WHAT THE BEST
COLLEGE STUDENTS DO
What the Best College Students Do

Ken Bain

The Belknap Press of Harvard University Press
Cambridge, Massachusetts, and London, England
2012
To two future college students,
Adam Bain and Nathan Bain,
to all future grandchildren,
and to Andra Looper,
the little girl who was so fascinated with astronomy
Contents

1. The Roots of Success 1
2. What Makes an Expert? 32
3. Managing Yourself 64
4. Learning How to Embrace Failure 99
5. Messy Problems 133
6. Encouragement 164
7. Curiosity and Endless Education 199
8. Making the Hard Choices 221

Epilogue 258

Notes 263
Acknowledgments 281
Index 283
What the Best College Students Do
I

THE ROOTS OF SUCCESS

Sherry Kafka came from a small town in the Arkansas Ozarks. Her little community in the backwoods of that largely rural state had none of the artistic trappings that would later define her life and make her one of the most celebrated designers and planners in the country. In fact, she later reported, her town didn’t even have a movie theater. Once a week, “a gentleman” would come to town with a tent, set it up in the square, and show a movie “if he didn’t get drunk that week.”

Her family didn’t have much money, and they moved around a lot trying to make ends meet. She went to sixteen schools in twelve years, and midway through her senior year she transferred from a fairly large school in Hot Springs to a tiny hamlet that had only six graduating students. “I think only five of us actually made it,” she later reported. “I even went to schools that don’t exist anymore because they were so small and could barely scrape together enough teachers.” Yet all that moving didn’t daunt her. “It made me forge my own methods of using what the schools offered me,” she concluded. “I figured out very early that all schools are cultures, and my job was to go into that school and understand how that culture works.”

No one in her family had ever gone to college right out of high school, although her father did attend a Baptist seminary later on.
They seldom read anything but the Bible, and except for the Holy Word, they had no books in the houses where she grew up—only stories. When she was four and five, her great-grandfather would tell her stories he had heard from his parents, or ones he had just made up along the way. After spinning a yarn that would fascinate the little girl, he would point at her and say, “Now you tell me a story.” And so she would begin. The old man would ask her questions about the characters and animals wandering through her tales, forcing her to invent more details about them. When Sherry was in the eighth grade, a few years after her great-grandfather passed away, she decided she was a “person of the story” and that she wanted to be a writer. To become a writer, she realized that she needed to learn more, and that meant eventually going to college.

Because her family was poor, she knew it wouldn’t be easy, and thus she began to fish around for some means to pay for her higher education. In her senior year of high school, she entered and won a national writing contest that promised to pay all expenses for her first year in college. When she asked her parents where she could go to school on the scholarship, they told her she could go to a university in Texas because they knew a dorm director there who could keep an eye on her if she got sick.

That fall she arrived on campus, full of excitement about her new adventure in this faraway city, and was presented with a list of mandatory courses. Before she left home, however, she had promised herself that every semester, she would take at least one course “just for me,” something she would enjoy. When she looked at the list of requirements, she spotted a happy coincidence, a course that looked interesting but also fulfilled a fine arts requirement.

It was a course in the Drama Department called “Integration of Abilities.” The title itself spoke to a childhood memory. When she
was a little girl, her father had told her that the most successful people, “the most interesting” people, the people “who got the most out of life,” were the “people who were the best integrated.” He had told her that she should make a connection between every course she took and find ways that they overlapped. “When I studied,” she concluded, “I should think about what happened in biology and how that applied to English, or music.”

She decided to enroll. It would change her life.

Her class met in a strange theater with stages on four sides and chairs that you could spin around to face any direction. As she sat in one of those high-backed chairs the first day, a man with dark, wavy hair came into the room and sat on the edge of one of the stages. He began speaking about creativity and people. “This is a class in discovering your own creative ability,” he told the students, “and all you will have to help you with your discovery is yourself and getting acquainted with the way you work.”

Sherry later reported that she’d never encountered anything quite like this strange man who sat on the edge of the stage in his suit and tie. “We’re going to give you some problems,” he said, “and some of them are pretty crazy, but they all work.” As Sherry twisted a bit in her revolving chair, he continued. “What you bring to this class is yourself and your desire to participate, and what you do in here depends finally upon that.”

Over that first meeting and in the days to come, her professor, Paul Baker, invited Sherry and the other students to participate in a new kind of learning. “To some,” he said, “growth is almost all” just improving your memory. To others, “it lies in learning how gadgets work—how to put motors together, how to attach pipes, mix formulas, solve problems.” The purpose of that type of growth, he said, “is never to develop a new method but to become extremely adept at
the old ones.” To a third group, growth means you develop “cults” and “systems” in which you can estimate “how far below your own standards other people have fallen.” You “join, dictate, slap backs, smoke cigars in backrooms, belong to important committees, become a pseudo artist, musician, actor, prophet, preacher, politician. You drop names and surround yourself with position.”

To only a few, Baker concluded, “growth is the discovery of the dynamic power of the mind.” It is discovering yourself, and who you are, and how you can use yourself. That’s all you have. Baker emphasized that in all of human history, no one has ever had your set of body chemistries and life experiences. No one has ever had a brain exactly like yours. You are one of a kind. You can look at problems from an angle no one else can see. But you must find out who you are and how you work if you expect to unleash the powers of your own mind.

As Sherry Kafka sat in that revolving chair, now listening intently, her professor invited her into that highest level of growth. “Everybody is unique,” he kept saying, and you have much to contribute to the world. “Each of you has your own philosophy, your own viewpoint, your own physical tensions and background,” he emphasized. “You come from a certain soil, a certain family with or without religious background. You were born in a certain house to a certain family at a certain time. Nobody else in the world has done so.” You can, Baker argued, create in ways that no one else can.

