

The Impact of Hyperarousal on Learning

Vicki Sudhalter, Ph.D.

Head, Clinical Psycholinguistics Laboratory



New York State Institute for Basic Research
in Developmental Disabilities
Staten Island, NY

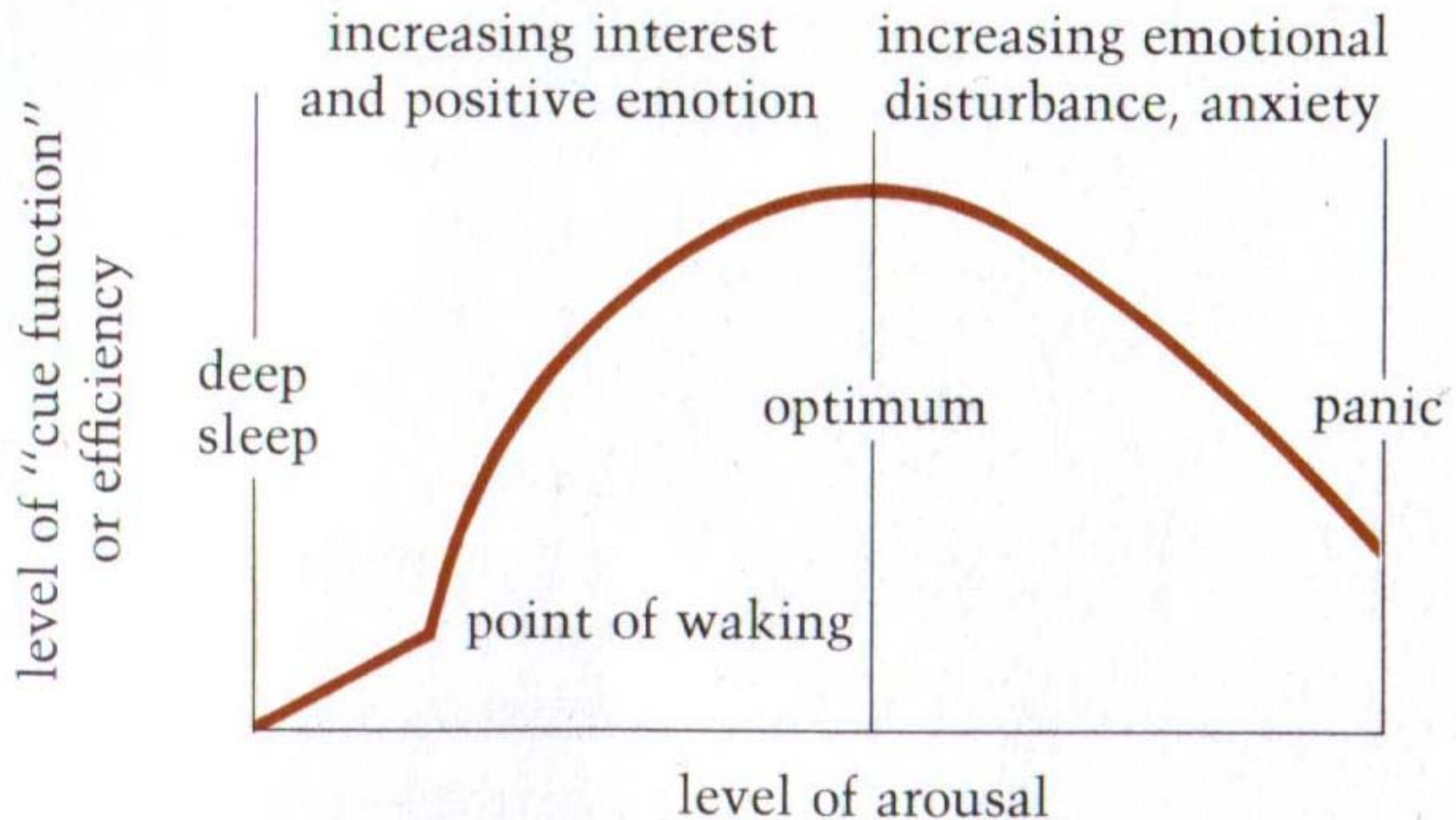
Presentation Outline

- Hyperarousal and behavior
- Classroom considerations
- Assessing educational needs
- Individual educational plan

Arousal

A general state of nervous system activation that is reflected in behavior, physiological activity and emotional experience.

