hundred members of the incoming freshman class of 1984 at the University of Pennsylvania, the students' scores on a test of optimism were a better predictor of their actual grades freshman year than were their SAT scores or their high-school grades. Said Seligman, who studied them, "College entrance exams measure talent, while explanatory style tells you who gives up. It is the combination of reasonable talent and the ability to keep going in the face of defeat that leads to success. What's missing in tests of ability is motivation. What you need to know about someone is whether they will keep going when things get frustrating. My hunch is that for a given level of intelligence, your actual achievement is a function not just of talent, but also of the capacity to stand defeat."[23]

One of the most telling demonstrations of the power of optimism to motivate people is a study Seligman did of insurance salesmen with the MetLife company. Being able to take a rejection with grace is essential in sales of all kinds, especially with a product like insurance, where the ratio of noes to yeses can be so discouragingly high. For this reason, about three quarters of insurance salesmen quit in their first three years. Seligman found that new salesmen who were by nature optimists sold 37 percent more insurance in their first two years on the job than did pessimists. And during the first year the pessimists quit at twice the rate of the optimists.

What's more, Seligman persuaded MetLife to hire a special group of applicants who scored high on a test for optimism but failed the normal screening tests (which compared a range of their attitudes to a standard profile based on answers from agents who have been successful). This special group outsold the pessimists by 21 percent in their first year, and 57 percent in the second.

Just why optimism makes such a difference in sales success speaks to the sense in which it is an emotionally intelligent attitude. Each no a salesperson gets is a small defeat. The emotional reaction to that defeat is crucial to the ability to marshal enough motivation to continue. As the noes mount up, morale can deteriorate, making it harder and harder to pick up the phone for the next call. Such rejection is especially hard to take for a pessimist, who interprets it as meaning, "I'm a failure at this; I'll never make a sale"—an interpretation that is sure to trigger apathy and defeatism, if not depression. Optimists, on the other hand, tell themselves, "I'm using the wrong approach," or "That last person was just in a bad mood." By seeing not themselves but something in the situation as the reason

for their failure, they can change their approach in the next call. While the pessimist's mental set leads to despair, the optimist's spawns hope.

One source of a positive or negative outlook may well be inborn temperament; some people by nature tend one way or the other. But as we shall also see in Chapter 14, temperament can be tempered by experience. Optimism and hope—like helplessness and despair—can be learned. Underlying both is an outlook psychologists call *self-efficacy*, the belief that one has mastery over the events of one's life and can meet challenges as they come up. Developing a competency of any kind strengthens the sense of self-efficacy, making a person more willing to take risks and seek out more demanding challenges. And surmounting those challenges in turn increases the sense of self-efficacy. This attitude makes people more likely to make the best use of whatever skills they may have—or to do what it takes to develop them.

Albert Bandura, a Stanford psychologist who has done much of the research on self-efficacy, sums it up well: "People's beliefs about their abilities have a profound effect on those abilities. Ability is not a fixed property; there is a huge variability in how you perform. People who have a sense of self-efficacy bounce back from failures; they approach things in terms of how to handle them rather than worrying about what can go wrong."[24]

FLOW: THE NEUROBIOLOGY OF EXCELLENCE

A composer describes those moments when his work is at its best:

> You yourself are in an ecstatic state to such a point that you feel as though you almost don't exist. I've experienced this time and again. My hand seems devoid of myself, and I have nothing to do with what is happening. I just sit there watching in a state of awe and wonderment. And it just flows out by itself.[25]

His description is remarkably similar to those of hundreds of diverse men and women—rock climbers, chess champions, surgeons, basketball players, engineers, managers, even filing clerks—when they tell of a time they outdid themselves in some favored activity. The state they describe is called "flow" by Mihaly Csikszentmihalyi, the University of Chicago psychologist who has collected such accounts of

peak performance during two decades of research.[26] Athletes know this state of grace as “the zone,” where excellence becomes effortless, crowd and competitors disappearing into a blissful, steady absorption in the moment. Diane Roffe-Steinrotter, who captured a gold medal in skiing at the 1994 Winter Olympics, said after she finished her turn at ski racing that she remembered nothing about it but being immersed in relaxation: “I felt like a waterfall.”[27]

Being able to enter flow is emotional intelligence at its best; flow represents perhaps the ultimate in harnessing the emotions in the service of performance and learning. In flow the emotions are not just contained and channeled, but positive, energized, and aligned with the task at hand. To be caught in the ennui of depression or the agitation of anxiety is to be barred from flow. Yet flow (or a milder microflow) is an experience almost everyone enters from time to time, particularly when performing at their peak or stretching beyond their former limits. It is perhaps best captured by ecstatic lovemaking, the merging of two into a fluidly harmonious one.

