Assessment of Challenging Behaviors and intervention using Applied Behavior Analysis (ABA)
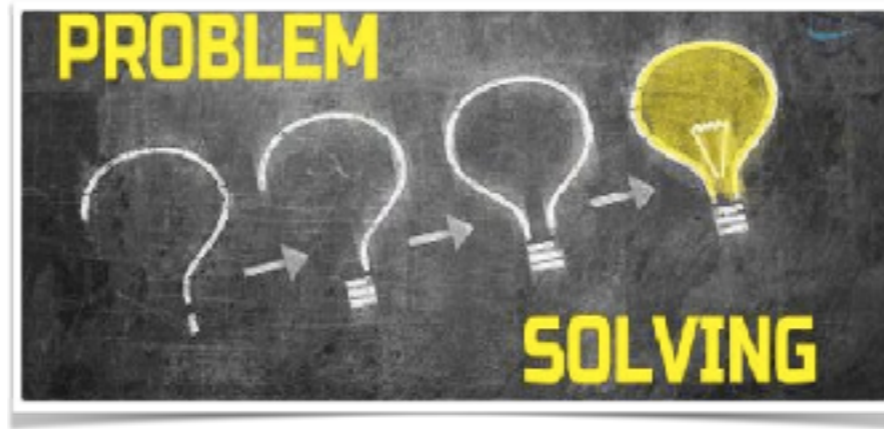
Koknese, Latvia

Lorenzo Todone MsEd-BCBA

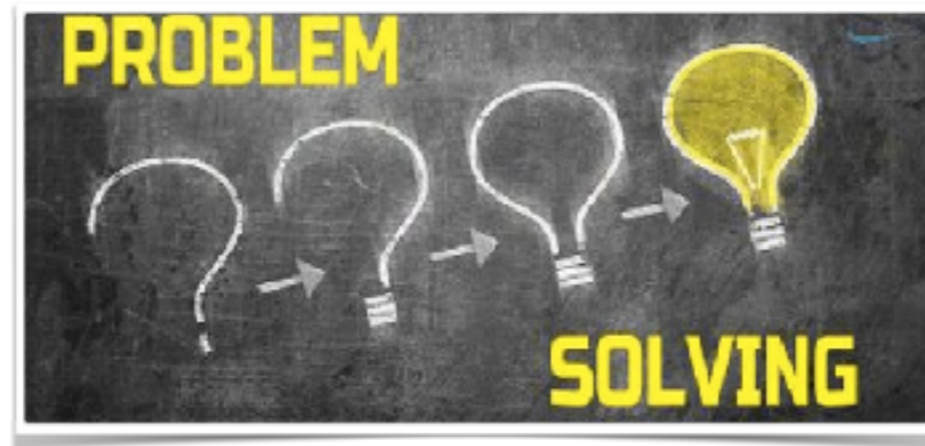lorenzotodone@hohtmail.com

Children with **Intellectual and Developmental Disabilities (IDD)** are at increased risk for problem behavior.

A subset of these individuals develop severe problem behavior which can pose serious and immediate risk for injury and loss of function

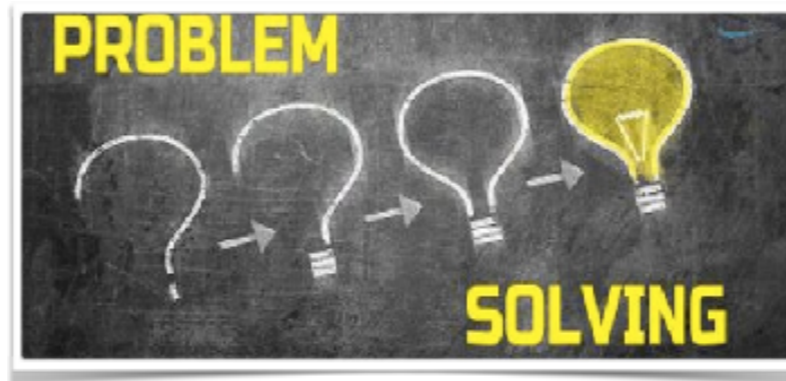Problem Behaviors can take many forms and may include:

self-injurious behavior (SIB): head banging, head-hitting, self-biting, self-scratching.
aggression toward others: hitting, kicking, biting, pulling hair, scratching, spitting
Distruptive behaviors: tamper tantrums, crying, throwing materials, crying, screaming, running away, bolting
Pica behavior: ingestion of no edible items
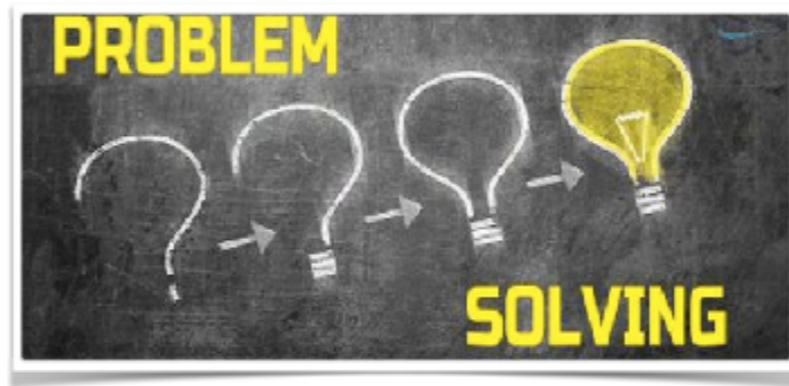**Self-stimolation**: motor or vocal stereotypy at high frequency (learning barrier)

Video
https://www.youtube.com/watch?v=8N2aiSrfGeE
# from 1'38"

