

PART I

Flow, Minds, and Hearts

When people seem driven to learn by some compelling force, when they find themselves totally enveloped in an exhilarating search for knowledge, answers, insight, or accomplishment, they are likely to encounter states of optimal experience that are intellectual, emotional, physical, spiritual, or any combination thereof. The term *flow* is used by psychologist Mihaly Csikszentmihalyi (1990a) to describe such moments

when a person's body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile. For a child, it could be placing with trembling fingers the last block on a tower she has built, higher than any she has built so far; for a swimmer, it could be trying to beat his own record; for a violinist, mastering an intricate musical passage. For each person there are thousands of opportunities, challenges to expand our selves. (p. 3)

Each of the first three chapters in Part I lays part of the foundation for this perspective on engaged learning, but all should be understood as a whole, which I try to show in the fourth chapter.

Chapter 1, "Engagement as Flow," discusses the nature of flow activities, describing that state as researchers have presented it and as we ourselves have experienced it (and most of us have experienced it at one time or another). Readers, for instance, often experience moments of flow

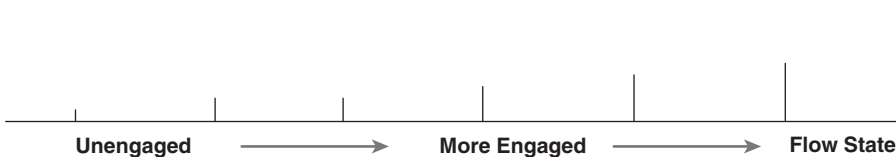
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when they find themselves in the grip of a compelling book, as writer Natalie Goldberg (2000) describes while reading her first Louis L'Amour novel:

I remember clearly and with awe the sensation of my mind that day. It was as though I'd hooked it up to a Concorde jet and was shooting across open space . . . that total obliteration I experienced scared me. The wipe-out was pure, complete; I was knocked unconscious, like unadulterated lust. I'm not a prude. I just prefer to be slammed awake—fully alive in the land and characters. I have respect for the experience, the total trance L'Amour put me in. (p. 120)

The most complete and all-encompassing state of engagement, flow is our ideal, our target as teachers. If we can better understand flow—how it comes about and how it is based on both brain and heart activity—then we have a better chance at selecting and revising teaching practices so that more engagement happens. If we can teach for engagement, our students will learn more, remember more, become more passionate about learning, and know in their minds and hearts the experience of genuinely engaged learning. Engagement is the key to a lifelong love of learning.

I present a continuum in Chapter 1 that depicts a range of engaged learning, from totally unengaged to fully engaged (flow state):



If we have flow as our teaching goal, any approximation to it (i.e., any point along the continuum beyond unengaged) will further learning. Good teachers want engaged students. They also want students to progress in academic achievement. But engagement and achievement are not two sides of that familiar coin. In the best moments of classroom life, students are engaged and achieving at the same time. Thoughtful teachers search for teaching practices and classroom conditions that will initiate and sustain engagement while also effecting achievement and accomplishment.

Chapter 2, “Engaged Brains,” presents the research on brain-based learning, which has intensified in the last two decades. Teaching practices engage learners *naturally* when practice is grounded in neurological

research on the human brain, for what is more natural than aligning teaching practices with how brains learn in any setting? By *neurological* I mean brain-based principles and insights derived from brain science. When I speak of *brain* or *mind*, I mean that mass of tissue between our ears and the electrochemical activity that goes on there. I use the terms interchangeably, agreeing with brain researchers Berninger and Richards (2002) that “the mind is the brain at work” (p. 3). It’s not my purpose here, nor my desire, to enter into the important discussions on the origins of mind or the distinctions between mind and brain as some philosophers might.

