

# Golden Opportunity

Through the MindUp! program, actress Goldie Hawn and neurologist Judy Willis are revolutionizing the field of childhood education.

BY SUSANNAH GORA



Legendary actress Goldie Hawn leads what many would call a charmed life. She is beloved around the world for her bubbly personality and her star turns in the classic 1960s television show *Laugh-In*; the romantic comedy *Cactus Flower* (1969), for which she won an Academy Award; and as the endearing title character in *Private Benjamin* (1980); among many other films. She also has a loving family—her longtime partner is actor Kurt Russell, and she is a devoted mother to her children, including the Oscar-nominated actress Kate Hudson.

But it hasn't always been easy for Hawn. In particular, her years as a schoolgirl were challenging. "I was not an A-student," she admits. "I was dyslexic, and I had some reading comprehension problems, which could have made me feel inferior. However," she says, her voice brightening, "my parents were very supportive. They wanted me to be happy. They didn't need me to become a doctor or a lawyer—they saw what my talents were and nurtured them." While coping with these academic challenges,

Hawn was fortunate enough to realize that "none of it meant that I was stupid."

The experience forever shaped how Hawn views education, including the importance of making learning pleasurable and empowering for young people. As she grew up and became a mother herself, she was troubled by



Teaching kids brain basics, says Hawn, “gives them a sense of control, that they can form their brains **the way they want to**. It puts them in the driver’s seat.”

elements of her kids’ school experience. “There was so much memorization, and so many books that my children were getting back problems. It seemed like drudgery. I thought, what about their excitement around learning?” Hawn was determined to do something about it. “I figured, let’s make school a really cool place to go.”

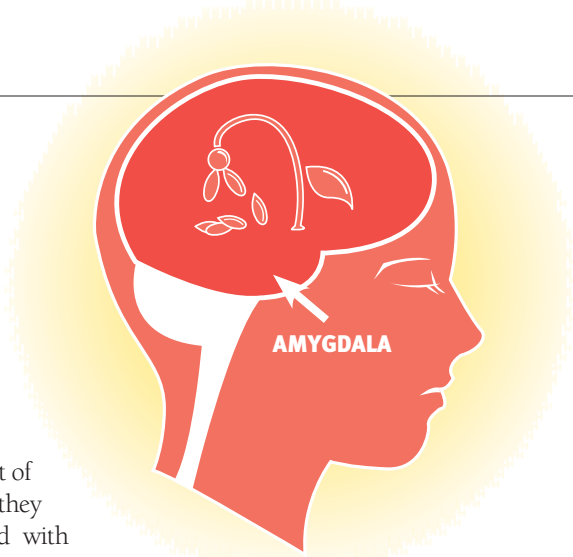
So Goldie created The Hawn Foundation, an organization whose mission is to “equip children with the social and emotional skills they need to lead smarter, healthier, and happier lives.” Hawn believes that “we need to rethink our approach to classroom education, integrating neuroscience with the latest social and emotional learning techniques.”

### **YOUR BRAIN ON STRESS**

Hawn’s dream is becoming a reality through her foundation’s MindUp! program, a curriculum of 15 lessons designed to help foster qualities in children such as awareness and focus, empathy, responsible decision-making, and optimism, and to teach them the skills to make their classroom learning experiences more efficient and fun. The co-creator of MindUp! is Judy Willis, M.D., M.Ed., a neurologist whose expertise lies in the neuroscience of learning. Dr. Willis has written many books on the subject, including *How Your Child Learns Best: Brain Friendly Strategies to Ignite Your Student’s Learning And Increase School Success* (Sourcebooks, 2008). “She’s a real pioneer in the field,” says Hawn of Dr.



MindUp!'s **reach is expanding**: Scholastic, the world's largest publisher of children's books, will be publishing the curriculum this fall.



Willis, who is a middle-school teacher in addition to being a board-certified neurologist. “What she’s doing is amazing.”

