



**Instructional Strategies that Work:
Systematic Instruction and
Natural Training Strategies**

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From BC Curriculum, Griffin-Hammis Associates, LLC


Starting with a Question

- Based on your experience, what jobs do you think are the best fit for individuals with disabilities?
 - Type of jobs/duties
 - Nature of tasks
 - Duration
- With what jobs have you seen the most/least success?
- Why do you think this is?




What Lies Beneath

- Subconscious assumptions made about type and nature of work
 - Tasks should be clear & easy
 - Variation is bad
 - Jobs requiring flexibility will fail
- Specific industries emerged as "go-to" places
 - Grocery stores, recycling centers
 - Food, filth, flowers




So the real question is...

Do these jobs truly reflect the needs of the job-seeker or is that they match the skill and experience of the employment specialist?




Exercise: Taking an Insider's Look at Bagging Groceries

- o Get in groups of 2-3
- o Describe the process for bagging groceries
- o Consider:
 - Job pace, standard tasks
 - Task variation required
 - Work flow
 - Structure of day/schedule



Foundation: Try Another Way

- ❖ All people can demonstrate competence if given training supports appropriate to their needs
- ❖ Integration is more important than acquisition of skills



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Foundation: Try Another Way

- ❖ Lack of learning should first be interpreted as insufficient use of teaching strategies NOT the inability of the learner

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Foundation: Try Another Way

- ❖ Training should be done in environments where information will be used.
- ❖ We should train natural trainers as well as human services trainers.

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Systematic Instruction

- Methodology for:
 - Planning, implementing, & assessing instructional strategies
 - Data used to make instructional decisions
- Requires flexibility & fluidity
- All must be willing to make and learn from mistakes!!!




Systematic Instruction

- Utilizes proven principles of learning for teaching skills more:
 1. Efficiently
 2. Effectively
- Allows for teaching skills of greater complexity




**Getting Started:
Identifying the “What”**

- Begin with determining what to teach
- Observation is **mandatory**
 - Schedule time **before job begins**
- Goes beyond job tasks themselves
 - Company culture
 - Co-worker interactions
 - Pace & structure of day




**Activity: Looking Back... Your
Employment History**

- What was your favorite job?
- What made them the best job(s)?
 - Job tasks? Co-workers? Company environment?
- Did you ever have a job where the tasks were the right fit but co-workers or company wasn't?
- Have you ever worked with someone who just didn't “fit”?




The Job Analysis Record (JAR)

- Tool for identifying what to teach
- Captures tangible and intangible elements of job, e.g.:
 - Tasks, performance & quality measures
 - Rituals, natural trainers, "go to" people
- Writing it down is best safety net for not overlooking critical components




JAR: When to Use


- Use the JAR as a foundation for:
 1. Negotiating a job
 2. Assessing what to teach once job has been secured



Goodness of Fit

- Critical consideration
- **Must** be based on:
 1. Knowledge of Individual, **and**
 2. Knowledge of Job/Company/Culture
- Best instruction in the world can't overcome a bad fit






JAR: Key Components (pg. 6)

- Project oriented
- Developed for all work routines:
 - Core
 - Episodic
 - Job-related
- Task steps should:
 - Reflect natural instruction
 - Be verified by supervisors/co-workers


(Callahan & Garner, 1997)



Core Routines

- Repeating cycles
- Performed most frequently during work day
- End of one cycle signals start of next
- Typically easiest to master

(Callahan & Garner, 1997)



Episodic Routines

- Have cycles/specific steps
- Performed less frequently during day or week
- Less opportunity to practice
- Typically more difficult to master

(Callahan & Garner, 1997)


Job-Related Routines

- Not related to job projects/tasks
 - Break time routine
 - "Looking very busy" routine
- Critical for successful employment
- Equally important to teach... most frequently overlooked

(Callahan & Garner, 1997)