Estimates vary widely but approximately **50%** of individuals with **IDD** experience *some form of problem behavior*, with a **5-10%** exhibiting *very severe problem behavior* with extreme consequences for families and teachers
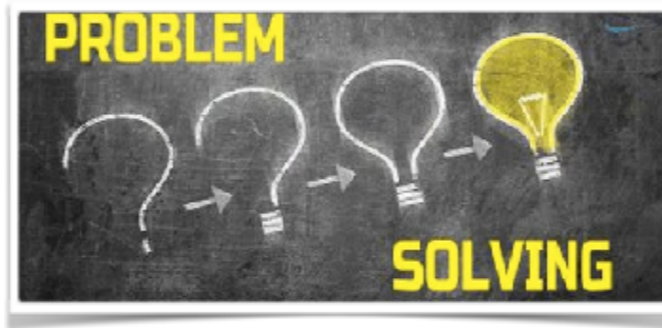
Problem behavior appear to be more common among individuals with **Intellectual Developmental Disorder (IDD)** who also have **Autism Spectrum Disorder**
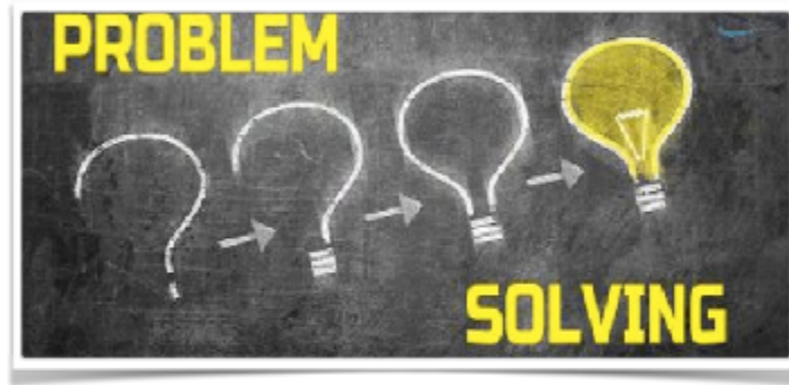
Other known risk factor for problem behavior include:

- greater deficit in intellectual functioning and communication

- the presence of sensory impairments

- ripetitive and restrictive behavior and interests

- prenatal factors
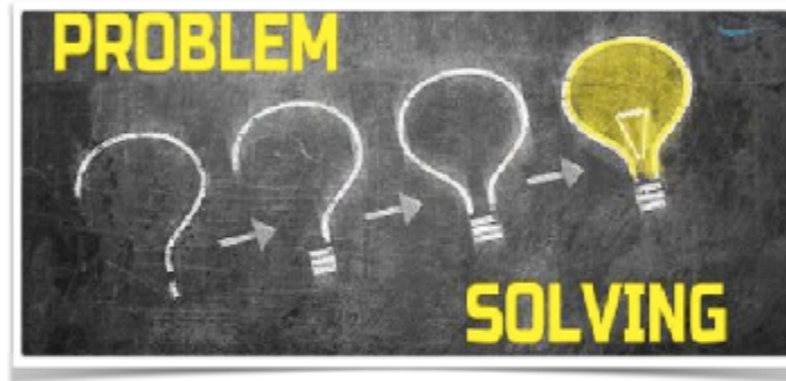
- In this population problem behavior is a heterogeneous phenomena.
- Onset of behavior may occur in early childhood or adolescence
- Individuals may present with one type of problem behavior or may engage in multiple forms
- These behaviors can occur from dozens to hundreds of times daily or episodically
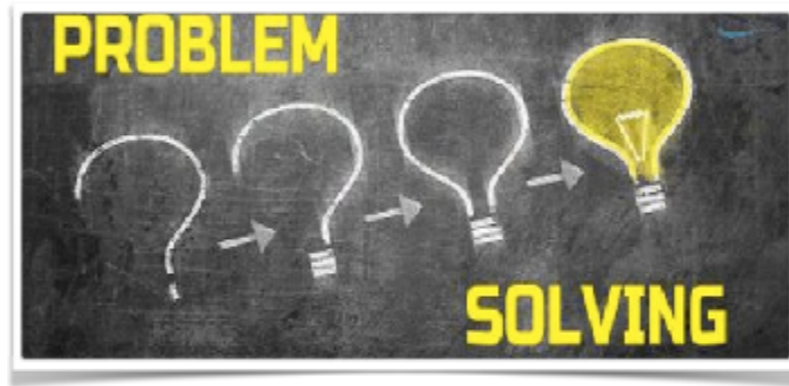
- Problem behavior is the product of the **interaction** between **deficits** from IDD and **experiences** that reinforce and strengthen these behaviors

- Deficits in <u>communication, adaptive skills and limited ability to regulate emotions</u> may **increase** frequency and intensity of problem behaviors.

Problem Behaviors

Problem behavior in most cases

● It is NOT directly caused by the disease, it

● is a consequence of the deficits due to the

 pathology,

● it is inadvertently shaped by the

 surrounding environment

● it is sensitive to some factors of change

Selection of behaviors

The behavioral approach believes that Behaviors are selected or extinguished based on individual's experiences

Selection of behaviors

The individual:

● keep selecting a behavior if it produce advantages and good consequences in certain context and situations

Selection of behaviors

The individual:

- stop selecting a behavior if it produce no advantages or harmful consequences in certain context and situations

Problem Behaviors are like Dinosaurs

From a Behavioral prospective **Problem Behavior** are like ancient species of behavior that keep finding
"food" (advantages and good consequences for the individual)

Problem behaviors are like Dinosaurs

In children with developmental delays **old species of behavior** (<u>crying, tantruming, screaming</u>) are not naturally replaced by **new species of behavior** (<u>speaking, waiting, listening, collaborating</u>)

Problem behaviors are like Dinosaurs

If old species of behavior are not replaced during the growth of the individual they <u>may increase in frequency, intensity, duration and new forms</u>

To facilitate the **extinction** of problem behaviors and **the growth of new behavioral species** we need to change their interaction with the environment

In behavioral interventions we give different definitions to problem behaviors

Topography:

Describes the form of the behavior

Function:

It describes the function of the behavior or its effect on the environment

(Irvin et al., 1998)

The Potential Functions of a Behavior: What Can It Be Used For?

1. The Behavior allows access to games, materials, activities, attention of people (even in negative form of reprimands)

2. The Behavior allows to remove unwanted events: undesired task or activities, undesired person or environment

3. Behavior allows access to sensory pleasure: Flicker for the visual pleasure it produces

4. Behavior allows to remove or alleviate internal pain or discomfort: biting to relieve a stomach ache

Why it is so important to identify the function of a Problem Behavior?