Chapter 3, “Engaged Hearts,” discusses elements of spiritual engagement that derive from humanistic theory. By *humanistic* I mean those principles that derive from experiences in our lives that we say are “from the heart” or that some would call “spiritual.” I use the word *heart* as the conceptual counterpart to *spirit*. Both words refer to that which is more than neurological and which involves subjectivity, higher-order thinking, and connections with something larger than the self. Although many people hold that spiritual events are really just physiological, I believe that keeping matters of the heart distinct from matters of the brain is more useful for understanding the nature of engaged learning. To say that one is spiritually engaged is different from saying that one is cognitively engaged. My use of the terms *heart* and *spirit* represent a humanistic perspective.

I emphasize mindfulness, compassion, and unity as the humanistic experiences common to most people. For stylistic variation, I often use the terms *humanistic*, *heart-based*, and *spiritual* interchangeably. When the brain and the heart are engaged in learning, people experience flow states. Such learning states are the ultimate experiential goal for our students and the immediate practical goal for us as their teachers.

Genuine engagement affects both brains and hearts, not one or the other. We lose powerful insights from science and from humanistic theory when we think in either-or terms—if we think we *either* have brain-compatible approaches *or* we have heart-based approaches. Parker Palmer (1998) warns of the dangers of such either-or thinking:

Many of us live one-eyed lives. We rely largely on the eye of the mind to form our image of reality. But today more and more of us are opening the other eye, the eye of the heart, looking for realities to which the mind’s eye is blind. Either eye alone is not enough. We need “Wholesight,” a vision of the world in which mind and heart unite “as my two eyes make one in sight.” (p. xxiii)

Teaching and learning, Palmer (1998/1999) says, “require us to think ‘both-and’ instead of ‘either-or.’ That is Wholesight. Teaching and

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learning are done not by disembodied intellects but by whole persons whose brains cannot be disconnected from feeling and spirit, from heart and soul” (p. 10). An eye turned toward a world of fact and reason, one that ignores the world of feeling and spirit, is dangerous. It is equally dangerous to become one-eyed in the other direction by ignoring the empirical world. Palmer would have us embrace both worlds.

Although I discuss brain-based learning and heart-based learning separately, it is only a temporary separation. Chapter 4, “Engagement and Instructional Practice,” synthesizes brain-based research and heart-based elements into a framework for teaching practices. In this chapter, I present groups of questions that connect research with theory and practice. These questions are intended to guide teachers in making decisions about teaching practices based on a deep understanding of student minds and hearts when they’re truly engaged in learning.

Engagement as Flow

Think of truly engaged learning as being in a *flow state*. Flow is what people of all ages describe when they become totally immersed in something—a hobby, such as woodworking; a talent, such as playing the flute; a sport; a problem, such as resolving a dispute; or a wondering, such as wondering how stem cell research works. Here, for example, is how one person describes engagement in the experience of art:

When I see works that come close to my heart, that I think are really fine, I have the strangest reaction: which is not always exhilarating, it is sort of like being hit in the stomach. Feeling a little nauseous. It's just this sort of completely overwhelming feeling, which then I have to grope my way out of, calm myself down, and try to approach it scientifically. . . . What comes to you after looking at it calmly, after you've really digested every nuance and every little thread, is the total impact. When you encounter a great work of art, you just know it and it thrills you in all your senses, not just visually, but sensually and intellectually. (Csikszentmihalyi, 1990a, p. 107)

If understanding the conditions that create flow states can help us understand better the nature of engagement in *any* activity, then we can find ways of nurturing engagement in the specific learning events of classrooms, elementary to university, in any subject. Engaged learning

goes beyond superficial knowledge, such as memorizing facts or filling in forms, to more complex, more compelling meaning.

ENGAGEMENT

Each of us can recall a time in our lives when we felt intense focus. We may have cozied up on a dreary winter day to read a compelling mystery—getting lost in an imaginary world of twists, clues, and tensions. Or we may have leaned over the fender of a car and listened intently to the engine, our ears picking up the nuances of engine sounds. We may have sat in the kitchen with Aunt Mary, canning peaches, busily peeling fruit and reminiscing about days long past, relatives long gone—the afternoon slipping away in easy conversation. Perhaps we were involved in intense competition—the final passionate seconds of a volleyball tournament, the last inning in a close softball game, or the final half mile of a marathon. Maybe we were enjoying a hobby or a talent, such as the time we happened upon a 1952D dime to add to our coin collection, the day we found ourselves talking to our backyard plot of rhododendrons while fertilizing them, or the evening we sat at the piano and played *Für Elise* straight through for the first time.