A key component of the MindUp! curriculum is to teach children about the adverse effect that stress can have upon the brain’s ability to absorb information. This is particularly important in today’s pressure-ridden educational environment, where educators must “teach to the test” to ensure their students meet national standards. “When we’re stressed, our brain gets stuck in survival mode,” explains Dr. Willis, “and whatever info is getting in is not getting into the prefrontal cortex,” a region in the frontal lobes of the brain that is essential to advanced cognition. “It is from the prefrontal cortex that our brains direct the highest cognitive processing,” says Dr. Willis. “From this thin strip of gray matter on the outer layers of the brain, beneath the forehead, come the neural networks that essentially define humanity.” The prefrontal cortex is “the part of the brain responsible for executive function,” such as decision-making, “and integrating information into neural networks for long-term memory.” When we’re stressed, information doesn’t get to the prefrontal cortex—instead, it gets routed by the amygdala (located in the temporal lobe of the brain and an essential component in memory and emotion), “into the lower brain, where the options are fight, flight, or freeze,” Dr. Willis says. “Once it’s down there, if it doesn’t pertain to fight, flight, or freeze, the info is basically lost”—because, she says, “the brain still thinks that it’s got to run away from the wolf.”

Dr. Willis saw the primal roots of this phenomenon firsthand in the classrooms at her own children’s school, where she found that “the students who were staring straight ahead—their reaction was to *freeze*. The ones whose reaction was *flight* were fleeing the bad situation by finding their own entertainment—doodling, or tilting their chair back. And the ones whose reaction was to *fight* would literally be defiant or hit people.”

Fascinating research is being conducted into the neuroscience of learning (see Resource Central, page 36, for references). For example, MRI neuroimaging has shown that input gets through the reticular activating system—an information filter in the brain—much better when a person is stimulated than when he is bored. “In the classroom, the use of novelty—such as a changed room arrangement, a new bulletin board, music playing when students enter the room, and other curiosity-evoking events—alerts the reticular activating system to pay attention, because something has changed and needs to be further evaluated,” says Dr. Willis.

There have also been studies linking the presence of the neurotransmitter dopamine with better learning through increased memory and focus—and with the pleasurable feelings of reward associated with knowing the correct answer to a question. “When students are shown the connection of their effort to

their achievement of goals on which they have collaborated with the teacher, they benefit from the pleasure of the dopamine reward of intrinsic satisfaction,” explains Dr. Willis. Science has shown us, in many ways, that a happy mind can learn better than a stressed, fearful mind.

Indeed, says Clyde Hertzman, M.D., M.Sc., director of the Human Early Learning Partnership at the University of British Columbia and president of the Canadian Council on Early Child Development: “The biological mechanisms of fear involve arousal: glancing out through peripheral vision, reacting at a very neuromuscular level. And in the course of that, a lot of the higher cognitive functions get shut down.”

The MindUp! curriculum teaches children how their brains operate, explaining in simple language basic functions of parts of the brain such as the amygdala and the prefrontal cortex. “We’re not asking our kids to become neuroscientists,” says Hawn, “but we want them to understand what’s going on in terms of the basics of the brain. In doing so, it gives them a sense of control, that they can form and grow their brains the way they want to. It puts them in the driver’s seat.”

The ways in which these messages are imparted is important. “Knowing the importance of students’ perceptions of teachers’ facial expressions—and other behaviors such as tone of voice or sarcasm—educators can provide an environment for students that is most conducive to learning,” says Dr. Willis. “Teachers set the stage for optimal learning when they acknowledge students for specific areas of improvement and effort, and then make recommendations for areas of further improvement”—that is, after the student feels confident. This “prepares the brain to see the recommendations as opportunities to be *even better*, instead of evidence of failure,” she says.

MindUp! teaches kids how they can take charge of and improve their own learning process. The lower brain “is not under our willful control,” explains Dr. Willis. However, the higher brain is—which makes for an essential and empowering distinction. “We are the only animal that can look at ourselves and say, I am feeling sad, frustrated or confused,” says Dr. Willis, “and I have a choice of what to do about that.”

## IN THE MOOD FOR SCHOOL

While stress can have a negative affect on their brain’s ability to learn, a good mood can actually *increase* the mind’s capacity for information storage. “It turns out that when positive emotions are present, not only does the info get through to the right





**LEARNING IS POSITIVE:** A key component of the MindUp! curriculum is to teach children about the adverse effect that stress can have upon the brain's ability to absorb information. Higher learning functions happen in the **PREFRONTAL CORTEX**, but stressful emotions are processed by the **AMYGDALA** and lead to fight and flight responses.

place, but there is actually a change in the RNA in the encoding that is taking place in the hippocampus," says Dr. Willis. (The hippocampus is essential to long-term memory.) The presence of happier emotions "changes the structure of the data coming in and held within the cells, so that it becomes easier to remember—more powerful memories."