Hundreds of studies have shown the efficacy of treatments for problem behavior based on an understanding of its function
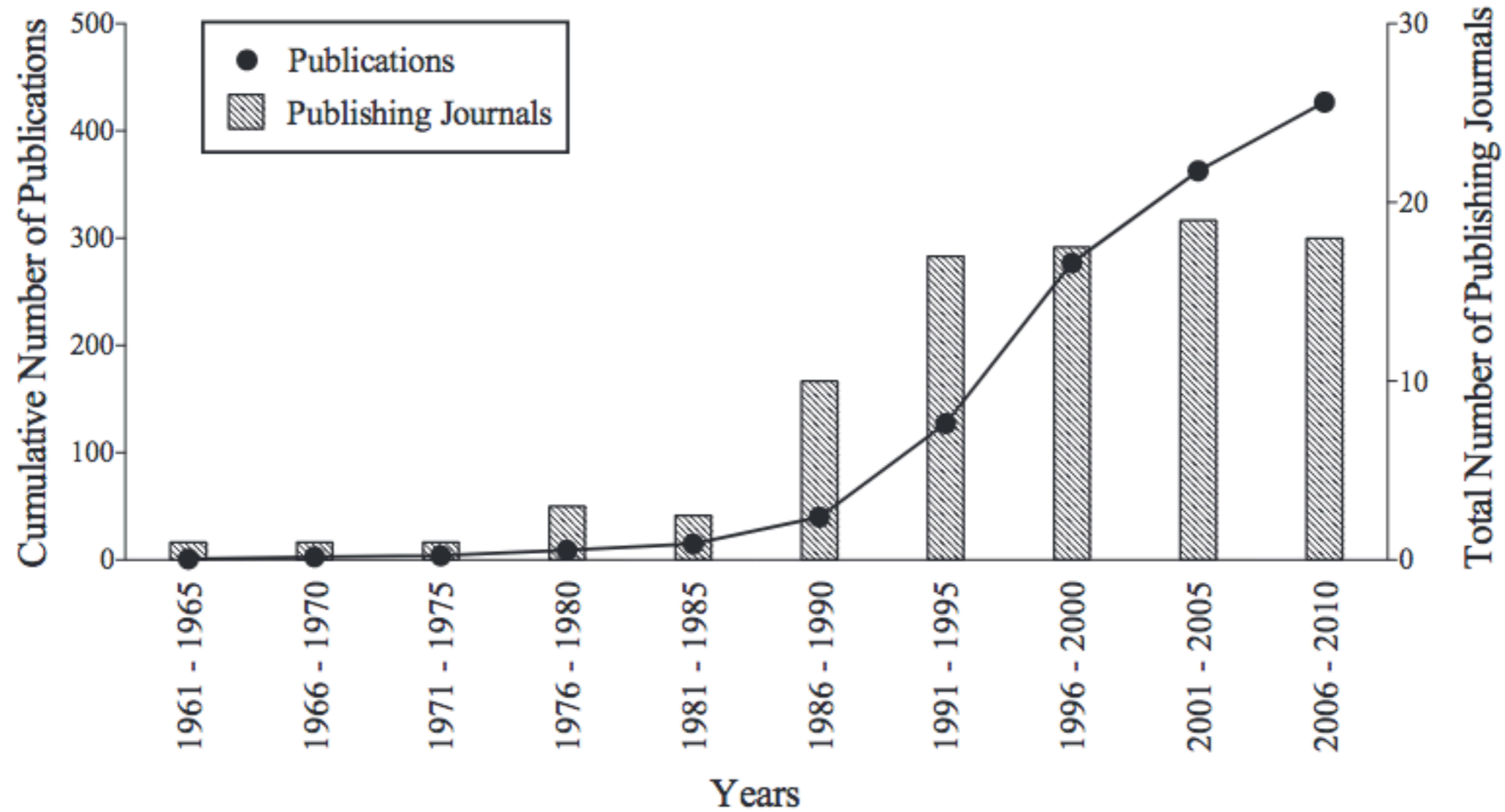
Figure 1.   Cumulative number of publications and total number of publishing journals across intervals of 5 years. Data from 1961 to 2000 were obtained from Hanley et al. (2003).

In summary what we must evaluate before intervening:

What does the person get when he emits that behavior within that context?

1. Get something - attention of adults or peers - activities, games, food or other
2. Avoid something - attention of adults or peers - activity, task, unwelcome food, sensations
3. Gets Self-stimulation or reduction of pain

Uzmanību!!!!

1. **MULTI-FUNCTIONALITY** (the same behavior can have more functions)
2. **MOVING THE FUNCTION** (a behavior can change function)

What to do?

Functional Behavior Assessment (FBA)

Functional behavioral assessment is known as the **best approach** to precisely identify events in the environment:

- presently occasion problem behavior (antecedents)

- the reinforcers that strengthen and maintain those behaviors (consequences)

Functional Behavior Assessment (FBA)

FA is a set of procedures used to identify the cause of maladaptive behaviours or socially inappropriate behaviours and reduce it through teaching replacement behaviour instead os suppressing it through punishment.

Within functional assessment methodology the causes are sought in the **immediate environmental variables** and **learning history of the individual**.

Functional Behavior Assessment (FBA)

Causes of the maladaptive behaviours based upon intrapsychic variables or psychodynamic processes are given little attention.

The outcome of the FA is a historical analysis of how a person learned the maladaptive behaviour (causes) and how it is presently supported or maintained in the current learning environment.