Engaging moments, all. But what do events such as these teach us about the nature of engagement? When we reflect on them, what can we tease out that would illuminate engaged moments like these?

For one, each time of engagement involved some type of *energy*. This is the energy expressed in the verbs section of the definition of *engagement* from the *Oxford English Dictionary* (OED) (1989): “to cause to be held fast; to involve, to entangle.” Notice the sense of volition in the extended OED definition: “to fasten, attach . . . to interlock with . . . to entangle, involve, commit, mix up . . . to attract and hold fast (attention, interest) . . . to enter up or employ oneself in an action.”

Second, such events show us that engagement can be cognitive, emotional, or physical, as some research has indicated (Fredericks, Blumenfeld, & Paris, 2004). Thus, running a race can be just as engaging as writing a story, reading a book, or solving a math problem. Moments of engagement may take place alone or with others: For some of us, solitude may be just the right condition for becoming engaged, while others may need to have people around.

Engagement may also be spiritual when it seems to transcend time and space (e.g., lost in a book) or when it helps us identify with something beyond ourselves (e.g., empathy for a character in a film). While canning peaches with Aunt Mary, time seems to slip by unawares; while reading a magazine in the grocery line, we fail to notice that the line has advanced

but we have not; while taking in a compelling work of art, we lose ourselves in the aesthetic moment. In these moments of transcendence, we may also become connected with timeless qualities such as love, compassion, and wonder, as Scott Russell Sanders (1999) describes when he writes about those moments when he experiences beauty. In the following passage, Ruth is his daughter.

Now and again some voice raised on the stairs leading to my study, some passage of music, some noise on the street, will stir a sympathetic thrum from the strings of the guitar that tilts against the wall just behind my door. Just so, over and over again, impulses from the world stir a responsive chord in me—not just any chord, but a particular one, combining notes of elegance, exhilaration, simplicity, and awe. The feeling is as recognizable to me, as unmistakable, as the sound of Ruth’s voice or the beating of my own heart. A screech owl calls, a comet streaks the night sky, a story moves unerringly to a close, a child lays an arrowhead in the palm of my hand, my daughter smiles at me through her bridal veil, and I feel for a moment at peace, in place, content. I sense in those momentary encounters a harmony, between myself and whatever I behold. The word that seems to fit most exactly this feeling of resonance, this sympathetic vibration between inside and outside, is beauty. (p. 246)

ENGAGEMENT AS FLOW

As Sanders’ encounter with beauty illustrates, engagement is often intimately connected with our happiness. In the moment of engagement, he experiences a state of bliss, a “sympathetic vibration between inside and outside.” Another, more familiar, term describing this state is *flow*, as used principally by Csikszentmihalyi and his associates (Csikszentmihalyi, Rathunde, Whalen, & Wong, 1993), who have studied the optimal experiences of complete engagement: “Flow is a subjective state that people report when they are completely involved in something to the point of losing track of time and of being unaware of fatigue and of everything else but the activity itself” (p. 14). Mary Rose O’Reilley (2000)—writer, teacher, and spiritual seeker—describes her experience of flow when engaged as a member of a singing group:

Singing this music is something like what I think psychologists call “abreaction”—when they flood the system with psychoactive drugs

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or stab a probe into a lizard brain or do whatever they do to cause a complete reorganization and downloading of the mental systems. The singing over, we drop like birds who have been buffeted to the edge of the oxygen zone. We have barely escaped with our lives. (p. 51)

Csikszentmihalyi's research (1990a) shows the range of such experiences, as in these examples:

A dancer describes how it feels when a performance is going well: "Your concentration is very complete. Your mind isn't wandering, you are not thinking of something else; you are totally involved in what you are doing. . . . Your energy is flowing very smoothly. You feel relaxed, comfortable, and energetic."

