Comprehensive Autism Assessment and Intervention Planning

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Objectives

- Brief review of characteristics of Autism Spectrum Disorders

- **Identify domains and skills to guide planning for a comprehensive assessment of learners with Autism Spectrum Disorders**

- **Link assessment findings to intervention planning including progress monitoring and data based decision making**

- Discuss how comprehensive assessment leads to individual intervention planning applicable to education, therapy and community

Autism…

- Varies in severity of symptoms, age of onset, and association with other disorders
- Manifestations vary across children and within an individual over time
- Innumerable combinations of possible symptoms
- No single behavior that is always typical or present in every individual

Core Features of Autism

- Qualitative Impairment of Social Interaction

- Qualitative Impairment of Communication

- Restricted repertoires of behaviors and interests

DSM IV 1994

Qualitative Differences in Social Interaction

Can include…

- Poor eye contact
- Poor nonverbal communication
- Lack of mutual attention
  - Showing things to others or pointing
  - Failure to look where someone else is pointing
  - Theory of mind: perspective taking
- Poor awareness of other's emotions
- Poor peer relations

Qualitative Differences in Communication

- Can Include…
  - Poorly developed language (relative to age)
    - usually involves both receptive and expressive language
  - Low rates of spontaneous speech
    - especially the initiation of requests
  - Poor conversational skills
  - Language that is rigid or scripted
  - Differences in volume, pitch, prosody
  - Limited understanding and use of gestures
  - Tantrums and other non-adaptive behaviors used to communicate a desire to escape from demands or to obtain social attention and tangible items

Restricted Repertoires of Behaviors and Interests

Can Include…

- Narrow interests
- Inflexible adherence to routines or rituals
- Repetitive motor movements
- Preoccupation with parts of objects
- Unusual sensory preferences

Other Common Features of Autism Spectrum Disorders

Can Include…

- Difficulties with novelty
- Sensory differences
  - Over-responding
  - Under-responding
- Motor difficulties
  - Poor imitation, coordination, fine motor (writing)
- Difficulties with adaptive or daily life skills
- Problems with executive functioning such as sequencing, organization, sustaining and shifting attention, etc.
- Inconsistent performance across settings and behaviors
- Unusual and intense interest and preoccupation with a narrow topic

Pervasive Developmental Disorders: DSM IV TR

- Autism
- Pervasive Developmental Disorder: Not Otherwise Specified
- Asperger's Syndrome

- Rett's Syndrome
- Childhood Disintegrative Disorder

Faces of Autism
Ethan, Age3

Faces of Autism
Matthew, Age 9

Faces of Autism
Ashley, Age 13

What is Assessment?

- Educational assessment is a process of gathering and documenting information about the achievement, skills, abilities, and personality variables of an individual.

- It also includes information gathering regarding how the environment relates to the person's functioning.

- Assessments gather information, interpretation of that information is evaluation.

- Assessments can be used to guide diagnosis, determination of intervention services, and intervention planning and progress monitoring.

Comprehensive Autism Assessment (CAA)
for Intervention Planning

- An assessment planning tool; not a stand alone assessment
- Developed for use by assessment teams for planning how to proceed
- Will not cover individual assessment tools or procedures
- CAA is an initial step in the formative process

CAA Development

- Work of cross systems collaborative team and included panel of experts under the leadership of Cathy Scutta, PaTTAN and Nina Wall-Cote of DPW
- Panel included representatives from medicine, OT, SLP, parents, psychologists, case workers, administrators, representatives from PaTTAN, from DPW, school districts, IUs and various provider agencies
- Included a review of literature on autism assessment
- Collaborative team met 6 times over the 2005-2006 school year.

Types of Assessment

- Screening: not covered by CAA

- Diagnostic/Eligibility: not covered by CAA

- **Formative:** Included in CAA

- **Progress monitoring:** once interventions are determined through assessment, PM tracks success and allows data-based decision making

CAA as a Tool

- Guides team planning for assessment

- Provides an overview of domains to be considered when planning assessment

- Will be based on team discussion of what is currently know about a student's functioning in each domain area and what yet needs to be known.

Comprehensive Autism Assessment (CAA) Planning Tool

In relation to the individual, has the team considered: **Priorities**	Yes No	List Needs:	List Priorities:	Is further assessment needed? Yes No	Tools and environments to be considered:	Who will complete the process?
Family needs and priorities						
School and other service agency needs and priorities						
Neighborhood, community and friendship						

In relation to the individual, has the team considered: **Motivators**	Yes No			Is further assessment needed? Yes No	Tools and environments to be considered:	Who will complete the process?
Individual 's preferences?		List some of the individual's preferences:				
Potential motivators?		List items/events that the individual may be willing to work to obtain:				
If there are sufficient motivators available to establish cooperative interactions?						