Functional Behavior Assessment (FBA)

Once identified knowledge of these controlling events <u>can inform the development of individualized behaviour intervention</u>

Such knowledge can also contribute to identify other elements that should be targeted with: **pharmacologic interventions, including emotions dysregulation, irritability, hyperactivity and so forth**

Functions that problem behaviour can serve

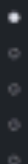**Positive Reinforcement** *"getting something: attention or access to tangible stimuli"*

Positive Reinforcement *"automatic, sensory stimulation"*

Negative Reinforcement *"getting out of something: escape of difficult tasks"*
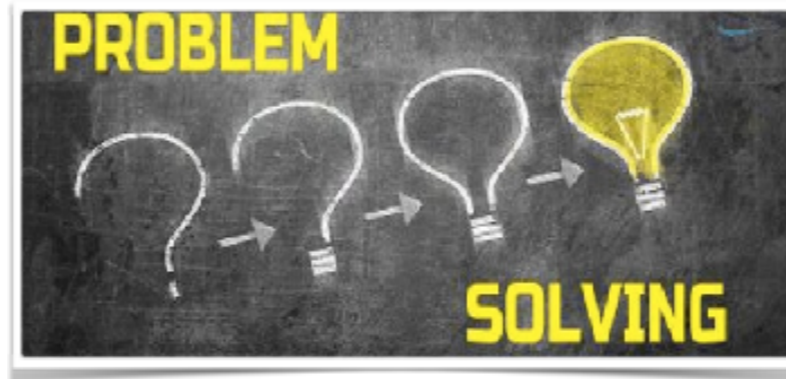
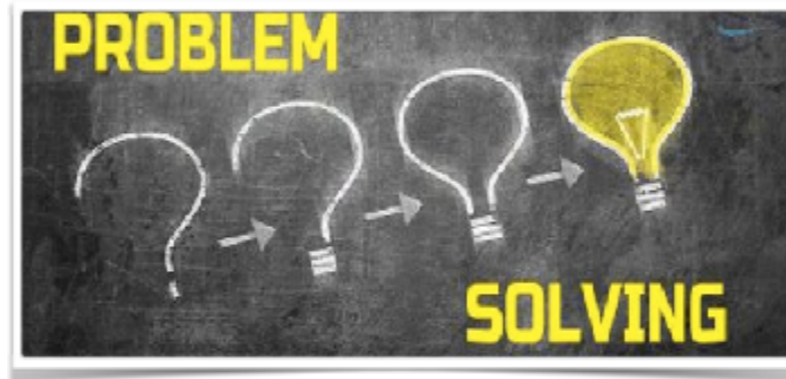**Negative Reinforcement** *"escape from aversive stimulation"*

Examples

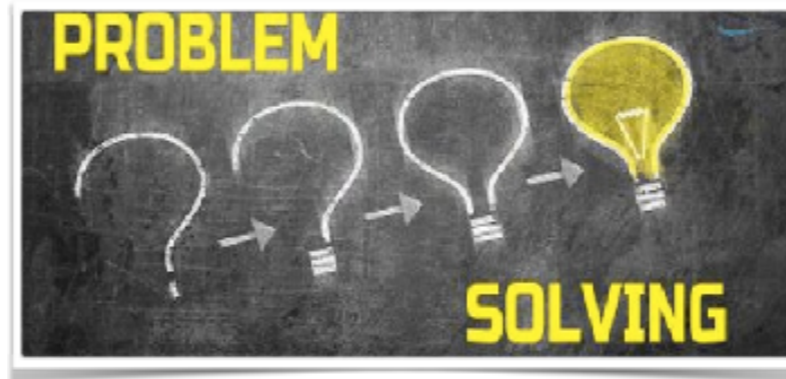| Function	Definition	Example
Attention	Behavior produces attention from peers or adults, including negative attention like reprimands	When Kara talks out during class, the teacher reprimands her and other students laugh
Escape	Behavior results in escaping an undesirable task	When Joe kicks or hits during class, he gets sent to the office, where he avoids or delays doing classwork
Tangible	Behavior results in obtaining an object	When Amy has a tantrum, other students give her the preferred school supplies
Sensory/ Automatic	Behavior results in sensory input that is desirable to the student	Zack drums on his desk during class, during lunch, and even when he is alone, because he likes the way it sounds

Attention Seeking
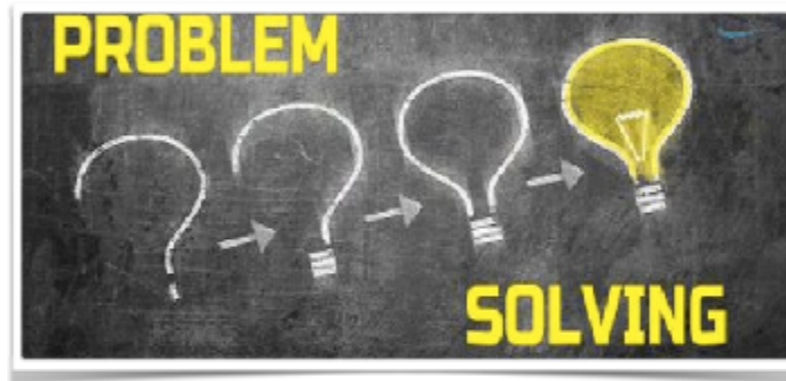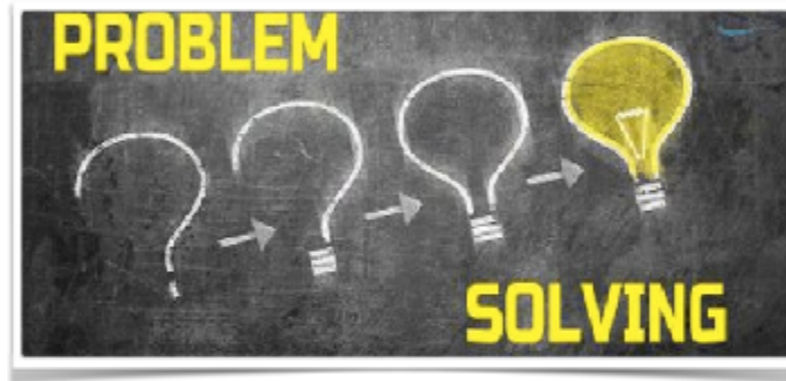https://www.youtube.com/watch?v=adQdvSPr6gI

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Avoidance/Escape

https://www.youtube.com/watch?v=_cI5LqtdZI4

Access to Tangible

https://www.youtube.com/watch?v=HK6CwkbEzgg

Access to Tangible

https://www.youtube.com/watch?v=I9CT-RYIifE&t=32s

Access to Tangible

https://www.youtube.com/watch?v=7DnB8vFfLDU

Self stimulatory Behavior

https://www.youtube.com/watch?v=4ALy6I1J1uo

The Value of Functional Assessment

Why it is important that teachers, educators and parents use FA?