Knowing how essential the right frame of mind is when it comes to learning, MindUp! students are trained to become more in touch with their own moods, so that they can take a step back when stress or boredom are overpowering. "Building awareness of your own awareness is itself a skill," says Dr. Willis. "Once they have this ability to identify their emotions, they can be taught that they can actually have a choice of what to do." For every mindfulness exercise in the program, Dr. Willis has provided what she calls in the MindUp! curriculum a "brainlink," which explains to teachers and students exactly what is happening in the brain during a particular activity.

Students become more in-tune with their surroundings by learning mindfulness exercises, such as focusing all their attention on a particular taste, scent, or sound, and breathing exercises. Educators who use the MindUp! program "are actually teaching kids meditative techniques," says Dr. Hertzman. "They do things at the beginning of class-time that actually work to increase the function of their brain and influence the relationships between those deep structures in the brain like the amygdala, the locus coeruleus," an area of the brain heavily involved in the body's reaction to stress, "and the prefrontal cortex. It changes the social climate of the class, and makes the classes easier to teach." And rather than seeing the curriculum as something else that must be shoe-horned into an already crammed teaching schedule, "teachers are obsessed with maintaining the program," says Dr. Hertzman, "because it makes their jobs easier in many different ways." Hawn enthuses, "Our kids are saying, I want to relax because I want my prefrontal cortex to be working so I can read better."

## THE CHANGEABLE BRAIN

Another key component of the MindUp! curriculum is the concept of neuroplasticity, which is the capacity of neurons and neural networks in the brain to change their connections and behavior in response to new information. (In "From the Editor," page 5, Dr. Robin Brey describes neuroplasticity as "a very complex process of brain changes that occur during recovery from a brain injury—and when we learn and master new skills. The process depends on new

connections being formed throughout the brain.") Thanks to neuroplasticity, we actually have the ability to strengthen and increase our brainpower, a liberating concept that flies in the face of the older, all-too widely held notion that a person's mental capacity is innate and unchangeable, like height or eye color.

"The more we use neural circuits, the more electricity that flows through them, the greater the neuroplastic growth," says Dr. Willis. "We increase the neural activity involved in focused awareness with *mindful* practices, such as savoring flavors from a bite of crisp apple, attending to the lingering sound of a note played on a piano, or visualizing all we can recall about a wonderful past experience...The practice of focused awareness builds the mental muscle applicable to school and life. Like working out physically strengthens muscles, this mental manipulation strengthens the brain's wiring in the circuits that are exercised...As goes the saying, 'Practice makes permanent.'"

## MIND EXPANDING

The program started in 2005 in Vancouver with 12 teachers, "and now has expanded to having over one thousand educators trained," says Kimberly Schonert-Reichl, Ph.D., associate professor and applied developmental psychologist in the Faculty of Education at the University of British Columbia. "Never in my 20-plus year career as an educator have I seen a program grow so rapidly. I believe MindUp! has grown for a few reasons. First, teachers see improvements in their students' behaviors almost immediately. Also, the program is easy to implement into the regular school curriculum. Third, the children love the program and will remind their teachers to do the exercises. Finally, the teachers see the program as beneficial to themselves—they become more mindful and less stressed as a result of it." MindUp!'s reach is expanding: Scholastic, the world's largest publisher of children's books, will be publishing the curriculum this fall.

Hawn remembers the way she felt after the Columbine school shootings, "sitting alone in my room with tears coming down." It was then that she had a "wish," she says, to give children the tools "to pull themselves up out of their sadness, their obstacles, their uncertainty and anxiety." Through MindUp!, that wish is now coming to fruition.

"My dream," says Hawn, "would be that programs like ours could be implemented in every school around the world." She has already had requests to bring the program to places like Africa, Jerusalem, Palestine, Australia, and Asia. Hawn feels it would be "wonderful if we could start teaching our children these methodologies" for perspective-taking, problem-solving, and tolerance. "We're building young people," she says passionately, "who are going to inherit the world." NN