In relation to the individual, has the team considered: **Strengths**	Yes No			Is further assessment needed ? Yes No	Tools and environments to be considered:	Who will complete the process?
Any talents that the individual may process that would be useful to the educational/therapeutic process?		List talents:				
The interests of the individual?		List interests:				
Skill strengths that the individual may present?						

Guiding Principles for Comprehensive Autism Assessments (CAA's)

- All individuals with ASD require a quality CAA as a foundation for their intervention plans
- CAA: effectively accomplished by multi-disciplinary team familiar with the individual's functioning across a variety of settings
- Ultimate team membership can be identified by planning team

Guiding Principles for Comprehensive Autism Assessments (CAA's)

- Family input is crucial to a CAA

- Family input is crucial at all phases of assessment

Guiding Principles for Comprehensive Autism Assessments (CAA's)

- CAA's require direct observation and testing of the individual across multiple environments
- The relationship between the following environmental variables and the individuals performance must be considered
  - Physical (including both access issues and issues related to effects such as sensory sensitivity/reactivity)
  - Social
  - Skill requirements

Domains to Assess

Comprehensive Autism Assessment

Planning Tool

Family Needs & Priorities

- What are the family needs and priorities?

- How do the family needs and priorities correspond with the school and other service provider needs and priorities?

- Do the family needs and priorities include neighborhood, community and friendship objectives?

Preferences & Motivators

- What are the individual's preferences?

- What motivates the individual?

- Are there sufficient motivators to establish cooperative interactions?

Issues in Preference and Motivation Assessment

- Motivation lies in the environment: concept of motivative operations

- Process involves identifying potential reinforcers

- Requires systematic presentation of items/events and the effects they have on approach behavior

Interests & Strengths

- What talents does the individual possess that may be useful to the educational or therapeutic process?

- What are the individual's interests?

- What are the individual's skill strengths?

- This topic can be addressed within each skill domain as well.

Assessing Interests and Strengths

- What does the individual chose to do when given the opportunity?

- What do they do well?

- What skills/domains have been identified as strengths on various assessment instruments?

(Remember the Premack principle: the opportunity to engage in a preferred activity can serve as a reinforcer for some lesser preferred behavior; "eat your vegetables and then you can get your pie")

Developmental Levels
(Birth – 6 years)

What are the developmental levels in:

- Emotional
- Physical
- Social
- Adaptive
- Communication
- Cognitive

Communication

- Receptive vocabulary
- Receptive language comprehension
- Expressive vocabulary
- Expressive syntax and grammar
- Requesting items
- Requesting actions
- Requesting clarification
- Narrative language
- Asking questions for information
- Answering questions
- Articulation/oral motor

- Initiating communication
- Terminating communication
- Sustaining a conversation
- Topic maintenance
- Reciprocity/turn taking
- Pausing
- Interrupting
- Using facial expression
- Using body language
- Using eye gaze

Communication Mode

- Is an alternative communication mode needed?

- What are the accessibility needs?

- What is the practicality and portability of the system across environments?

- What are the skills needed by the communication partners?

Social Competence

- Social comfort (measured by approach to others, emotional reaction to others)
- Social engagement (duration of engagement; proximity)
- Social adaptability (coping with changes in social environment)
- Social cognition (responding appropriately to social behaviors of others)
- Perspective taking (ability to predict what others will due based on observation of others: includes social attentiveness as a prerequisite)
- Social behaviors (ability to use communication behaviors appropriate to the social context)

Neurocognitive

- Organization
- Planning
- Sequencing
- Problem solving
- Flexibility
- Memory
- Attention
- Processing speed
- Cognitive ability profile

Sensory Processing

- Sensory avoidant behaviors

- Sensory seeking behaviors

- Modulation

Emotional Regulation

- Mood stability (frequency of behaviors associated with emotions; temperament)
- Mutual regulation (using others: related to social competence)
- Self regulation (self soothing, control: ability to calm without social interaction)
- Anxiety management (breathing; avoidance of stimuli that produce anxiety)
- Coping skills (pattern of responses in emotional situations)
- Self awareness (degree to which child can accurately state what they have done: correspondence)

Challenging Behaviors

- Function of challenging behavior

- Related skill deficit

- Environmental context

Adaptive/Functional

- Self help/activities of daily living
- Safety awareness/survival skills
- Community functioning
- Household management
- Self awareness/advocacy skills
- Leisure skills
- Participation skills across people, places, activities, and items

Perceptual Motor

- Gross motor

- Fine motor

- Visual/perceptual motor

- Grapho-motor

- Oral motor

- Motor planning

- Ocular motor

Academic Learning

- Reading

- Math

- Other content areas

Post-Secondary Issues

- Post-Secondary

- Education/Training

- Employment

Sexuality Awareness

- Knowledge

- Social implications

- Safety issues

- Values

Medical

- Co-existing medical conditions
- Medications
- Hearing
- Vision
- Dental
- Sleep
- Nutrition/Eating

This domain is responsibility of medical community, but needs consideration by all teams for all individuals

Intervention Planning:

