

WORTH THE EFFORT

Applying Brain Research in Kindergarten

Background Picture
Removed

BEGINNING SCHOOL IS AN important milestone in the life of a child. To make this crucial period a positive and successful experience, I have begun to apply some of the principles of brain research in my kindergarten classroom—eliminating stress and threats, making the physical environment conducive to learning, providing for student choices, ensuring challenge and feedback, utilizing a

My first priority is to create a learning environment that is free from threat and stress.

BY JULIE WESLAKE

variety of teaching methods, and including the arts and physical activity.

Positive Learning Environment

My first priority is to create a learning environment that is free from threat and stress. Many children have already been exposed to stressful experiences at home or in their communities. Jensen¹ says that "students who have had early and constant childhood exposure to threat and high stress, particularly those who have come from families of violence, are often the ones for whom it is the most difficult to gain attention."

Children suffer stress when they are ridiculed or bullied. In my classroom, insulting or hurting others is not tolerated. It takes vigilance and determined effort to achieve this climate. Often, I have to put aside important academic learning to enforce the behavior expectations that we have established. At times when students are not feeling stressed, I teach about resolving conflict and becoming more like Jesus. We listen to and read stories about people who have demonstrated appropriate character. Then I have the children engage in role-playing, discussion, and cooperative learning to help them understand and practice the positive behaviors we have discussed. Such applications recur naturally throughout the curricula of Bible, social studies, and health, but can be integrated into all learning.

Teachers are often the cause of children's stress. We need to avoid embarrassing children, setting unrealistic deadlines, or using sarcasm and threats.² In my classroom, I set clear, realistic behavior guidelines and consequences, so when a rule is broken, I simply need to act to enforce it.

Because students complete work at different rates, children who work more slowly can feel threatened by a teacher's nagging to hurry up and the consequent fear of failure. I build flexibility into the daily timetable by using what I call "buffer zones." This involves providing children with a choice of activities between periods of intense concentration. Slower workers soon realize that those who complete their work get to choose fun activities, and this motivates them to focus on getting their assignments done.

Picture Removed

Learner stress can also be reduced if the teacher groups students according to their abilities. In writing, reading, and mathematics, I set specific targets and teach objectives that are appropriate for that group or child. Reading needs to be challenging but not so difficult as to frustrate the student. I usually have at least six different teaching groups.

Allow Student Choice

Allowing students some choices alleviates stress, increases intrinsic motivation, and lengthens their attention span. I have organized my reading program to allow for this. While I am teaching a small group, the rest of the class is engaged in reading centers around the room. During the 45 minutes of instructional reading, students are given the opportunity of following a task board through three of the 10 reading centers. A task board is a chart showing activities the children need to accomplish. They are required to complete three activities during the reading lesson. They do this independently, so I can spend the time working with small groups. The reading activities on the task board include reading from the classroom library, completing alphabet puzzles, drawing a picture of the last story they have read, or rewriting the story in their own words.

The activities at each center are teacher-controlled to some extent, but students do have

Allowing students some choices alleviates stress, increases intrinsic motivation, and lengthens their attention span.

some choices. At the listening post, they can choose which tapes to play, and when to change them; at the alphabet center, they can choose from a variety of activities and puzzles; at the computer, they can choose activities from the CD-ROM; and at the writing center, they can write or create whatever they wish.

The Physical Environment and Rituals

The physical environment needs to be conducive for learning. Crowded conditions, excessive computer use or television viewing, poor interpersonal relationships, and even poor lighting can all be linked to student failure.³ Jensen suggests that the brain reacts to these as threats. To resolve this, the teacher can rearrange the classroom, provide natural and full-spectrum lighting, limit the time young students spend focusing on videos and computer screens, and "provide predictability through school and classroom rituals."

I commence each day with a special welcoming ritual. Each student has a named felt animal. We find out who is at school by greeting each child and pointing to his or her animal. The animals belonging to students who are absent are put to one side, and we count and discuss the number of children present in comparison to the total number. We then change the day and date signs, discuss important events that may happen today, and sing "Good morning" to one another. This little ritual provides a transition between home and classroom. It gives the children time to get into a positive learning attitude, and helps them to feel that here, at school, they are valued and safe.³

Once the negatives have been removed from the environment, the teacher must provide enrichment. The early school years are a time of spectacular brain development, which should be encouraged through stimulation, repetition, and novelty.³ Enrichment is not just for gifted and talented students. The "baseline" of neural connectivity needs to be enriched for all.

Enrichment requires two components: challenge and feedback.⁴ Challenge keeps the students' interest. It comes from providing new material and gradually increasing the level of difficulty. I continually expose my students to written language and visual reminders of their learning objectives and display their work on the classroom walls. The displayed work reinforces the learning and provides material that can be easily re-read. Feedback works best when the children, not the teacher, make charts summarizing their learning.