A mother who enjoys time spent with her small daughter: "Her reading is the one thing that she's really into, and we read together. She reads to me, and I read to her, and that's a time when I sort of lose touch with the rest of the world, I'm totally absorbed in what I'm doing." (p. 53)

Our flow experiences can come from work or play, during times of tension or relaxation, with great complexity or simplicity, by oneself or with others.

It could be singing in a choir, programming a computer, dancing, playing bridge, reading a good book. Or if you love your job, as many people do, it could be when you are getting immersed in a complicated surgical procedure or a close business deal. Or this complete immersion in the activity may occur in a social interaction, as when friends talk with each other, or when a mother plays with her baby. (Csikszentmihalyi, 1997, p. 29)

Flow is present enough in most of our lives, to some degree, that we know what it is like to be completely and fully engaged. It generally brings pleasure, as in singing or reading, but not always, such as in a heated argument with a partner or spouse, or in an intense jury deliberation. Flow in school, however, needs to be intellectually or emotionally pleasurable if it is to be successful as a learning experience: The most engaging learning involves sufficient challenge at just the right level of skill, as explained below.

If flow is the ultimate state of engagement, and if flow experiences can occur in any kind of human activity, why shouldn't we make it our goal for teaching? That is to say, if we understand the nature of total engagement, why would we not align our teaching practices with the

conditions that create flow? You might be thinking that flow occurs infrequently, under only the most ideal conditions, when the learner is deeply and personally committed to the flow activity. You might say that it is impossible to create flow in classrooms all the time. Probably so, but that is also the very reason why we should work to create flow. Any genuine approximation to a flow state is tantamount to engaged learning—at some level, to some degree. It is an ideal goal, certainly, but also a realistic one that is rooted in the most fundamental of our common experiences as learners: our personal encounters with flow. Indeed, most, if not all of us, went into teaching because we were passionate about our own learning experiences—either with our subject matter or working with young people or both. Upon reflection, we might recall a number of peak experiences that made us want to foster more of the same as a teacher. A high school science teacher told me, “I went into science because I was passionate about how things work, driven to understand the natural world, and I want my students to share that passion.” A middle school language arts teacher selected English as her major because she “just loved reading and being around language”; she said that she teaches “because in my heart and soul I want my students to love reading too!” An elementary teacher reported that “As a kid and then as a young adult, I always had this weird curiosity about things—books, bugs, magic, just about everything—and I wanted to bring out that same curiosity in children; I wanted them to savor that part of themselves where curiosity lives, before other things in the world try to knock it out of them.”

Flow and engaged learning go hand in hand, as Csikszentmihalyi (1997) points out: “The flow experience acts as a magnet for learning—that is, for developing new levels of challenges and skills” (p. 33). Engagement defined as flow gives us a goal that our own personal experiences have shown is reachable. How to inculcate such genuinely engaged learning is not a simple matter of incorporating the latest pedagogy, finding *the* proven method, implementing new software, or moving classroom furniture. We must first understand what it means when our brains and our hearts enter into flow states of engagement.

THE CONDITIONS OF FLOW

According to Csikszentmihalyi and his colleagues (1993, p. 14), flow states exhibit five common conditions, and teachers can strongly influence the first three conditions. People experiencing flow

- have *clear goals*. They know what they want and they know the procedures to follow to get it. For example, they follow the musical

score in order to complete the piece on the piano, or they listen well and respond thoughtfully if they wish the dinner conversation with friends to continue to be engaging. Likewise, we can help students understand the goals for classroom activities in which *they* engage. For example, we can help them know their purpose for reading, say, an expository essay, so that they can judge what is relevant, and what is not, to their purpose in reading it (Tovani, 2005). Similarly, in a math class, we can help students understand that the purpose of a particular math procedure is not to find the correct answer but to find more than one way of solving the problem.