Using assessment to plan what and how to teach

From Assessment to Intervention

- Use CAA planning tool to determine if you have gathered enough information to know what to teach
- Teach things that will be useful for the student in many ways.
- Determine how to use the strengths, talents, and interests of the student
- Teach across many people, places, and examples
- Consider not only what to teach but how to teach it

From Assessment to Intervention: Determine a Skills Sequence

- For each domain that is identified as an area of need, identify an appropriate skill sequence: know what you need to teach and in what order

- Whenever possible use a curriculum that is evidence-based (has been proven to show if students learn or not)

- Some specific tasks will need to be broken down further

Breaking Down the Task
"Making a Peanut Butter & Jelly Sandwich"

1. Wash hands
2. Get: knife, peanut butter, jelly, bread, plate
3. Open bread
4. Take 2 slices out
5. Place bread on plate
6. Open peanut butter and put knife in to jar
7. Scoop out peanut butter and spread on 1 piece of bread
8. Open jelly and put knife in
9. Spread jelly on other piece of bread
10. Put two pieces of bread together
11. Clean up

Two Levels of Assessment

- **Summarizing**: assessments administered periodically in order to determine what a student knows; generally a more global assessment; May assist in determining general areas of instructional need
  - Intellectual (SB; WJ, Wechsler Scale,etc.)
  - Achievement (Woodcock-Johnson)
  - Adaptive (Vineland ABS)
  - Developmental (Battelle DI)
- **Planning**: assessments completed as part of the instructional process to determine what to teach and in what order. These assessments assist teachers in instructional decision making.

CAA: selection of assessment processes/tools

- Is the assessment information accurate
  - Is your measurement accurate? Will other people make the same observations under the same conditions?
  - Inter-observer agreement for behavioral observations
  - For published tests, there should be published information on if the results have been tested for agreement
- Does the assessment information help solve the learner's educational needs?
  - Does your measurement provide information related to the issue you are concerned about?
  - If you are concerned with math, does it provide information on counting, addition, etc.
  - If you are concerned about how the student communicates, does it provide information on how the child uses language?

Examples of some instruments that can guide instructional planning

- Assessment of Basic Language and Learning Skills (ABLLS)
- Verbal Behavior Milestones for Placement and Planning (VB-MAPP)
- Competent Learner Model Repertoire Assessment (CLRA)
- Individual Goal Selection *(IGS)*
- Other curricula and skills sequences

Some possible problems with tests

- Standardized tests are often vague measures because they don't measure student skills exactly (may be too broad)

- Many tests give scores that compare the student to other students
  - They do not provide an actual measure of how often or to what degree the skill occurs
  - They do not address the need to develop means of directly measuring the skill
  - Tests may, however, provide a starting point for further investigation.

A Systematic Look at Instruction

(derived from Markle and Tieman, 1967)

Before Starting Instruction:

Determine what you are going to teach (objectives)

Establish a sequence of skills and mastery criteria

Assess if student meets criteria

During Instruction:

Enter instruction at the appropriate level

Teach

Take performance data (how student responds to instruction)

Return to instructional planning if needed

Assessment Components for Educational Planning

- Specify where in the skills sequence to start
  - What item from the list of skills
- Measurement based on behavior
  - Must be observable/countable
- Measurement is accurate
  - Need to be sure measurement can be observed in the same way by different observers
- Data driven decision making
  - Set criteria in advance for when to review data, when to graph and criteria for mastery or making change in instruction

Data and Special Education:

- IEPs must be measurable

- Eligible children must receive Free and Appropriate Public Education: appropriate being the concept relevant to data collection (reasonable chance of progress)

- Due process protections for children make special educators directly accountable

- NCLB and IDEIA require scientifically validated interventions

Two Parts of Teaching: How We Teach and How the Student Responds

- **How we teach**: Intervention and teaching methodology must be identified in behavioral terms (must be observable)

- **How the student responds**: the behavior of the student to be changed (must be observable)

If I drop a ball, it falls.

If I tell the student the name of a picture, and then ask him to name it, the student names the picture.

If I present enough prompted trials (show the student what to do), the student can then do it on their own.

"When you teach it this way, the student actually learns"
Prove It.

Teaching involves proving a functional relationship between instructional method and a direct measure of student learning

Both instructional behavior and student behavior need to be measurable!!!

Measurable means we can count it.

Directly Observe what the Student Does

- Effective teachers use practical demonstrations to determine how to teach: they teach and they see if the learner learns.

This means teachers check to see if what they did actually changed how the student responds.

It is not enough to say "I taught it": the student must change as a result of being taught.

Only measurement proves whether the student has learned.

Remember assessment is most helpful when it is about what the individual does: what they can do and how well they can do it.

Only count things that you will look at and use to guide teaching.

