

## **THE SCIENCE OF UNDERSTANDING AND PREVENTING BULLYING**

[9503]

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### **Workshop Summary**

Exposure to violence and abuse has long been linked to the occurrence of behaviors such as aggression and bullying. What has not been explored until recently is the impact that this exposure has on brain development. By understanding what happens in the brain and why, educators can take steps to prevent bullying and to help the bully learn more socially acceptable behavior.

The amygdala, an important part of the limbic system in the brain, is in charge of *personal* behavioral responses. Any stimulus encountered by an individual is filtered through the amygdala in order for it to assess if the stimulus is a threat. When the amygdala perceives danger, it will configure a chemical response designed to respond to the situation and release the necessary chemicals into the blood stream. By releasing the response through the circulatory system, the amygdala seizes control of the body in order to ensure immediate response. The amygdala reduces input from the cortex, which is in charge of reasoning and planning, in direct proportion to the level of the perceived danger.

The types of personal behavioral responses produced are directly correlated to the past emotional experiences to which an individual has been exposed. The chemical configurations designed by the amygdala to deal with these responses are then stored for faster response if the individual encounters a similar threat in the future. In cases of repetitive trauma, the response of the amygdala will become quicker each time. Repetitive trauma can result in a *hypersensitive limbic system*. A hypersensitive limbic system is prone to misperceive social cues, triggering extreme behaviors associated with past traumas.

The profile of a bully often includes exposure to violence and systematic physical abuse. The bully's aggression toward others is triggered whenever he or she experiences stress, defined as any stimulus that causes dramatic chemical shifts in the brain.

The arousal level of the amygdala is lowered in situations in which there exists a perception of being wanted, safe, and successful. When experiencing these types of emotions, the amygdala perceives stimuli accurately and continues to receive input from the cortex. Since many bullies suffer from poor self-esteem and poor social skills, their level of anxiety often elevates when they are in group settings, such as school.

If a pattern of school failure is established, school itself will produce anxiety and lead to aggressive behaviors. Bullying usually occurs in the least structured parts of the school day. The increased stimuli experienced during arrival at school, change of classes, recess, lunch, and dismissal become consistent times for these threatening behaviors.

To break the cycle of bullying, schools need to establish predictable routines and rituals that aid in lowering the bully's level of anxiety. In addition, schools that help students feel successful and wanted will naturally lower the arousal level of these students' amygdalas, thereby reducing impulsivity. Science supports the fact that interventions can lead to improved social behaviors in the school setting if they are designed to mimic the brain's process in developing a reinforced practice.

### **Workshop Goals**

Participants will receive information on how and why bullying behaviors are triggered in the brain and will learn practical steps that schools and teachers can take to prevent bullying. The teaching process for workshop

participants will incorporate *repetition, chunking of information, music, symbolic association, movement, and effective incorporation of the other senses.*

## **Workshop Objectives**

To use the following brain-based teaching strategies to improve learning and application:

1. **Repetition.** The training will utilize the simple process of *repetition* of key points. The brain learns new information by a sequence of chemical transference from neurotransmitters to neuroreceptors through dendrites. Dendrites form a connection between neurons to enable the flow of chemicals. When new information is first learned, the chemical transference through the dendrite is slow and inefficient. Each time the process is repeated, however, the chemical transfer becomes faster and more efficient. Therefore, repetition is a proven educational strategy that will be consistently incorporated.
2. **Chunking.** The training material will chunk key information. The brain also prefers to receive new information in *chunks*, which is the reduction or breakdown of information into groupings of three, four, or five. A sequence of numbers is more easily retained by simply breaking it into chunks. A good example of this concept is a phone number: 9198076549 versus 919-807-6549. The session will take central concepts and reduce them to chunks that are called *catch phrases*. This process enhances the learning and retention of participants.
3. **Music.** *Music* will be incorporated into the training because music advances learning. A region of the brain has neurons that can be stimulated only by music. The stimulation of these neurons enhances the learning process by increasing focus, language acquisition, memorization, and abstract reasoning. A multitude of studies have demonstrated that music exposure, participation, and learning consistently increase verbal and math scores.
4. **Symbolic association.** Studies on language development have shown that individuals with learning deficits consistently lag in the area of language development. It is now known that damage to the hippocampus has occurred, slowing learning. Many individuals with damaged hippocampuses have difficulty learning new concepts unless the concept is associated with a *symbolic identifier*. Everyone learns concepts more quickly when the ideas are associated with symbolic triggers. This approach is consistently utilized in advertisement through the use of logos and other symbols used to trigger the recall of information that is attached to the symbol. The same technique will be used by associating key concepts of the training to symbolic identifiers.
5. **Movement.** The utilization of *movement* in the training process allows for thousands of motor neurons in the basal ganglia, thalamus, and cerebellum that link the brain and the muscles to form a group of tightly dedicated neurons that will produce a consistent chemical message to a given movement stimulus. Ritualized movements coupled with key points of the information will improve recall.
6. **Senses.** All of the other *senses* work on the same principles as movement, with each sense processed in multiple regions of the brain as well as in the cortex. Whenever information is consistently aligned with the senses, it forms a link between the neurons dedicated to the sense and the cortex. Other senses will be stimulated during the workshop to create a more memorable learning experience.

## **Workshop Activities**

1. Learning key parts of the brain and its functions through physical movement and repetition

2. Utilizing catch phrases, repetition, and visual symbols to learn intervention steps
3. Utilizing pop quizzes and providing rewards to participants for correct answers as a method of review
4. Utilizing appropriate music to enhance recall during the presentation
5. Stimulating learning through the sense of smell
6. Providing group review through repetition of the brain-based activities done during the workshop

## **Assessment**

The workshop will be evaluated using three processes:

1. Group participation
2. Self evaluation exercise
3. Formal evaluation

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