- get *feedback* on their performance that is immediate and relevant to their performance. For instance, when they strike the wrong piano keys or play the wrong chord, their ears provide the feedback needed in order to make adjustments. When they devalue their friends' views, they put up conversation stoppers. In school, we can easily set up feedback loops. For example, having students write in a reading journal *while* reading helps them self-monitor their developing understanding of an essay; likewise, using a study buddy to check their tentative answer to a math problem can provide students with immediate feedback.
- find that the level of challenge and ability to meet the challenge are in *balance*. When challenge exceeds skill, people feel defeated. When skill exceeds challenge, they get bored. Beginning pianists wouldn't attempt a Mozart concerto, nor would people comfortably enter into conversation when they know little about the topic at hand or have little interest in it. We provide balance when we differentiate instruction for diverse learners. We also plan for balance when we use assessments (e.g., reading, writing, math, concept understanding) to gauge students' skill levels in order to apportion tasks to match those skill levels.

With the next two conditions—concentration and enjoyment—we have some influence but much less control because concentration and enjoyment come from within oneself. In flow states, people

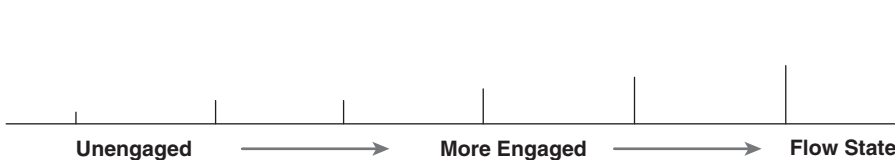
- *concentrate*, to the point of temporarily forgetting worries or losing track of time. At the piano, again, they forget to make a needed phone call or turn off the oven because they are lost in the music; at the dinner table, they suddenly realize that the engrossing after-dinner talk has made hours pass like minutes. In a classroom, we can structure the environment to help students concentrate—for

example, through creating quiet corners, offering uninterrupted reading or writing, or by playing quiet background music. Some teachers even have noise-canceling headphones or firefighters' earmuffs handy for students to use if desired.

- *enjoy* the activity for its own sake (even when it is difficult or dangerous). They linger at the piano even when they are tired of practicing. They invite friends back for dinner because they so enjoy their company. In classrooms, teachers who visibly enjoy the subjects they teach have a greater chance of bringing that joy to their students. Teachers can celebrate what they enjoy about their subjects. For example, teachers who enjoy writing can present writing as an enjoyable activity; history teachers who enjoy reading can easily share with students their reading pleasures. I know math teachers for whom the symmetry of math is a source of great pleasure; in their classrooms, I witness regular explosions of joy when their students solve math problems. We may not be able to *make* students enjoy their subjects, but we can go a long way toward encouraging enjoyment.

Flow can and does occur in school, though not nearly as much as it could. That it more likely takes place outside of school was discovered by Smith and Wilhelm (2002) when they compared adolescent boys' reading lives in and out of school: "What we found in our study is that all of the young men with whom we worked were passionate about some activity. They experienced flow. But, unfortunately, most of them did not experience it in their literate activity, at least not in school" (p. 30). These researchers recommend that, when planning instruction, we focus on the quality of students' daily experiences in the classroom by working "to create the conditions that will make students more inclined to engage in learning what they need to know. These conditions are those of 'flow' experiences" (p. 53).

As these researchers suggest, aiming for flow states is a realistic goal if we wish to approximate, in classrooms, the passion that students report experiencing outside school. Working successfully toward such states by teaching to the brains and hearts of learners is more likely to put student learning on the spectrum of engagement leading toward flow states.



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Because learners can be more—or less—engaged, they need not be in a pure flow state in order to experience some level of engagement: Any approximation to flow is therefore engaging. As we know more about how *brains* and *hearts* become engaged in learning, we are more able to base instructional practice on these two foundations.