Things to do to make assessment practical

- Check to see if how you are teaching works
- Measure what the child actually does: be sure others can count the same things you count
- When you count what the student does, display what you counted in a way that is simple
- Be sure you look at the data often
- Display the individual student's performance rather than his average performance (show what he or she did each day)
- Use simple line graphs so you can tell how the student is doing just by looking
- Set up rules so you know when to change how you are teaching (Remember teaching method must be observable, too!)
- Keep data collection simple (tally more, write less)

Selecting Data Collection

- Define behavior of interest by its physical characteristics: *in a way that can be counted!*

- Select a method to count behavior that matches the targeted behavior you want the student to learn: *make sure that you measure what you teach!*

Data Decisions

- What type of data should be collected?
- Who should collect it?
- Where should it be collected?
- How often should it be collected?
- When should data be collected?

How often must be collected?

- High priority objectives warrant daily data collection
- Implementation of new program requires frequent data collection
- Daily, weekly, monthly or quarterly data collection activities are driven by:
  - Goals and objectives
  - The data collection method and tools
  - Where the student is at in a skills sequence

Data must be gathered as frequently as necessary and no more!!

No data is not an option!

Systems for Collecting Data

- Review what other teachers have written and the student records (remember: people and circumstances change!)
- Observing a sample of behavior
  - **Anecdotal reports**: write down what student does
  - **Permanent product recording**: keep a sample of their work
  - **Event recording**: count how often a behavior occurs
  - **Interval recording**: count whether a behavior occurs or not in some period of time
  - **Timings**: record how often a student performs a skill in a set period of time.
  - **Duration recording**: record how long a behavior lasts
  - **Latency recording**: record how long it takes a student to respond or complete a task

To count or to time?

- Count behavior for which we are concerned with the question, "How often does that happen?" (Be sure to note within what period of time.)
  - Examples: request frequency, occurrence of problem behaviors, social initiations or approach behavior, occurrence of specific vocalizations, fluency: how many responses per period of time
- Time a behavior when you are concerned about how long a behavior lasts or how long it takes to get something done.
  - Examples: how long is student engaged; how long does temper tantrum last

Data Conversion Rules

(adapted from Alberto and Troutman, 1982)

Event Recording	Report number of Occurences…	If both time and opportunities to respond are constant: daily incidents of wet pants
	Report Percentage…	If time is constant (or not of concern) and opportunities vary: per cent trials correct
	Report Rate…	If both time (which is of concern) and opportunities vary or if time varies and opportunities are constant (trials correct per minute)
Interval recording Time sampling	Report number… Report percentage of intervals….	If constant (class periods with the behavior) During or at end of which behavior occurred
Duration	Report number of seconds/minutes/ hours….	For which behavior occurred (i.e how long a temper tantrum lasted; how long student played near peer, etc)
Latency	Report number of seconds/minutes/ hours….	Between antecedent stimulus and onset of behavior (how long until the student follows a direction after it is given)

Tools that Make Counting Easier

- Clip Board (with pen or pencil attached!)
- Timer
- Clicker counters
- Card Sort
- Data Sheets
- Data Collection Schedule including staff assignments

Caution

- Anecdotal records are of little value

- The more you have to write, the less efficient and accurate your data will be

- Actual counts of behavior are more likely to be useful in making instructional decisions

Cold Probe Data:
A simple way of tracking skill acquisition

Cold probe data:

- – ease of collection

- – limited impact on instruction

- – assumed measure of fluency

- – not influenced by performance on recent trial of same task

- – as accurate as trial by trial (Cummings, doctoral dissertation)

- – Useful if you want to know whether the student can do something when told: yes or no.

Cold Probe Procedures

- Begin probe with first trial of that day for a specific acquisition item (from program item list)

- Present direction

- If correct within 2-3 seconds of direction, circle plus on data sheet.

- If wrong, slower than 2-3 seconds of direction, or no response, circle minus on data sheet

Cold Probe Data Reminder

- Cold probe data is used to help make decisions about when to introduce new teaching items

- Decisions regarding how to instruct (for example how to use prompts) need to be made in response to moment to moment changes in student performance