1

Function versus Topography

In the field of education many practitioners choose intervention or treatment based upon topography or form of the behaviour instead of the function

2

Side effects when topography is the focus

As a results some recommended intervention actually strengthen the maladaptive behaviour instead of reducing it while other treatments demonstrate no benefits

3

Function based intervention

Instead, a FA leads to a classification of the maladaptive behaviour by its function (cause) and then selection of treatments or interventions which are effective in reducing behaviour in the specific functional category identified

The Value of Functional Assessment

Why it is important that teachers, educators and parents use FA?

4 **Default Intervention**
Conducting Functional Assessment and understanding why a behavior is occurring decreases reliance on default interventions, especially punished-based

5 **Awareness**
Understanding why a behavior occurs suggests how it can be changed

How to conduct Functional Behavioral Assessment?

Phases of Functional Behavior Assessment

1. Indirect screening phase (information gathering, interview with the family, checklist)
2. Direct Assessment. Direct observation of behaviour under natural occurring conditions to identify what the behavior servers for
3. Treatment
4. Monitoring

1. Indirect Functional Behavior Assessment

Indirect functional assessment means that student or child is not observed directly:

- structured interviews
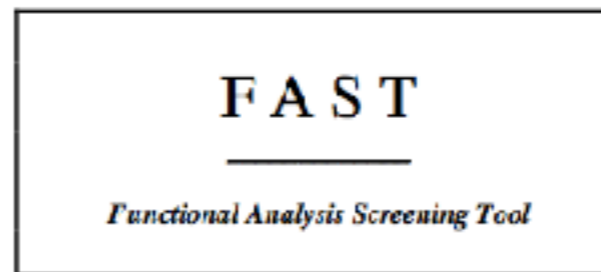- checklists
- rating scales
- questionnaires

1. Indirect Functional Behavior Assessment

- to obtain information from persons who are familiar with the person exhibiting the problem behavior (e.g.,teachers, parents, caregivers, and/or the individual him- or herself)

- to identify possible conditions or events in the natural environment that correlate with the problem behavior.

1. Indirect Functional Behavior Assessment

Functional Analysis Screening Tool (FAST)

Iwata & DeLeon 1996

1. Indirect Functional Behavior Assessment

Motivation Assessment Scale

Durand & Crimmins 1992

MOTIVATION ASSESSMENT SCALE

Name:_____ **Rater:** _____**Date:**_____

Description of Behavior (be specific):_____
_____

Instructors: The MAS is a questionnaire designed to identify those situations where an individual is likely to behave in specific ways. From this information, more informed decisions can be made about the selections of appropriate replacement behaviors. To complete the MAS, select one behavior of specific interest. Be specific about the behavior. For example "is aggressive" is not as good a description as "hits other people." Once you have specified the behavior to be rated, read each question carefully and circle the one number that best describes your observations of this behavior.

Questions	Never 0	Almost Never 1	Seldom 2	Half the Time 3	Usually 4	Almost Always 5	Always 6
1. Would the behavior occur continuously if this person was left alone for long periods of time?							
2. Does the behavior occur following a request to perform a difficult task?							
3. Does the behavior seem to occur in response to your talking to other persons in the room/area?							
4. Does the behavior ever occur to get a toy, food, or an activity that this person has been told he/she can't' have?							
5. Would the behavior occur repeatedly, in the same way, for long periods of time if the person was alone? (e.g. rocking back and forth for over an hour.)							
6. Does the behavior occur when any request is made of this person?							
7. Does the behavior occur whenever you stop attending to this person?							
8. Does the behavior occur when you take away a favorite food, toy or activity?							
9. Does it appear to you that the person enjoys doing the behavior? (It feels, tastes, looks, smells, sounds pleasing).							
10. Does this person seem to do the behavior to upset or annoy you when you are trying to get him/her to do what you ask?							
Go to next page							

Taken from *Michael J. Delaney /Mark Durand, Ph.D. 1986*

1. Indirect Functional Behavior Assessment

Advantages and limitations of Indirect FBA

Advantages

- Useful first screening before getting more objective assessment and idea of possible function of behavior

Limitations

- Parent or teacher account may not be reliable and may be biased

2. Direct Functional Behavioral Assessment

- Direct functional behavior assessment mens direct observation of behavior of student or child

- Observations are made under naturally occurring conditions

- Direct assessments involve observation of the problem behavior in relation to events occurring in natural environment

2. Direct Functional Behavioral Assessment

- Events that are shown to have a high degree of correlation with the target behavior may suggest hypotheses about behavioral function.

2. Direct Functional Behavioral Assessment

ABC Narrative recordingABC

Narrative recording is a form of descriptive assessment
(a) data are collected only when behaviors of interest are observed
(b) the recording is open-ended.

2. Direct Functional Behavioral Assessment

ABC CHART

Student Name:_____ School: _____ Grade: _____ Observer(s): _____

Instructions: For each instance of behavior, record the context of the behavior (date, time, designated activity, people involved, location, etc.). Also, briefly describe the antecedent, behavior, and consequence. Based on the observation of the behavior, determine a possible function of the behavior (e.g., seek attention, escape/avoid task, leave an area or person, access a preferred item, sensory consequence, avoid interruptions, communication pain/illness, etc.).

	Antecedent: What happened immediately before the behavior?	Behavior: Describe the behavior in observable terms (e.g., kicked a peer)	Consequence: What happened immediately after the behavior?	Possible Function: What is the "payoff"? Why is the behavior happening?
Date: Time: Activity: People: Place:				
Date: Time: Activity: People: Place:				
Date: Time: Activity: People: Place:				
Date: Time: Activity: People: Place:				
Date: Time: Activity: People: Place:				

Direct Functional Behaviour Assessment

Given a set of descriptive data, interpret the data to form a hypothesis regarding the possible function of problem behavior.

