student is displaying difficulty rather open a tact of object program in the natural environment
- Check for generalization in the classroom, general education settings, special area classes, community and home

Data systems for generalization

- Referencing skills tracking sheets and targeting previously mastered skills
- Cold probe
- Graphs

NET Procedural Fidelity Checklist

		YES	NO	N/A
Organization	1. Is the instructional area neat and clean?			
	2. Are all needed materials organized and ready?			
	3. Does instructor begin promptly?			
Instructional	4. Does instructor follow the motivation of student?			
	5. Does the instructor use appropriate level of enthusiasm?			
	6. Does the instructor mix the verbal operants?			
	7. Does the instructor use errorless teaching with appropriate time delay?			
	8. Does the instructor average 4-5 responses per minute?			
	9. Does the schedule indicate recommended time per day in NET?			
Data	10. Is the NET data sheet available?			
	11. Is NET data being taken?			
	12. Is NET data being graphed?			
SR+	13. Does positive reinforcer compete with negative reinforcement or automatic reinforcement?			
	14. Does instructor pair social reinforcement with the tangible items?			
Behavior	15. Does the instructor correctly implement extinction procedures?			
	16. Does the instructor maintain composure during procedures?			
	17. Does the instructor accurately record behavior data?			
	18. Does the instructor implement effective antecedent interventions?			
Error	19. Does instructor re-present S^D followed by 0 second time delay after errors?			
	20. Does instructor return to target several trials later?			
	21. Does instructor require the correct response?			
Notes:		____ / 21 Percentage of Y's:		

Schedule

- Indicate generalization checks on the schedule by coding when to run the probe or teaching trial (Example; Toileting on schedule * would indicate to staff member to pull the ADL cold probe sheet)
- Keep data forms and materials needed for generalization check near the door for staff to easily access the information and collect the data outside of the classroom setting
- Consider wall cues to guide staff on target selection for manding for missing items and targets for generalization across the operants
- NET themed lessons should be indicated on the schedule and may be run daily or weekly

Home and NET

- Overall goal is for all skills to transfer to the home and community in order to ensure the individual is gaining a mastery level of independent, functional and generalized skills across all verbal operants
- Consider target selection in the home based on previously mastered skills from the classroom rather than on the same targets in both settings this may cause difficulty in mastery from one setting to the other if the teaching procedures are not consistent
- Parent communication system with educators is a necessary component to ensure that families are aware of mastered skills and teaching procedures
- Critical to sanitize the environment to increase mand opportunities
- Opportunities for play and social activities with siblings based off of reinforcer identification/shared interest
- Target selection from school to home and vice versa should be based on relevance for the individual/family

To Summarize…

- NET training is a critical component in effective ABA programming
- Must account for variables related to motivation or built upon students interest.
- Careful consideration must be given when determining readiness as well as appropriateness for NET training
  - Skill level of student and assessment
  - Data based decision making
  - Target selection

To Summarize… (continued)

- Teaching procedures must be used in order to ensure effective delivery of instruction in NET format
- Once skills are learnt in discrete trial instruction a concern for generalization must be established
- Educators must develop a concern for treatment fidelity of procedures used.

To Summarize… (continued)

- Communication between parents and educators is critical in order to ensure generalization of important skills taught in the school environment to the home environment as well as the presentation and acquisition at school of skills needed in the home environment.

References

- Carbone, V. J (2014). Select Topics in Applied Behavior Analysis and The Analysis of Verbal Behavior. Carbone Clinic, New York, NY. Presentation for the PaTTAN Autism Initiative ABA Supports.
- Cooper, J. O, Heron, T. E, & Heward, W. L (2007). Applied Behavior Analysis, Second Edition. Pearson Prentice Hall. Upper Saddle River, NY.
- Delprato, D. J. (2001). Comparisons of discrete-trial and normalized behavioral language intervention for young children with autism. Journal of Autism and Developmental Disorders, 31, 315-325
- Hall, G. A., & Sundberg, M. L. (1987). Teaching mands by manipulating conditioned establishing operations. The Analysis of Verbal Behavior, 5, 41-53.
- Michael, J. (1993). Establishing Operations. The Behavior Analyst, 16, 191-206.

References

- Miklos, M. W., & Dipuglia, A. (2015). Intensive Skills Training in ABA for Teams Supporting Students with Autism. PaTTAN Autism Initiative ABA Supports. Pennsylvania Department of Education
- Miklos, M. W., & Dipuglia, A. (2015). Intermediate and Advanced Verbal Programs for Students with Autism (Training). PaTTAN Autism Initiative ABA Supports. Pennsylvania Department of Education
- Miklos, M. W., & Dipuglia, A. (2016). Establishing Basic Skills for Students with Autism and Other Developmental Disabilities (Training). PaTTAN Autism Initiative ABA Supports. Pennsylvania Department of Education
- Roest, E. R. (2008). A comparative study of fluency training and discrete trial training on the acquisition, stimulus generalization, and retention of noun labels in children with autism (Order No. 3300639). Available from ProQuest Dissertations & Theses Global. (304628948). Retrieved from http://pitt.idm.oclc.org/login?url=http://search.proquest.com/docview/304628948?accountid=14709

References

- Skinner, B. F. (1957). Verbal Behavior. Acton, MA: Copley
- Smith, T. (2001). Discrete trial training in the treatment of autism. Focus on Autism and Other Developmental Disabilities, 16, 86-92
- Sundberg, M. L., & Partington, J. W. (1999). The need for both discrete trial and natural environment language training for children with autism. In P. M. Ghezzi, W. L. Williams, & J. E. Carr (Eds.), Autism: Behavior analytic perspectives (pp. 139-156). Reno, NV: Context Press.
- Stokes, T. F., & Baer, D. M. (1977). An implicit technology of generalization. Journal of Applied Behavior Analysis, 10, 349-367
- Sundberg, M. L., & Partington, J. W. (1998). Teaching language to children with autism or other developmental disabilities. Pleasant Hill, CA: Behavior Analysts, Inc.
- Sweeney-Kerwin, E. J., Carbone, V. J., O'Brien, L., Zecchin, G., & Janecky, M. N. (2007). Transferring control of the mand to the motivating operation in children with autism. The Analysis of Verbal Behavior, 23, 89-102.

References

- Young, K. R; West, R. P; Howard, V. F; & Whitney, R. (1986). Acquisition, fluency training, generalization, and maintenance of dressing skills of two developmentally disabled children. Education and Treatment of Children, 9, 16-21

Additional resources used:

- http://webapps.pattan.net/files/pattanautismresources.zip

Contact Information

www.pattan.net

Jolin Jackson, MS, BCBA
C-jjackson@pattan.net

Miguel Ampuero, MA, BCaBA
C-mampuero@pattan.net

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DEPARTMENT OF EDUCATION
Bureau of Special Education
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