Video Clip of Cold Probe:
Adult Demonstration

It is Important to Display How a Student Performs

Display student performance in a manner that by "simply looking" it will permit one to determine the relationship between learner performance and teaching methods.
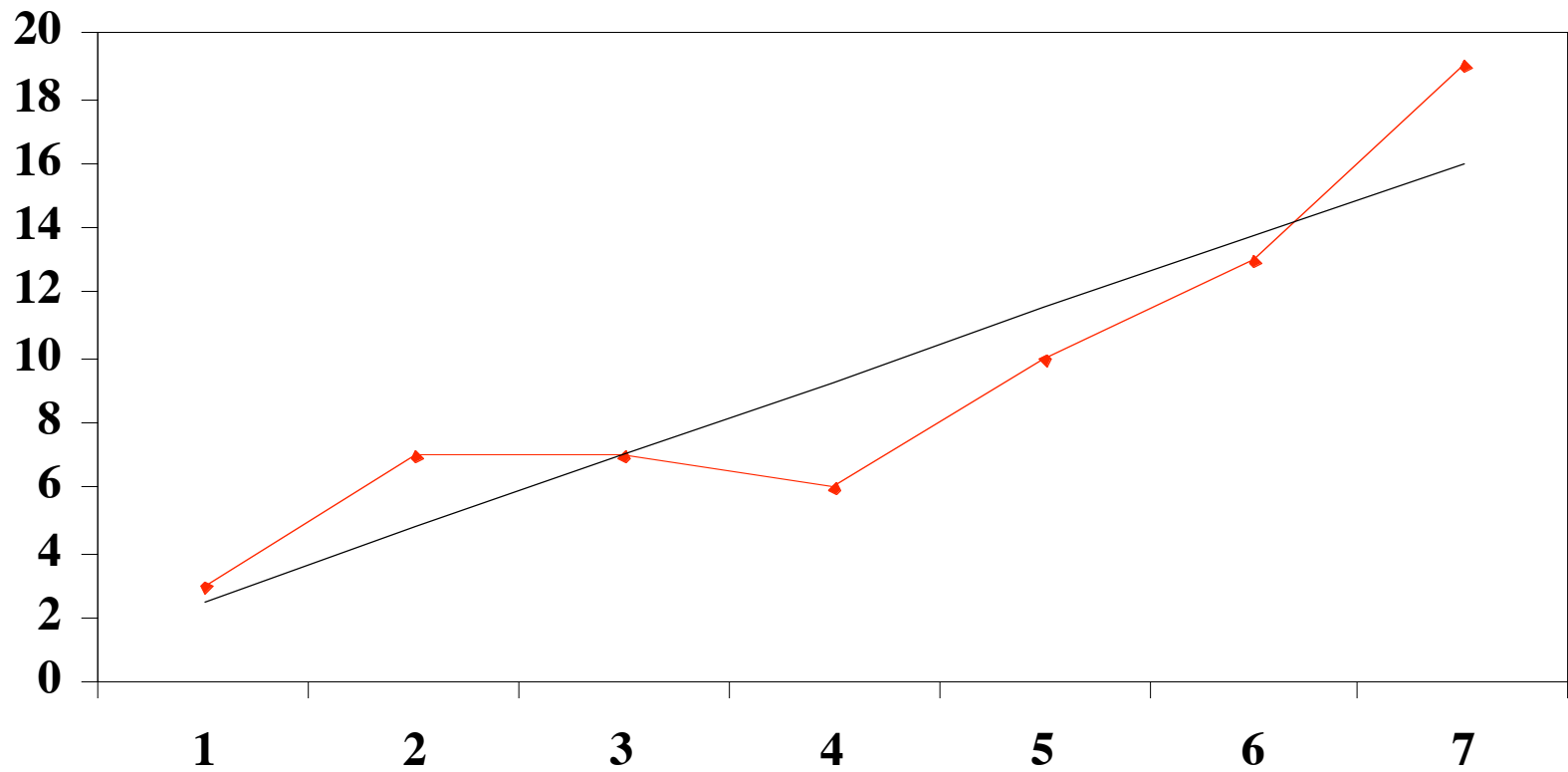
This usually means to use graphs:

- Teachers' time is too valuable to read complex charts or to do statistical analysis.