Antecedent	Behavior	Consequence
Pietro is prompted to wash his hands, before lunch…	Pietro screams and tantrums	Termination of washing hands and sent to his room

Hypothesized function: escape

Direct Functional Behaviour Assessment

Given a set of descriptive data, interpret the data to form a hypothesis regarding the possible function of problem behavior.

Antecedent

David is in his room alone in front of the window

Behavior

David moves continuously his hands in front of eyes

Consequence

No consequences

Hypothesized function: automatic reinforcment/self stimulation

Direct Functional Behaviour Assessment

Given a set of descriptive data, interpret the data to form a hypothesis regarding the possible function of problem behavior.

Antecedent	Behavior	Consequence
Sara is the kitchen while her mom is talking on the phone	Sara starts spitting on the table	Sara's Mom hangs up the phone and tells her to stop immediately

Hypothesized function: attention seeking

Direct Functional Behaviour Assessment

Given a set of descriptive data, interpret the data to form a hypothesis regarding the possible function of problem behavior.

Antecedent

Mom is helping Neri's brother to do his homework

Behavior

Neri walks in and start to jump and scream

Consequence

Mom gives Neri 5 cookies and Neri walks back to his room with cookies

Hypothesized function: access to food

2. Direct Functional Behavior Assessment

Advantages and limitations of direct FBA

Advantages

- Useful information regarding environmental events and problem behavior in natural context
- Individual's routine is not interrupted
- Clear definition of environmental variable and behavior
- Does not require direct observation

Limitations

- Observes may report states rather then events

3. Treatment according to function

When the function of the target behavior has been identified, intervention different intervention can be implemented:

- Altering Antecedents Variables
- Altering Consequent Variables
- Teaching Alternative Behaviors

Interventions on problem behaviors are generally divided into 3 categories:

1. Antecedent interventions:
- environmental conditions prior to the problem behavior are modified or altered

3. Consequence Interventions:
- the consequences that are believed to maintain the problem behavior are modified to minimize the chances of it being further reinforced

2. Intervention to teach Alternative Behaviors :
- behaviors that can replace problem behavior are taught (training)

Prevention Strategy
Altering Antecedents Variables

By Altering Antecedents Variables the goal is to prevent the problem behavior

Some Examples

Free access to desired items

Give often breaks from undesired activity

Frequent Positive Attention

Immediate help during difficult task

Make teaching environment fun

Make yourself fun

Let the student choose the activity

Let the student self stimulate in regulated areas and moments

Antecedent Intervention and Change in the Environment

Factors that can affect a person's behavior and represent potential Antecedent Intervention:

Physiological conditions,	Spatial Density
	Seating Arrangement
Physical aspects of the environment (e.g., lighting, seating anangements, noise level),	Noise
	Student-Student Interaction
Interactions with others,	Classroom Lighting
	Teacher-Student Interaction
Home environment,	Home Environment
Past reinforcement history.	Reinforcement History

Teaching Strategy
Teaching Alternative Behaviors

By teaching Alternative Behaviors students can express or reach their needs through new species of appropriate behaviors

Some Examples

Teach Student how to request desired item or activity

Teach Student how to request for attention

Teach Student how to request fora break from undesired activity

Teach a student new and different ways of having fun

Teach a student that collaboration is an advantage

Teach a student to wait

Teach a student to express emotions

Teach a student to express unpleasant feelings

Altering Consequent Variables
Changing Consequence Strategy

Change the consequences produced by the problem behavior
Some Examples

Don't give attention to student when he is seeking attention through problem behavior

Don't give to student what he/she wants when trying to get it through problem

Don't give a break to student when he is trying to get it through problem behavior

Don't make the task easier when students presents problem behavior

Don't offer privilege, toys or activities to student when problem behavior is present

If necessary ask peers to ignore student's problem behavior

If necessary ask other school professional to ignore problem behavior

Be ready and organised to deal with problem behavior without reinforcing it

An intervention can be a combination of strategy[61]

Problem Behavior: student is spitting to get attention from teacher

Prevention Strategy	**Teaching Strategy**	**Consequence Strategy**
- increasing environmental stimulation - give frequent attention to student	- Teach student how to request for attention appropriately	- Ignore problem behavior and don't give attention (wear a sea mask!) - give attention immediately when asked appropriately

An intervention can be a combination of strategy

Problem Behavior: student is screaming and hitting when given an activity he does not like

Prevention Strategy
- make the activity more fun
- give immediate help during activity
- make activity easier and shorter

Teaching Strategy
- Teach student how to request for a break from activity
- Teach student that completing the activity is an advantage

Consequence Strategy
- Ignore problem behavior and don't give a break from activity
- give immediately a break when asked appropriately

Problem Behavior:

Antecedent	Behavior	Consequence
Mum is present Computer does not work and Mum is needed Possible frustration feeling	G. says "bad/offensive words" to Mum	Mum says I don't like what you say Mum eventually helps
Proactive Intervention Give hime passwords for computer (not possible)	Teaching Alternative Behavior "mum please help" Improve waiting skill	Reactive Intervention "MUM please help" immediate help from MUM "bad word" Mum leaves the room

4. Monitoring intervention (change, continue, suspende)

Problem Behavior is defined in objective and measurable terms:

- Hitting (others or self)

- Pinching (others or self)

- Crying

- Spitting

- Mouth Object

- Screaming

- Hair pulling (others or self)

4. Monitoring intervention: data base decision to continue or change

Problem Behavior is measured in one of its dimension. Most common Dimensions measures are **Frequency or Duration**:

- **Frequency:** n° of events per unit of time of observation

- **Duration**: total duration of problem behavior during unit time of observation