Arousal vs Performance Efficiency



Hyperarousal

People with Fragile X syndrome:

- are unable to normally regulate their arousal
- are hypersensitive to stimulation
- remain highly aroused after stimulation ends

Hyperarousal

Poor self-regulation of arousal, and the resulting hyperarousal, are important characteristics of Fragile X syndrome, and underlie many of the behavioral problems associated with it.

Behavioral problems that are associated with hyperarousal include:

- Attention deficit / Hyperactivity
- Anxiety disorders
- Language problems
- Aggression & self-abuse
- Autistic-like behaviors

Classroom Issues

- Physical Design
- Behavioral Management

Physical Characteristics of a Classroom that may affect Arousal

- Classroom Lighting
- Classroom Acoustics
- Classroom Decoration
- Workstation layout

Characteristics of the Classroom

Lighting

- Fluorescent lighting has a stroboscopic effect that can be highly arousing.
- Incandescent lamps offer the best artificial lighting alternative to fluorescent.
- Natural lighting is best, unless it is too bright or directly in a child's eyes.
- Avoid glare and reflections from shiny surfaces.

Characteristics of the Classroom

Acoustics

- Provide sound dampening over hard walls to reduce echo.
- Insulate room from outside sounds
 - e.g., playground or hallway noises.
- Dampen school bells and fire alarms.
- Reduce intercom volume.

Characteristics of the Classroom Decoration

- Avoid the very busy, colorful and complex decoration typically found in elementary school classrooms.
- Decorate as simply as possible.
- Choose muted colors.

Characteristics of the Classroom

Workstation layout

- Separate workstations using visual and acoustic barriers.
- Isolate the child with Fragile X as much as possible during individual activities.
- Provide “side by side” rather than “directly opposite” seating, so that the teacher does not face the child.

Characteristics of the Classroom

Workstation layout

- Provide a “safe” area where an aroused child can go to calm down if he becomes hyperaroused.
 - Isolated – enclosed, nest-like
 - Calming – quiet, soft

Classroom Management Issues Related to Hypersensitivity

- Predictability of daily routine
- Transitions between activities
- Making and avoiding Eye contact
- Including OT-type activities
- Be aware of arousing situations

Classroom Management Issues

Predictability

Review upcoming changes in school routine:

- Scheduling of special classes
- Substitute or replacement staff
- Holidays or vacations

Classroom Management Issues

Transitions

- Try to provide continuity between activities.
- Include familiar staff or students.
- Use photos to illustrate future activities.

Classroom Management Issues

Eye Contact

- Avoid making direct eye contact.
- Do not insist on mutual eye contact.
- Do not confuse ‘looking away’ with ‘not paying attention’.
- Allow the child to wear sunglasses.

Classroom Management Issues

Occupational Therapy

Incorporate OT activities into the daily schedule.

- Consider the child's "sensory diet".
- Provide muscle fatigue-inducing tasks.
- Deep pressure, brushing, weighted vest.
- Provide oral motor stimulation.

Classroom Management Issues

Be aware of arousing situations

- Crowded hallways
- Gymnasium
- Cafeteria
- Playground
- Inclusion settings

Classroom Management Issues

Teachers and aides must be able to:

- Recognize the signs of hyperarousal
- React appropriately when it occurs

Signs of Hyperarousal

- Hyperactive, impulsive, distractible
- Covering eyes or ears
- Flush ears or neck
- Wet (sweaty) palms
- Hand biting
- Aggression towards self or others
- Rocking, flapping, stereotypic behaviors

Reaction to Hyperarousal

- Identify and reduce the source of stimulation.
- Remove child from the overstimulating environment.
- Provide a non-stimulating sheltered environment.
- Apply OT (calming and fatigue inducing) procedures.