- Graphs can be looked at and interpreted at a glance.
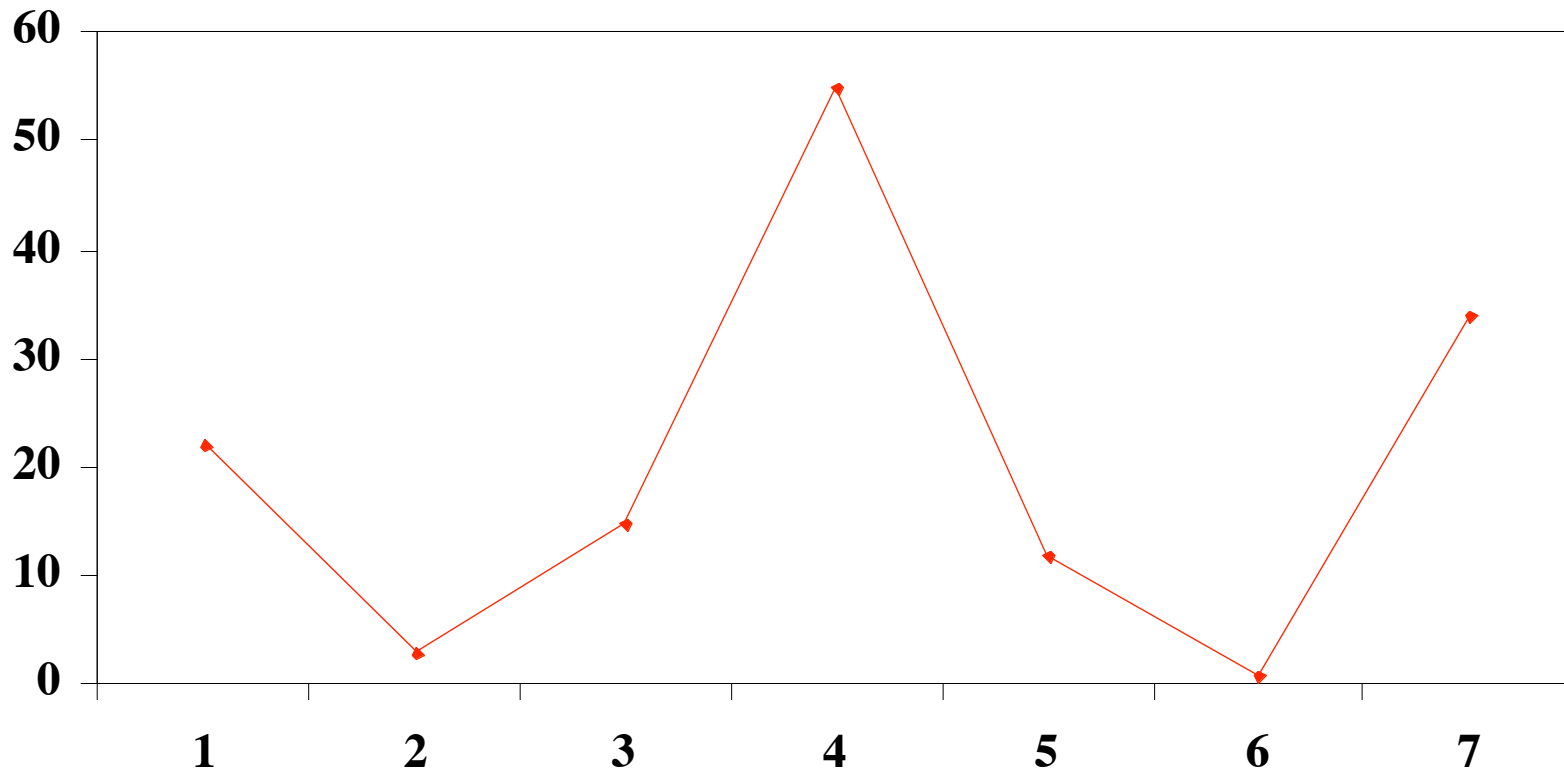
Trend Going Down
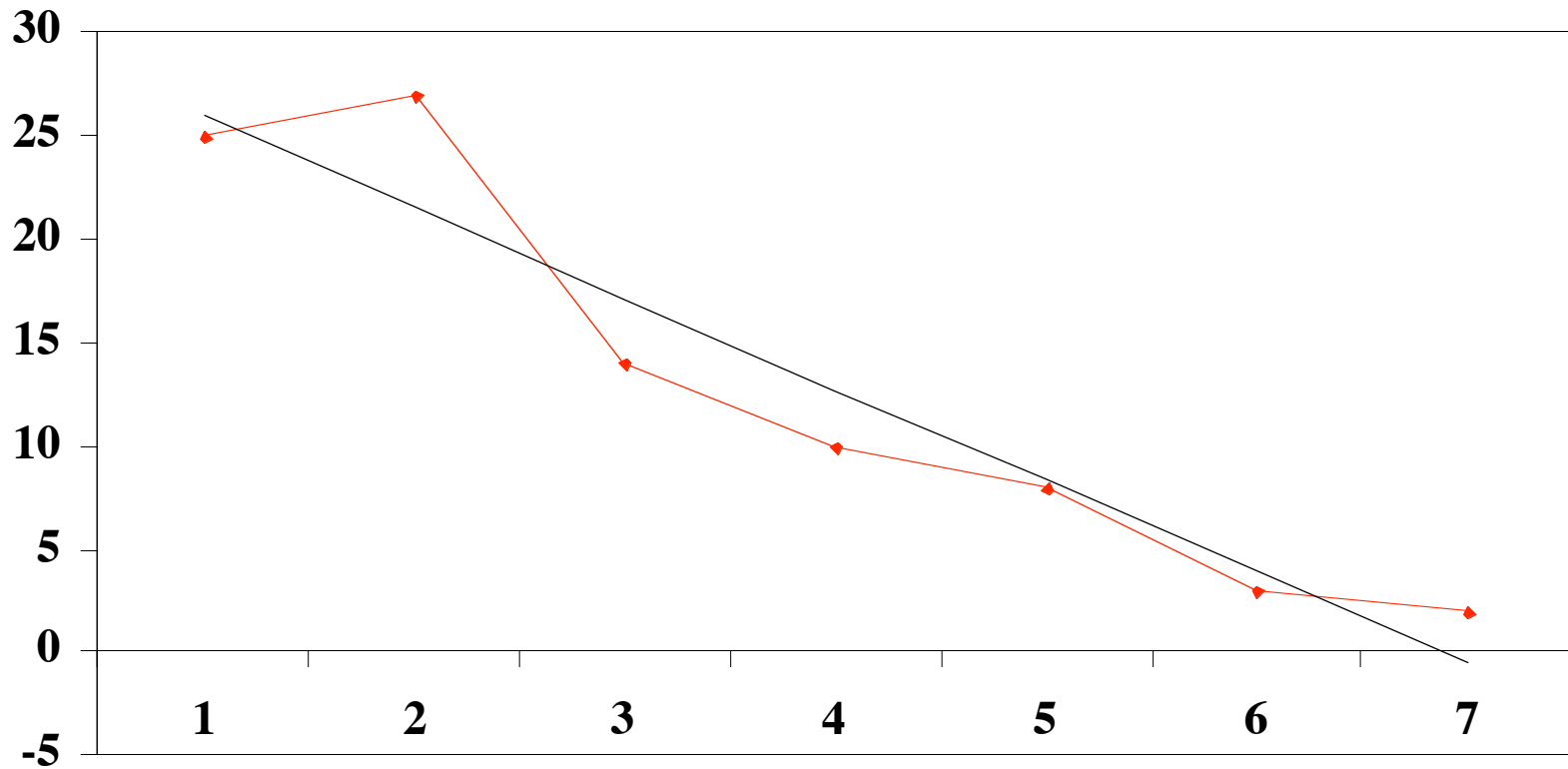
Trend Going Up