# 4. Monitoring intervention : data based decision to continue or change
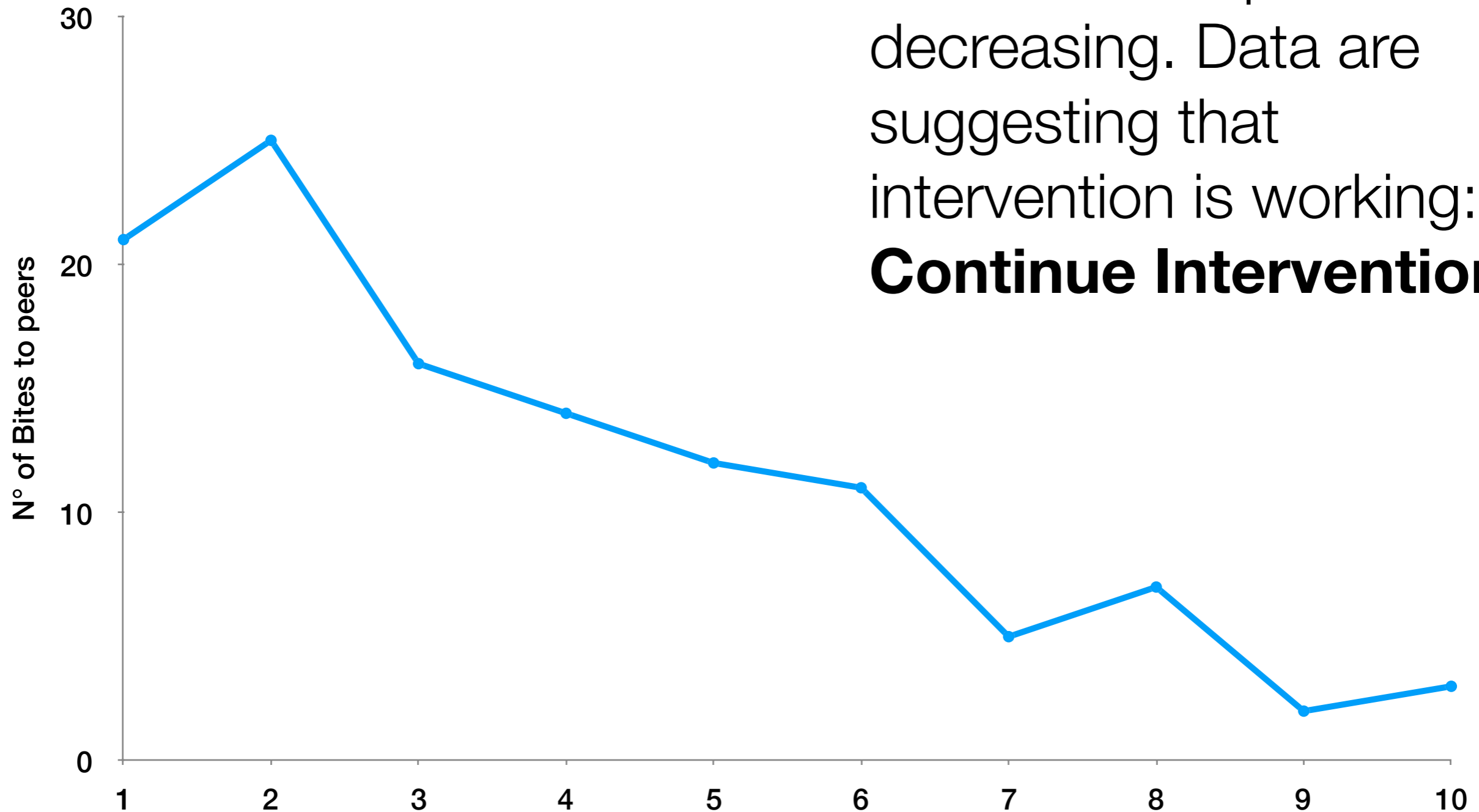
N° of Bites to peers are decreasing. Data are suggesting that intervention is working: **Continue Intervention!**

4. Monitoring intervention : data base decision to continue or change

N° of Bites to peers are not decreasing. Data are suggesting that intervention is not working: **Modify Intervention!**