Criterion for Correct Performance

- Standards must be linked to company standards
 - Quality, time, etc.
- Observe multiple employees
- Verify with supervisors/co-workers




Ways to Assess Performance

1. Topographical Correctness:
 - All steps performed correctly as taught and quality is acceptable
 - Generally best to assess this way
2. Functional Correctness
 - Outcome is met but task is performed atypically
 - Steps missed, modifications made

(Callahan & Garner, 1997)

Exercise:
How to Fold a T-shirt in 2 Seconds

- Divide into groups of 3. One person will be natural trainer, one the ES, other the new employee.
- ES develop a task analysis from the video
- Confirm with natural trainer
- Determine criterion (functional or topographical)

(Callahan & Garner, 1997) 

Hitting the Road Running...


Observation time!

Moving Forward

How to Teach

Out With the Old...

- o Job Coach (early days)
 - Provided all training
 - Liaison between employee & employer/co-workers
 - Assisted with production
 - Covered if employee was out

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Out With the Old... (cont.)


- o Job Coach (more recently)
 - Develops training plan based on individual need
 - Usurps or forgoes typical orientation & training process
 - Provides initial intensive training
 - Functions as expert & "go-to" person
 - Fades (or doesn't!) when training is complete

What are some of the challenges you have seen with this approach???

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In With the New...

- o Employment Consultant, Specialist, Facilitator
 - Works with natural processes of company (not outside of them)
 - Supports natural training & orientation personnel and mechanisms
 - Evaluates & analyzes effectiveness of training processes
 - Augments training as necessary


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SI AND Natural Supports

- Not an "either/or" scenario
- Natural Supports do not replace SI
- SI does not replace Natural Supports
- Employment Consultants must be adept at facilitating both




Either/Or = Lose/Lose



Natural Supports Only:
Drop at Door & Wave Goodbye

SI Only:
Task Analysis for 100% of day, taught only by "expert" job coach


Goal:
Blend approaches as seamlessly as possible based on unique attributes of employee, employer, and individual tasks



Role of Employment Consultant



- ❖ Identify & facilitate the development of natural supports in the workplace
- ❖ Assist new employee to fit in
- ❖ Oversee training of new employee
- ❖ Consult with natural trainer about teaching strategies or adaptations
- ❖ Assist employer to identify all the tasks requiring training
- ❖ Provide training to employee as needed
- ❖ Ensure that all supports necessary are in place (including those outside the job, e.g., transportation)

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Common Challenges with On-Site Support

- When "Too Much is Not Enough"
- When "Less is Not More"



Seven-Phase Sequence

1. Communicate Natural Ways
2. Promote Natural Means
3. Utilize Natural People
4. Facilitate Successful Performance
5. Support, Assist, Substitute for Natural People
6. Reconsider Natural Means
7. Adapt, Modify, Change Natural Ways

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7-Phase Sequence

- Phases 1-3: The Natural Ways
 - Involve "cultural analysis" of all work settings/tasks
- Phases 4-7: The Back-Up Ways
 - Training & facilitation strategies implemented based on "cultural analysis"
- Process is dynamic, not fixed

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Phase 1:
Communicate Natural Ways

- Developed through job analysis
- Identify key characteristics to help employee become part of company
 - Identify culture of the work setting
 - Observe specific work tasks
 - Perform tasks guided by natural trainer
 - Note nature of co-worker interactions
- Supervisor/co-workers are experts...

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Phase 2:
Promote Natural Means

- Spend time in the workplace to learn about how training is provided
 - Formal (processes, procedures, who provides, etc.)
 - Informal (how co-workers assist)
- Observe training of new employees
- Analyze how training processes match with learning style of employee


Beware of tendency to assume natural processes won't be enough!!!