The Student's Performance Varies

Use Line Graphs to Display Data

- Graphs tell a lot of information, yet are simple means of recording, storing, representing, communicating and above all, making sense of observations.

- Behavior change can be evaluated often, allowing the teacher to change methods without long periods of poor learner performance.

- Graphs allow the teacher to be guided by changes in student performance.

Use Line Graphs to Display Data

- Graphs allow others to see the data and make judgments about whether the intervention or instruction worked or not.
  - Cooper, Heron, and Heward, 1987
  - Parsonsanis and Baer, 1986

- Share your data: share your graphs!

- Graphs make it more likely that teachers will do something about the data.

Graphing

- Line graphs display successive measurements of the same behavior across time.

- Bar graphs: are used to summarizes sets of data; they aren't much help in evaluating teaching

- Line graphs are the primary method of visual display used in most educational programs

Parts of Line Graphs

- X axis: count of behavior
- Y axis: time, series of observation points
- Data path: the line connecting observation points
- Aim line: the line showing how you want the student to perform
- Trend line: a line showing the general direction of the data path
- Interpretation: (level, stability, slope)
  - Is the line high or low on the graph?
  - Does the line vary up and down a lot or is it relatively smooth?
  - How quickly is the line going up or down? How steep is the line?

What this tells you:

Q. How high on the graph is the line (level)?

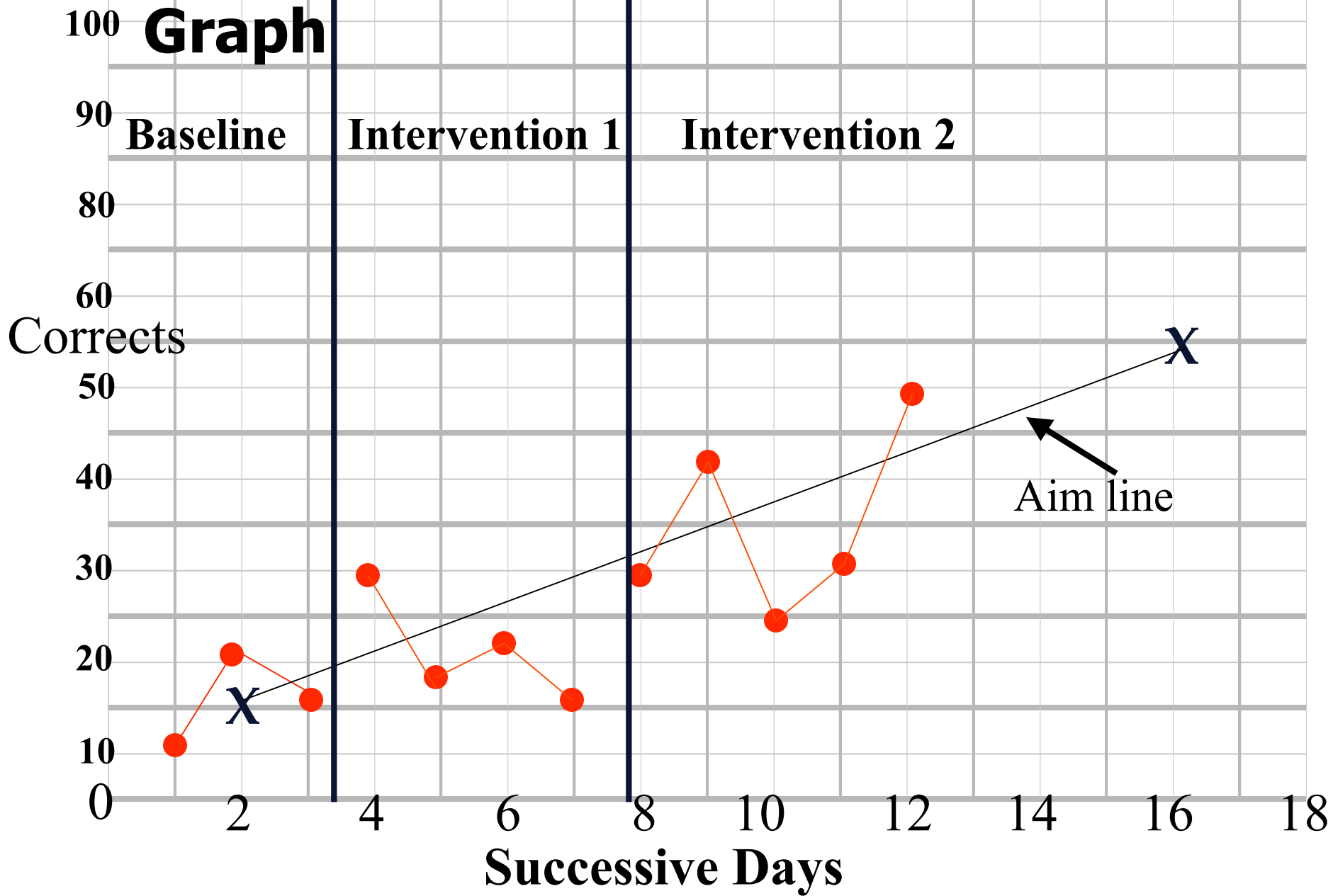**A. Is the behavior getting better or worse**