Thus . . .

- In order to effectively teach children with Fragile X syndrome, the causes and effects of hyperarousal must be recognized and understood.
- Relatively simple accommodations to classroom design and management can help to reduce hyperarousal, and the behavior problems associated with it.

Accommodating Hyperarousal
Issues when Assessing
Educational Needs

I will discuss the three ways students' educational performance can be assessed

- Standardized assessments
- Standardized assessments with accommodations
- Alternate assessments

Necessity of Assessments

- Assessments provide information used to:
 - Make decisions about educational placement
 - Guide and individualize instruction
 - Hold schools accountable for effective instruction
- Assessments are mandated for IEP students by:
 - The No Child Left Behind Act (NCLB)
 - The Individuals with Disabilities Education Improvement Act of 2004 (IDEA)

Accuracy of Assessments

- The accuracy of standardized assessments are based on norms obtained with typically developing children.
- Because children with special needs, by definition, fall outside these norms, standardized assessments may not be accurate when used with them.

Assessment Accommodations

- Standardized assessments are designed to be presented according to strict administration guidelines.
- If certain accommodations can be made (which will not invalidate the test results), then the IEP team can require that those accommodations be provided.

Assessment Accommodations

- Such accommodations to standard testing procedures may include alterations of:
 - Scheduling the test at a time of day when the student is typically most able to concentrate.
 - Giving the test within several shorter sessions.
 - Providing extending time and frequent breaks.
 - Allowing flexibility in correct responding.
 - Allow individual or small group administration.

Alternate Assessments

- In cases where a student's IEP goals are substantially different from the content of standardized educational assessments, the IEP team can authorize the use of alternate assessments.
- Alternate assessments offer great flexibility in accommodating special needs.

Assessing the child with Fragile X syndrome

- Formal testing procedures include many triggers for hyperarousal, including:
 - Prolonged seating and enforced quiet
 - Expectations of high performance
 - Unfamiliar content not part of IEP goals
 - Group settings

Assessing the child with Fragile X syndrome

The hyperarousal experienced by a child with Fragile X syndrome in such situations will interfere with his performance, and almost certainly result in scores that underestimate his true capabilities.

Assessing the child with Fragile X syndrome

Every effort must be made to reduce hyperarousal, for example by:

- Reducing unnecessary environmental stimulation
- Using calming techniques
- Desensitizing to the assessment procedures
- Employing “sneaky” assessment methods

Assessing the child with Fragile X syndrome

“Sneaky” methods are those that allow one to assess a child without his knowledge.

- Observe his responses to task instructions
- Observe his performance while he is working
- Consider peer or parent reports of his activities
- Incorporate the test into a game format

Our mission . . .

Should be to insure that students with Fragile X syndrome are given every opportunity to show us exactly what they can do, so that we can provide them with an appropriately challenging and fulfilling education.

Addressing Hyperarousal
Issues in a Child's
Individual Educational Plan

Role of the IEP

- As we have seen, the causes and effects of hyperarousal must be accommodated in order to effectively assess and teach a child with Fragile X syndrome.
- The IEP development process is your opportunity to make sure that appropriate accommodations are incorporated into your child's educational program.

Importance of the IEP

- The IEP represents a contract between the school system and the parents.
- It is the most important educational document that is written for your child.
- It specifies the agreed upon skills to be acquired, as well as any types of therapy necessary for the child to acquire these skills.