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Phase 3:
Utilize Natural People

- Meet with natural trainers- enlist their support & develop relationships
- Employee receives standard initial training and orientation
- Brainstorm modifications (if necessary)
- Answer questions- respond to disability related questions in functional way (not tied to label)
- Recruit additional support as needed


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Phase 4:
Facilitate Successful Performance

- Default should be to natural procedures
- Natural trainer takes lead, Employment Specialist provides feedback
- Dynamic process... can vary task to task
 - Natural trainer acting independently
 - Natural trainer leading, ES providing feedback
 - ES steps in and models
- Goal is to support the employer to build capacity... not to provide direct support

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Phases 5 - 7

The Back-Up Ways

When to Offer "Back-up" Support


- Using SI indicates a move to a "back-up" phase of training
 - e.g. augmenting natural processes
- Does not signify replacement of natural trainer with ES, however
- ES can assist, support, substitute (Phase 5)

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When to Offer Back-up Support

- Errors consistently occurring
 - Demoralizing for learner
 - Cause uncertainty on part of trainer
 - Can make correct teaching more difficult (have to "unlearn" errors)
- Natural trainer and/or employee becoming frustrated
- Facilitate if sense tension rising

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Phase 5: Support, Assist, Substitute for Natural People

- Phase 5 is the first of the "back-up" phases
- ES provides more targeted input or support... only in situations where it is warranted!
 - ES senses either natural trainer or employee is becoming frustrated
 - Training process not leading to efficient acquisition

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Phase 5, (cont.)

- Important not to step in and take over completely at first sign of problem
- Provide more targeted support to natural trainer
 - Demonstration/modeling
 - Negotiate a time for more targeted feedback & brainstorming
 - Substitute for trainer for some portion or some tasks
 - Assume (and convey) trainer is still expert... ES is there to support processes

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**Phase 6:
Reconsider Natural Means**

- Frequently different trainers (supervisors, co-workers, etc.) have different approaches
- Evaluate which strategies are working and which are not
- Rethink strategies being used
- Always seek input of supervisors, co-workers, etc.

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**Phase 7:
Adapt, Modify, Change Natural Ways**

- Should be the last step and only used when data supports it
- Possibilities include:
 - Altering specific tasks (or task components)
 - Negotiating different time requirements for tasks
- Phase 7 for one task does not mean Phase 7 for all tasks!!

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Going Natural... Points to Ponder

- If supervisor, co-workers, etc. are experts of the workplace, what is the expertise of the ES?
- How do you know when the natural ways (phases 1-3) are not enough?
- What do you do then?



What To Do When Natural Teaching Isn't Enough


- Tasks causing difficulties must be analyzed in more specific fashion
- Teaching processes become more streamlined and focused
- Data collected during the teaching process defines the path forward
- All teaching processes must respect the dignity of the individual!



SI: Method Considerations

- Method: How the task is performed
- 2 Components:
 - Steps involved
 - Outcome
- Many times workplaces (and ES) focus predominantly on outcome
- Effective teaching involves identifying and focusing on steps


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Teachable Steps


- Difficult or problematic steps need to be further broken down
- Amount of detail required depends on learning needs of employees
- Revised task analysis should be matched to learner needs
- Update written analysis... will use the additional steps when collecting data

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Method: Task Analysis


- Breaking down a task into its component parts (teachable steps)
- Steps listed in sequence first to last
- Perform listed steps to assess accuracy & completeness



Teachable Steps: Considerations


- Total Task
- Task Clusters
 - Forward Chaining
 - Backward Chaining
- Mixed Formats
 - Mass trials

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Exercise:
How to Fold a T-shirt in 2 Seconds


- Get back into group of 3.
- Natural trainer teach new employee
- Employee demonstrate difficulty with one step
- ES provide support to trainer
- After 2-3 minutes, sit down as a group to determine how to further break-down difficult step



How to Teach

- Task analysis provides information about what to teach
- Next consideration is how to teach
- Considerations include:
 - Errorless Learning
 - Time Delay
 - Prompting
 - Reinforcement/Motivation