Q. Does the line vary up and down a lot or is it relatively smooth (variability)?

A. Is the student consistent (if not it suggests that the teaching conditions are probably not consistent)

Q. How quickly is the line going up or down (slope)? How steep is the line?

A. Is the student learning quickly or slowly

Summary of how to use graphs to make decisions
(Wolery, et al. 1988)

Data Pattern	Interpretation	Suggested decision
Corrects improving. Errors are flat or decreasing	Program is working	Continue present instructional program
Progress stalled at 20-50% correct	Student can perform some but not all parts of the task	Manipulate instruction to teach difficult steps
Corrects at or near zero: high error rate	Task is too difficult	Step back to teach prerequisite skills (an easier skill)
Correct rate is highly variable: correct rate drops sharply	Compliance problem	Implement compliance management program
Corrects stalled at 80%, no increase in rate	Student is ready for fluency building	Manipulate consequences to increase fluency and add practice time
At aim for accuracy and rate	Successful instructional program	Implement maintenance and generalization programs: move on to new task

How a teacher uses stages of learning for a behavior selected for instruction
(Kubina, 2001)

Teacher evaluates student for entry level behavior
Teacher provides instruction to help student acquire the behavior (also plans and teaches for maintenance and generalization)
Teacher arranges time for student to practice the behavior and become proficient or fluent
Teacher checks for maintenance, generalization, and practical applications of the skill (adaption).

Data Decision Rules

- Review Data Daily: This Data is for You!
- Remember we evaluate data by 4 patterns seen on line graphs:
  - A. Level of performance
  - B. Slope of performance
  - C. Variability of performance
  - D. Match of slope for actual data path and aim line

Big Assessment Questions

- Have you taught it?
- Does the student want to learn it?
- Can the child do it?

More specifically assess…….

Selecting Intervention Changes: Considerations

- Factors Related to Current Intervention

- Factors Related to Child's Motivation

- Factors Related to Child's Skill Level

Factors Related to Current Intervention

- Is intervention being done correctly?
- Is intervention being done consistently?
- Are intervention concepts/stimuli arranged faultlessly? (clear examples/non-examples across relevant variables)
- Is intervention being done often enough?
- Is your observation accurate?
- Is enough time allotted to do the intervention?
- Are interventions procedures clearly stated?
- Are staff able to adjust prompt level (how much help is given) and reinforcement (consequences) on a moment to moment basis?

Factors Related to Child Motivation

- Do you have strong motivation in effect? Do you have the right reinforcer? Is the child actually approaching the reinforcer? (in other words, for the student, does cooperation make it likely that things will get better for them).

- Have you varied reinforcement to avoid satiation? (have you kept the student from getting bored)

- Are we teaching skill at the right time? (i.e. when the child is not tired, most interested in available reinforcers)

- Are instructional items relevant to the child?

Factors Related to Child's Skill Level

- Is the task too hard?

- Does the child have the earlier skills necessary to do the task?

- Has the skill been taught properly? (acquisition issues)

- Do materials make it harder for the child to perform? (i.e. evoke stereotypical behaviors)

Resources

- www.studentprogress.org
  - Data collection tools
  - Graphing tools

- www.pattan.net
  - Autism
  - Progress monitoring
    - Specific skills training materials
    - Graphing tools

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