That experience is a glorious one: the hallmark of flow is a feeling of spontaneous joy, even rapture. Because flow feels so good, it is intrinsically rewarding. It is a state in which people become utterly absorbed in what they are doing, paying undivided attention to the task, their awareness merged with their actions. Indeed, it interrupts flow to reflect too much on what is happening—the very thought “I’m doing this wonderfully” can break the feeling of flow. Attention becomes so focused that people are aware only of the narrow range of perception related to the immediate task, losing track of time and space. A surgeon, for example, recalled a challenging operation during which he was in flow; when he completed the surgery he noticed some rubble on the floor of the operating room and asked what had happened. He was amazed to hear that while he was so intent on the surgery part of the ceiling had caved in—he hadn’t noticed at all.

Flow is a state of self-forgetfulness, the opposite of rumination and worry: instead of being lost in nervous preoccupation, people in flow are so absorbed in the task at hand that they lose all self-consciousness, dropping the small preoccupations—health, bills, even doing well—of daily life. In this sense moments of flow are egoless. Paradoxically, people in flow exhibit a masterly control of what they are doing, their responses perfectly attuned to the changing demands of the task. And although people perform at their peak while in flow, they are unconcerned with how they are doing, with thoughts of

success or failure—the sheer pleasure of the act itself is what motivates them.

There are several ways to enter flow. One is to intentionally focus a sharp attention on the task at hand; a highly concentrated state is the essence of flow. There seems to be a feedback loop at the gateway to this zone: it can require considerable effort to get calm and focused enough to begin the task—this first step takes some discipline. But once focus starts to lock in, it takes on a force of its own, both offering relief from emotional turbulence and making the task effortless.

Entry to this zone can also occur when people find a task they are skilled at, and engage in it at a level that slightly taxes their ability. As Csikszentmihalyi told me, "People seem to concentrate best when the demands on them are a bit greater than usual, and they are able to give more than usual. If there is too little demand on them, people are bored. If there is too much for them to handle, they get anxious. Flow occurs in that delicate zone between boredom and anxiety."[28]

The spontaneous pleasure, grace, and effectiveness that characterize flow are incompatible with emotional hijackings, in which limbic surges capture the rest of the brain. The quality of attention in flow is relaxed yet highly focused. It is a concentration very different from straining to pay attention when we are tired or bored, or when our focus is under siege from intrusive feelings such as anxiety or anger.

Flow is a state devoid of emotional static, save for a compelling, highly motivating feeling of mild ecstasy. That ecstasy seems to be a by-product of the attentional focus that is a prerequisite of flow. Indeed, the classic literature of contemplative traditions describes states of absorption that are experienced as pure bliss: flow induced by nothing more than intense concentration.

Watching someone in flow gives the impression that the difficult is easy; peak performance appears natural and ordinary. This impression parallels what is going on within the brain, where a similar paradox is repeated: the most challenging tasks are done with a minimum expenditure of mental energy. In flow the brain is in a "cool" state, its arousal and inhibition of neural circuitry attuned to the demand of the moment. When people are engaged in activities that effortlessly capture and hold their attention, their brain "quiets down" in the sense that there is a lessening of cortical arousal.[29] That discovery is remarkable, given that flow allows people to tackle the most challenging tasks in a given domain, whether playing against a chess master or solving a complex mathematical problem. The expectation

would be that such challenging tasks would require *more* cortical activity, not less. But a key to flow is that it occurs only within reach of the summit of ability, where skills are well-rehearsed and neural circuits are most efficient.

A strained concentration—a focus fueled by worry—produces increased cortical activation. But the zone of flow and optimal performance seems to be an oasis of cortical efficiency, with a bare minimum of mental energy expended. That makes sense, perhaps, in terms of the skilled practice that allows people to get into flow: having mastered the moves of a task, whether a physical one such as rock climbing or a mental one such as computer programming, means that the brain can be more efficient in performing them. Well-practiced moves require much less brain effort than do ones just being learned, or those that are still too hard. Likewise, when the brain is working less efficiently because of fatigue or nervousness, as happens at the end of a long, stressful day, there is a blurring of the precision of cortical effort, with too many superfluous areas being activated—a neural state experienced as being highly distracted.[30] The same happens in boredom. But when the brain is operating at peak efficiency, as in flow, there is a precise relation between the active areas and the demands of the task. In this state even hard work can seem refreshing or replenishing rather than draining.