4. Monitoring intervention : data base decision to continue or change

N° of Bites to peers are increasing.
Data are suggesting that intervention is making Problem Behavior worse:
Change Intervention!
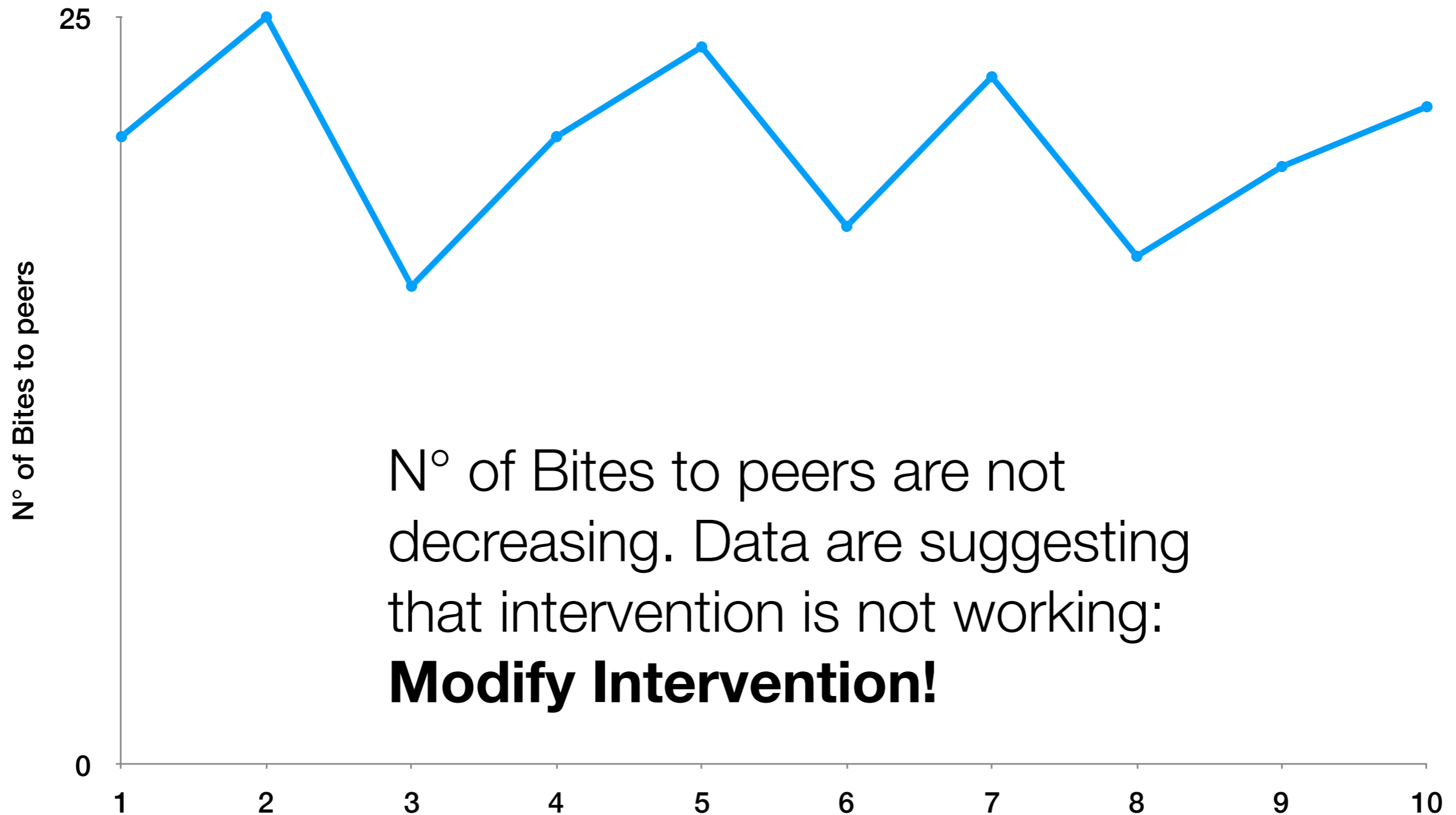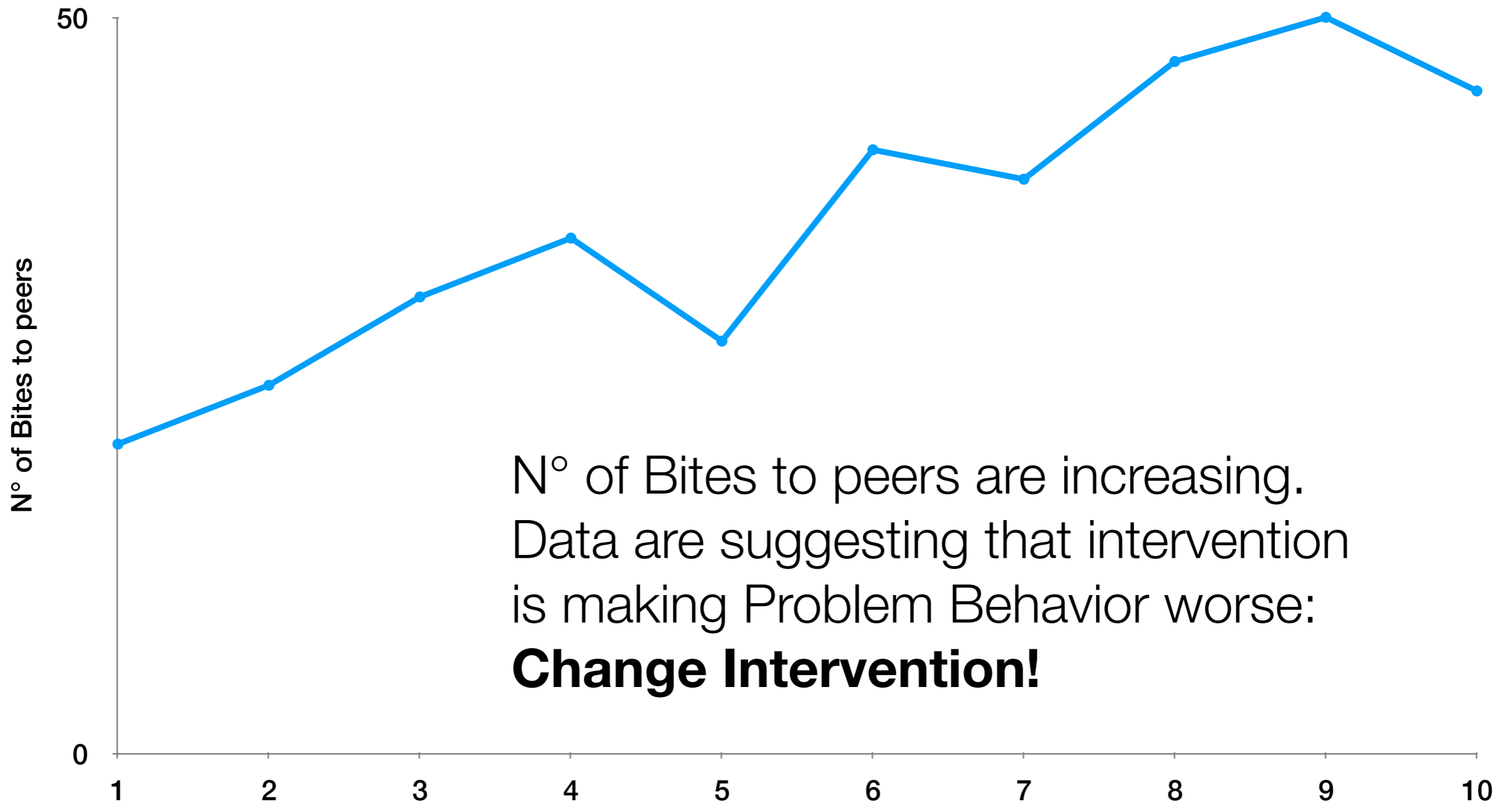
Step 1
Data
Collection

- Topographical definition
- Data recording (baseline)
- Behavioral Interview (FAST)
- Direct Observation (ABC recording to identify possible function)

Step 2
Analyze the
Data

- Sort ABC data by antecedent and consequence to identify suspected function
- Graph baseline data (frequency, duration, intensity, intervals..)

Step 3
Behavior Plan
Development

- Select treatments based upon suspected function
- Develop treatments based on suspected function

STEP 4
Implement treatment and evaluate effectiveness

- Take data and graph data to evaluate changes in behaviour trend