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Errorless Learning

- Mistakes aren't always the best teacher
- Can add to the challenge to unlearn the "wrong" way while also learning the right way
- Mistakes can be demoralizing
- Technique to minimize errors and maximize correct learning


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Errorless Learning


- Assist prior to mistake being made
- After decision, before mistake
- Goal is decrease frustration and increase learning processes
- Sometimes making the mistake might better support learning process
 - Mistake provides a "cue"
 - Employee has the skill to "catch"
 - If mistake not "caught", go to errorless

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Time Delay

- o Addressed amount of time between presentation of instruction/natural cue and performance of step
- o ES frequently prompt too quickly
- o Allow for increased time for new steps/tasks
- o Count of 5 general guide
- o Intervene if mistake indicated or progress halts




Prompting

- o Critical, powerful teaching technique
- o Rarely understood
- o Frequently misused

Correct: Facilitate learning, support independence

Incorrect: Inhibit learning, create overdependence




Types of Prompts

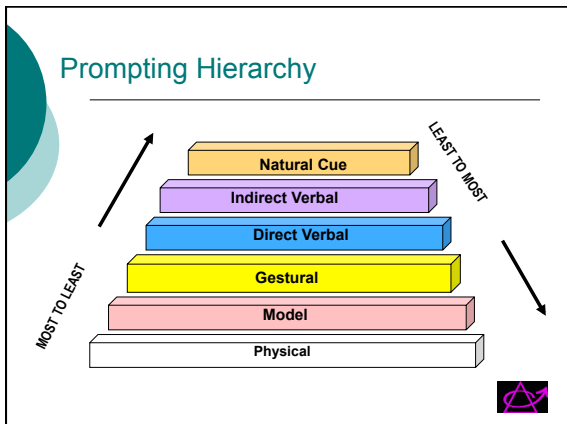
Verbal: spoken instruction/reminder

Gestural: gesture indicating next step

Modeling: show how to do task

Physical: provide physical assistance (hand over hand)





- ### Using the Hierarchy
1. Begin with least intrusive prompt
 2. Wait 3-5 seconds
 - Intervene if indication error is about to be made (*errorless learning*)
 3. Proceed to next prompt only if step is not performed
 4. Wait 3-5 second
 5. Continue process as necessary


In a nod to Run DMC...

ONLY PROVIDE

ONE PROMPT AT A TIME!!


Fading Prompts

- Fading correctly is equally critical component
- Goal is to “back-out” of the prompting hierarchy
- Start working on fading as soon as correct prompt level has been determined




Prompting Example

- Andy is learning to type and send e-mails to a distribution list. He enters the distribution list and subject, types the message and pauses. This has happened several times in a row, and the ES is stepping in to support the natural trainer.
- How should the ES start and move through the prompting process?




Fading Prompts, Example

- Andy required a gestural prompt (ES pointed to the “send” button) to correctly send the e-mail.
- Where should the ES start prompting on the next e-mail?
- How can the ES successfully fade this prompt?




Instructional Assists

- Permanent product to prompt for correct performance
 - Checklists, photos, written/visual schedules, etc.
- Necessary if mastery not occurring despite correct prompting & teaching strategies
- What might be a possible instructional assist for Andy?




Prompting Pitfalls

- Too Much Information!!
 - Multiple prompts given concurrently
 - Prompt mixed with extra conversation
- "I'm There for You"
 - Prompts provided automatically, not based on data or need
 - Level/type of prompt not decreased
- The Dreaded... Prompt Dependency



Prompt Dependency


- Employee becomes "hooked" on prompts in order to perform tasks
- Can occur when prompts are not utilized systematically and/or progress isn't assessed regularly
- Teaching strategies including prompt usage must also include details for fading prompts



Systematic Instruction: Steps to Teaching

- Explain & Demonstrate Task
- Use Time Delay
- Allow for Self-Correction
- Intervene after a decision is made but before the learner acts
- Apologize for Mistakes (trainer)!!