LEARNING AND FLOW: A NEW MODEL FOR EDUCATION

Because flow emerges in the zone in which an activity challenges people to the fullest of their capacities, as their skills increase it takes a heightened challenge to get into flow. If a task is too simple, it is boring; if too challenging, the result is anxiety rather than flow. It can be argued that mastery in a craft or skill is spurred on by the experience of flow—that the motivation to get better and better at something, be it playing the violin, dancing, or gene-splicing, is at least in part to stay in flow while doing it. Indeed, in a study of two hundred artists eighteen years after they left art school, Csikszentmihalyi found that it was those who in their student days had savored the sheer joy of painting itself who had become serious painters. Those who had been motivated in art school by dreams of fame and wealth for the most part drifted away from art after graduating.

Csikszentmihalyi concludes: “Painters must want to paint above all else. If the artist in front of the canvas begins to wonder how much he will sell it for, or what the critics will think of it, he won’t be able to pursue original avenues. Creative achievements depend on single-minded immersion.”[31]

Just as flow is a prerequisite for mastery in a craft, profession, or art, so too with learning. Students who get into flow as they study do better, quite apart from their potential as measured by achievement tests. Students in a special Chicago high school for the sciences—all of whom had scored in the top 5 percent on a test of math proficiency—were rated by their math teachers as high or low achievers. Then the way these students spent their time was monitored, each student carrying a beeper that signaled them at random times during the day to write down what they were doing and what their mood was. Not surprisingly, the low achievers spent only about fifteen hours a week studying at home, much less than the twenty-seven hours a week of homework done by their high-achieving peers. The low achievers spent most of the hours during which they were not studying in socializing, hanging out with friends and family.

When their moods were analyzed, a telling finding emerged. Both the high and low achievers spent a great deal of time during the week being bored by activities, such as TV watching, that posed no challenge to their abilities. Such, after all, is the lot of teenagers. But the key difference was in their experience of studying. For the high achievers, studying gave them the pleasing, absorbing challenge of flow 40 percent of the hours they spent at it. But for the low achievers, studying produced flow only 16 percent of the time; more often than not, it yielded anxiety, with the demands outreaching their abilities. The low achievers found pleasure and flow in socializing, not in studying. In short, students who achieve up to the level of their academic potential and beyond are more often drawn to study because it puts them in flow. Sadly, the low achievers, by failing to hone the skills that would get them in flow, both forfeit the enjoyment of study and run the risk of limiting the level of intellectual tasks that will be enjoyable to them in the future.[32]

Howard Gardner, the Harvard psychologist who developed the theory of multiple intelligences, sees flow, and the positive states that typify it, as part of the healthiest way to teach children, motivating them from inside rather than by threat or promise of reward. “We should use kids’ positive states to draw them into learning in the

domains where they can develop competencies," Gardner proposed to me. "Flow is an internal state that signifies a kid is engaged in a task that's right. You have to find something you like and stick to it. It's when kids get bored in school that they fight and act up, and when they're overwhelmed by a challenge that they get anxious about their schoolwork. But you learn at your best when you have something you care about and you can get pleasure from being engaged in."

The strategy used in many of the schools that are putting Gardner's model of multiple intelligences into practice revolves around identifying a child's profile of natural competencies and playing to the strengths as well as trying to shore up the weaknesses. A child who is naturally talented in music or movement, for example, will enter flow more easily in that domain than in those where she is less able. Knowing a child's profile can help a teacher fine-tune the way a topic is presented to a child and offer lessons at the level—from remedial to highly advanced—that is most likely to provide an optimal challenge. Doing this makes learning more pleasurable, neither fearsome nor a bore. "The hope is that when kids gain flow from learning, they will be emboldened to take on challenges in new areas," says Gardner, adding that experience suggests this is the case.