Use Different Strategies

Learning becomes more interesting and challenging when teachers use a variety of instructional strategies. These can include field

trips, guest speakers, group work, individual work, games, computers, discussions, role playing, questioning, videos, and surveys. The work of Howard Gardner⁷ indicates that each of us can know the world through language, logic and mathematics, spatial representation, music, movement, understanding others, and understanding ourselves. All of these should be utilized in the classroom. This enables children to be praised for work in their areas

of strength and enriches their skills as they practice using weaker intelligences.

Making music simultaneously engages the senses, muscles, and intellect. "Brain scans taken during musical performances show that virtually the entire cerebral cortex is active while musicians are playing."⁸ Hurwitz and his colleagues found that listening to music and learning to recognize melodic and rhythmic elements enhanced 1st graders' reading scores.⁹

Singing and learning to play an instrument are both stimulating and fun for children. I try to integrate music into many sub-

Making music simultaneously engages the senses, muscles, and intellect.

ject areas. The children write new words for favorite tunes to reinforce ideas and concepts in social studies, health, science, and technology. I display the words of songs to help developing readers learn new words and the conventions of print. I have found that number songs, alphabet songs, and Scripture songs are all easily retained in children's memory.

"Physical activity is an enrichment for the motor cortex and other parts of the brain."¹⁰ Studies by Palmer¹¹ revealed that eye-hand co-

Computers can be a wonderful learning resource, but young students should not spend excessive time focusing on videos or computer screens.

**Learning becomes
more interesting
and challenging
when teachers
use a variety
of instructional
strategies.**

Pictures Removed

The author's students can choose activities from the task board.

This gives them immediate and specific feedback.

One of the most important reading skills that I teach is self-monitoring: Does the word look right, sound right, and make sense? Before I offer help, I encourage students to look for and try to correct words that seem wrong.

Emotions and Learning

Emotions play an important role in learning.¹⁴ They help human beings to achieve their goals, and chemically stimulate the brain, thereby aiding recall.¹⁵ The stronger the positive emotions connected with a learning experience, the more likely that it will be remembered.

Picture Removed

Implementing brain research can have a positive impact on student learning. Although this will require energy and commitment, teachers can be sure that providing an enriched learning environment that is fun and free from stress will make a difference. Our students are worth the effort. ☞

Julie Weslake is a Senior Teacher for the Year 3 to 6 Syndicate at South Auckland Adventist Primary School in New Zealand. She has had 15 years' teaching experience in New Zealand, ranging from preschool to senior high school.

Using a variety of teaching strategies makes learning more interesting and challenging.

ordination tasks, such as spinning, tumbling, rocking, pointing, counting, jumping, and ball toss activities, had positive effects on students as revealed by their performance on Metropolitan Readiness Test, Test of Visual Perception, and the Otis Group Intelligence Test. Other studies suggest that short, brisk activity increases energy levels.¹² I schedule short periods of jumping and stretching between periods of academic learning and include large body movements in various classes. My students march as they count in ones, jump with two feet as they count by twos, and chant poems as they march around the room.

Feedback

The other critical element in enrichment is feedback. While reducing uncertainty and increasing children's coping abilities, it also lowers pituitary-adrenal stress responses.¹³

The early school years are a time of spectacular brain development, which should be encouraged through stimulation, repetition, and novelty.

The brain needs feedback so it can achieve closure and move on to new material. Feedback is most effective when it is specific and immediate and involves choice. I hold conferences with the children as soon as they have completed and checked their writing. They read their story to me, and we edit it together.

REFERENCES

1. Eric Jensen, *Teaching With the Brain in Mind* (Alexandria, Va.: Association for Supervision and Curriculum Development, 1998), pp. 55, 56. Hereafter abbreviated as Jensen, 1998a.
2. *Ibid.*, p. 54.
3. _____, "How Julie's Brain Learns," *Educational Leadership* 56:3 (November 1998), pp. 41-45. Hereafter abbreviated as Jensen, 1998b.
4. Jensen 1998a, p. 30.
5. *Ibid.*, p. 32.
6. *Ibid.*, pp. 32, 33.
7. Marian Diamond and Janet Hopson, *Magic Trees of the Mind* (New York: Penguin Putnam, Inc., 1999), p. 197.
8. Norman M. Weinberger, "The Music in Our Minds," *Educational Leadership* 56:3 (November 1998), p. 38.
9. Irving Hurwitz, Peter H. Wolff, Barrie D. Bortnick, and Klara Kokas, "Nonmusical Effects of the Kodaly Music Curriculum in Primary Grade Children," *Journal of Learning Disabilities* 8:3 (March 1975), pp. 45-57, reported in *ibid.*
10. Diamond and Hopson, p. 208.
11. Cited in Jensen, 1998a, p. 35.
12. Thayer, 1989, in Jensen, 1998b, p. 42.
13. Jensen, 1998a, p. 33.
14. Daniel Goleman, in Pat Wolfe and Ron Brande, "What Do We Know From Brain Research?" *Educational Leadership* 56:3 (November 1998), p. 13.
15. Jensen, 1998a, pp. 78, 79.