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Exercise: Practice Teaching

- Reform group of 3
- Work as group to identify methods for teaching problematic task
- Following steps on previous slide, trainer begins teaching, supported by ES
- Work on providing prompts systematically and fading efficiently
- Work for 5 minutes and switch
- Repeat until all members have been in each role


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Reinforcement


- Reinforcement: the purposeful arrangement of events in order to increase recurrence of desired behavior
- If behavior doesn't increase or recur... it wasn't reinforcing!!

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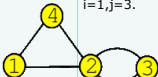


R+: Common Misconceptions


1. If it is a good or desirable thing, it is a reinforcer
2. The most powerful reinforcer should always result in correct task performance



Pizza to the Solver!

1) Find the adjacency matrix A of the graph G	<p>The adjacency matrix L encodes the graph. The entry L_{ij} is equal to k if there are k connections between node i and j. Otherwise, the entry is zero. Problem 2 asks to find the matrix which encodes all possible paths of length 3.</p> 	<p>Generating function. To a graph one can assign for pair of nodes i, j a series, where $a_n^{(ij)}$ is the number of walks from i to j with n steps. Problem 3) asks for a formula for $f(z)$ and in problem 4) an explicit expression in the case $i=1, j=3$.</p>
2) Find the matrix giving the number of 3 step walks in G .		
3) Find the generating function for walks from point i to j .		
4) Find the generating function for walks from points 1 to 3.		


http://www.math.harvard.edu/archive/21b_fall_03/goodwill/index.html



Motivation vs. Reinforcement


- o **Motivation:** Natural features of an environment that promote desire, initiative, cooperation & other desired behaviors
- o Functionally impossible to "motivate" anyone to do anything... motivation comes from the inside
- o Critical to Discovery to develop a good match... work & environment should be intrinsically motivating

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Natural vs. Artificial Reinforcers

- Reinforcers occur naturally in workplace
 - Paycheck
 - Recognition in staff meeting
 - "Thank-you" or appreciation from co-workers
 - Good review
- SI may call for increased rate in natural reinforcers, or for artificial reinforcers
 - Increased praise
 - More frequent breaks
 - Shorter timeline for paycheck

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Reinforcement: Considerations

- Reinforcement can be a powerful and important training tool
- If not applied and evaluated systematically, however, employees can get "hooked"
- Anytime reinforcers are increased for learning, plan for fading must be identified & implemented




Silence is Golden

- "No News is Good News"
 - Refrain from providing feedback (verbal or otherwise) for steps performed correctly
 - Challenging but critically important!!
 - Goal isn't to develop a cold, clinical, laboratory training environment... just don't want to build dependence on feedback

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Fading Reinforcers

- Must be done systematically... same as prompting
- Ultimate goal: get R+ back to natural schedule, e.g.
 - Systematically increase time on task between breaks or praise until back to natural level



Exercise: Incorporate R+ into Teaching Plan


- Reform groups of 3
- Develop a plan for increasing R+ in teaching plan
- Identify reinforcers
- Natural trainer begins teaching, supported by ES
- Apply and fade R+ systematically
- Work for 5 minutes, then switch
- Repeat until all members have been in all roles



Guiding Principles When Teaching


- > Teach with a minimum of Conversation
- > Save Verbals for Reward
- > The Task is the Reward
- > Teachers Use Powerful Informing Strategies
- > Mistakes indicate a **teaching** error
- > Try Another Way

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What to Do if Training Strategies Aren't Enough

- Adapt or Modify Task
 - Visual or written cues
 - Photographs
 - Modifications cannot undermine dignity
- Negotiate Changes
- Negotiate Partial Assistance

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Planning Training: Other Considerations

- Do not overlook training Episodic or Job-Related Routines
- Can be more challenging because less opportunity to learn, train, practice
- Adaptations may be helpful
- Role-play situations that cannot be addressed on-site

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