More generally, the flow model suggests that achieving mastery of any skill or body of knowledge should ideally happen naturally, as the child is drawn to the areas that spontaneously engage her—that, in essence, she loves. That initial passion can be the seed for high levels of attainment, as the child comes to realize that pursuing the field—whether it be dance, math, or music—is a source of the joy of flow. And since it takes pushing the limits of one's ability to sustain flow, that becomes a prime motivator for getting better and better; it makes the child happy. This, of course, is a more positive model of learning and education than most of us encountered in school. Who does not recall school at least in part as endless dreary hours of boredom punctuated by moments of high anxiety? Pursuing flow through learning is a more humane, natural, and very likely more effective way to marshal emotions in the service of education.

That speaks to the more general sense in which channeling emotions toward a productive end is a master aptitude. Whether it be in controlling impulse and putting off gratification, regulating our moods so they facilitate rather than impede thinking, motivating ourselves to persist and try, try again in the face of setbacks, or finding ways to enter flow and so perform more effectively—all

bespeak the power of emotion to guide effective effort.

7

The Roots of Empathy

Back to Gary, the brilliant but alexithymic surgeon who so distressed his fiancée, Ellen, by being oblivious not only to his own feelings but to hers as well. Like most alexithymics, he lacked empathy as well as insight. If Ellen spoke of feeling down, Gary failed to sympathize; if she spoke of love, he changed the subject. Gary would make "helpful" critiques of things Ellen did, not realizing these criticisms made her feel attacked, not helped.

Empathy builds on self-awareness; the more open we are to our own emotions, the more skilled we will be in reading feelings.[1] Alexithymics like Gary, who have no idea what they feel themselves, are at a complete loss when it comes to knowing what anyone else around them is feeling. They are emotionally tone-deaf. The emotional notes and chords that weave through people's words and actions—the telling tone of voice or shift in posture, the eloquent silence or telltale tremble—go by unnoted.

Confused about their own feelings, alexithymics are equally bewildered when other people express their feelings to them. This failure to register another's feelings is a major deficit in emotional intelligence, and a tragic failing in what it means to be human. For all rapport, the root of caring, stems from emotional attunement, from the capacity for empathy.

That capacity—the ability to know how another feels—comes into play in a vast array of life arenas, from sales and management to romance and parenting, to compassion and political action. The absence of empathy is also telling. Its lack is seen in criminal psychopaths, rapists, and child molesters.

People's emotions are rarely put into words; far more often they are expressed through other cues. The key to intuiting another's feelings is in the ability to read nonverbal channels: tone of voice, gesture, facial expression, and the like. Perhaps the largest body of research on people's ability to read such nonverbal messages is by Robert Rosenthal, a Harvard psychologist, and his students. Rosenthal

devised a test of empathy, the PONS (Profile of Nonverbal Sensitivity), a series of videotapes of a young woman expressing feelings ranging from loathing to motherly love.[2] The scenes span the spectrum from a jealous rage to asking forgiveness, from a show of gratitude to a seduction. The video has been edited so that in each portrayal one or more channels of nonverbal communication are systematically blanked out; in addition to having the words muffled, for example, in some scenes all other cues but the facial expression are blocked. In others, only the body movements are shown, and so on, through the main nonverbal channels of communication, so that viewers have to detect emotion from one or another specific nonverbal cue.

In tests with over seven thousand people in the United States and eighteen other countries, the benefits of being able to read feelings from nonverbal cues included being better adjusted emotionally, more popular, more outgoing, and—perhaps not surprisingly—more sensitive. In general, women are better than men at this kind of empathy. And people whose performance improved over the course of the forty-five-minute test—a sign that they have a talent for picking up empathy skills—also had better relationships with the opposite sex. Empathy, it should be no surprise to learn, helps with romantic life.

In keeping with findings about other elements of emotional intelligence, there was only an incidental relationship between scores on this measure of empathic acuity and SAT or IQ scores or school achievement tests. Empathy's independence from academic intelligence has been found too in testing with a version of the PONS designed for children. In tests with 1,011 children, those who showed an aptitude for reading feelings nonverbally were among the most popular in their schools, the most emotionally stable.[3] They also did better in school, even though, on average, their IQs were not higher than those of children who were less skilled at reading nonverbal messages—suggesting that mastering this empathic ability smooths the way for classroom effectiveness (or simply makes teachers like them more).

Just as the mode of the rational mind is words, the mode of the emotions is nonverbal. Indeed, when a person's words disagree with what is conveyed via his tone of voice, gesture, or other nonverbal channel, the emotional truth is in *how* he says something rather than in *what* he says. One rule of thumb used in communications research is that 90 percent or more of an emotional message is nonverbal. And such messages—anxiety in someone's tone of voice, irritation in the