Parental involvement is essential during the development of the IEP

- Ask to receive any reports or draft documents before the IEP conference, so that you (and your advocate) will be able to read and study them in advance.
 - Description of present performance
 - Summaries of evaluations
 - Annual goals (benchmarks & evaluation methods)

Parental involvement is essential during the development of the IEP

If you disagree with any part of the school's proposed IEP, or you want to add anything to it, you should prepare alternative descriptions, goals, types and amount of therapies, etc., and bring this with you to the conference.

Parts of the IEP

- Child's Present Performance
- Annual Goals
- Benchmarks
- Related Services

Parts of the IEP

Child's Present Performance

Because hyperarousal can greatly influence your child's performance and ability to learn, relevant information about the causes and effects of hyperarousal should be included in this section of the IEP document.

Parts of the IEP

Child's Present Performance

A functional behavioral assessment (FBA) should be conducted to determine under what specific circumstances hyperarousal occurs in your child's case.

This can be performed by a psychologist who understands Fragile X syndrome.

Parts of the IEP

Child's Present Performance

A functional behavior assessment is a precise description of a behavior, its context, and its consequences, with the intent of better understanding the behavior and those factors influencing it.

Parts of the IEP

Child's Present Performance

An FBA is based upon three types of data, which may be referred to as the ABC's:

- **A**ntecedent -- the stimulus or stimuli to which the child responds.
- **B**ehavior -- the behavior that we see exhibited by the child.
- **C**onsequence -- the stimulus or stimuli that the child receives (or that he is stopped being subjected to) as a result of his behavior.

Parts of the IEP

Child's Present Performance

One should schedule opportunities to observe and describe the behavior across a broad sample of environments and occasions. The data that are collected from these observations should then be analyzed; one should look for trends in the occurrences of that behavior, for stimuli that may be evoking it or the needs that the child is attempting to fill by exhibiting this behavior.

Parts of the IEP

Annual Goals

Examples of goals to improve challenging behaviors caused by hyperarousal include:

- The child will not engage in aggression.
- The child will not engage in self-abuse.
- The child will easily transition between tasks.
- The child will easily transition between environments.

Parts of the IEP

Annual Goals

Examples of goals to improve challenging behaviors caused by hyperarousal include:

- The child will learn to talk more slowly.
- The child will learn to count more slowly.
- The child will learn to eat more slowly.

Parts of the IEP

Annual Goals

Your child can also be taught to recognize the signs of his own hyperarousal, and to cope appropriately by himself.

- By escaping from an arousing situation.
- By moving to a less stimulating area.
- By applying self-calming techniques such as square breathing or soothing visual imagery.

Parts of the IEP

Annual Goals

Not all atypical behaviors associated with hyperarousal should be included as IEP goals.

For example, we recommend against trying to teach children with Fragile X syndrome to make direct mutual eye contact.

Parts of the IEP

Benchmarks

- Benchmarks are measurable.
- They represent a logical breakdown of the major components of an annual goal.
- They describe general indicators of progress, not a detailed instructional plan.
- They specify the behavior to be performed.
- Benchmarks often indicate a time frame

Parts of the IEP

Related Services

Related services include therapies required by the child in order to meet his annual goals.

They may include, for example:

- Physical therapy
- Occupational therapy
- Speech/language therapy

Parts of the IEP

Related Services

The environmental factors (lighting, acoustics, etc.) and behavioral interactive factors (eye contact, transitions, etc.) previously described should be discussed with teachers and school officials, and any agreements related to them should be included in this part of the IEP.

Parts of the IEP

Related Services

Any professional who interacts with your child should receive training (for example, by attending in-service classes or conferences) in hyperarousal and its relation to the behavioral characteristics of children with Fragile X syndrome. Such training may be mandated in this part of the IEP.

Conclusion

- Hyperarousal impacts every aspect of the IEP, from Present Performance to Annual Goals. The entire IEP should be written with the understanding that your child can easily become hyperaroused, and that this greatly impacts his performance and his learning.
- Is it our job to insure that appropriate accommodations are made so that his educational experience is as conducive to effective learning as possible.

Questions?