This is a book about creative people and how they became that way. These creative people went to college and emerged from that experience as dynamic and innovative men and women who changed the world in which they lived. How did their college experiences, particularly their interactions with professors, change their patterns of thinking? Although current and future college students may find
this question most compelling, teachers or parents will also find solutions here for fostering creative development and deep learning.

Who We Studied and Why

I begin with the story of Sherry Kafka because her experience in that course with Paul Baker reflects many of the major concepts and approaches we will encounter repeatedly, and because that course transformed the lives of hundreds of people who became scientists, musicians, physicians, carpenters, historians, painters, hairdressers, philanthropists, editors, political leaders, teachers, philosophers, writers, designers, engineers, and a raft of other creative folks. What those “best students” did was take a phenomenal class, often far afield from their major area of study, and use their experiences in that course to change their lives.

They pursued the development of the dynamic power of the mind, and that end—not academic honors or simply surviving college—became their primary goal. In Baker’s course, they learned a new language of creativity that centered on what you do with space, time, motion, sound, and silhouette. Sherry and her classmates came to understand themselves better and out of those insights to appreciate the unique qualities and experience that they could bring to any project. In turn, the more they understood about themselves, the greater confidence they had, and the more they appreciated the special qualities and achievements of everyone else. They became students of other people’s histories—in the sciences, humanities, and arts. Most important, they found a way to motivate themselves to work.

I should say right now that this is not about people who made the highest grades in college. Most books and articles on being the
“best student” concentrate only on making the grade. But my fellow interviewer, Marsha Bain, and I were after bigger game. We wanted to know how people did after they left school, and we selected people to follow only if they obviously learned deeply and subsequently became those highly productive individuals who continued to grow and create. We wanted to find interesting people who are aware of the world, difficult to fool, curious, compassionate, critical thinkers, creative, and happy. We sought men and women who enjoyed a challenge, whether in learning a new language or solving a problem, people who recognized when old ways would not work, who were comfortable with the strange and challenging, who had fun finding new solutions, and who were at ease with themselves.

We wanted to know how they got to be that way. How did they find their passion? How did they make the most of their education? How can we learn from them? In some cases, these highly confident, creative problem solvers learned despite college; in others, they flourished through their wonderful experiences there. Some of them have always been successful. Others spent most of their high school years barely scraping by before finally breaking out of the pack in college, or even later.

We looked for people who have distinguished themselves with great discoveries or new ways of thinking, who make good decisions and have the self-confidence to explore, to invent, to question. A physician who established a path-breaking practice, a teacher who made a huge difference in students’ lives, a comedian who changed the way people laugh, a writer who captivated readers, a musician who redefined music, an innovative bricklayer or dress designer—all these are examples of people who adapt easily to new situations and can solve problems they have never encountered before.

Did they make tons of money? In some cases, yes, but that wasn’t
part of our criteria. If any of the people we interviewed had accumulated considerable wealth, we were interested in what they did with it, how creative they became. In other cases where the financial reward had accumulated slowly, we wanted to know how they spent their lives, and what they produced.

Did they also make good grades in college? For the most part, yes, but so did lots of other people who didn’t really benefit from their education in the same way. High marks, by themselves, don’t tell us much. Consider for a moment the history of grades. They haven’t always been a part of formal schooling. About two hundred years ago, society began asking educators to tell them how much students had learned. Somebody somewhere—probably at Oxford or Cambridge in the late 1700s—came up with the system of giving the best learners A’s, the next best B’s, and so forth. It was just a system of shorthand that was supposed to describe how well people think. Through most of the 1800s, schools in England and the United States used only two grades. You either got credit for taking a certain course or you didn’t. But by the late 1800s, schools had adopted a range of grades from A to F, from one to ten, or some other scale. In the twentieth century they added pluses and minuses.

What did all those letters and symbols tell you? Quite often, not much. As Neil deGrasse Tyson, the astrophysicist who directs the Hayden Planetarium, put it, “As an adult, no one ever asks you what your grades were. Grades become irrelevant.” And with good reason. It’s pretty difficult to get inside someone’s head and discover what they understand, let alone anticipate what they will be able to do with that understanding. As a result, grades have often been lousy predictors of future success or failure. Martin Luther King Jr., for example, received a C in public speaking.²

A few years ago, two physicists at an American university con-
ducted an experiment that shows how meaningless grades and test scores can become. They wanted to know whether an introductory physics class in college changes the way students understand how motion works. To find out, they devised a test called the Force Concept Inventory. That examination measured how students understand motion, but it was not the kind of exam normally used to grade students in physics, and for all sorts of reasons I won’t discuss here, it really can’t be used for that purpose on a regular basis.

They gave that quiz to 600 people entering an introductory physics course. Most of them did poorly on it because they didn’t understand motion. Without going into a lot of details, let’s just say they could never put a satellite in orbit based on how they thought motion worked. But that’s before they took the course. The students then took the class, and some received A’s, others B’s, some C’s, a few D’s, and several flunked.

Several months after the course ended, the students retook the same test. A few demonstrated that they had gained a better understanding of motion. Most students, however, clung to their old ideas. More important, the students’ grades in the course did not predict which ones really understood Newtonian concepts of motion. The A students and the C students were just as likely—or unlikely—to have changed their understanding. Thus, some of those A students got no more out of the course than the students who flunked. The top students were simply better at memorizing formulas, plugging the right number into the equation, and calculating the correct answer on the exam, but that performance reflected nothing about how well they really understood how motion works. That doesn’t mean that low grades produced better results. It just means that grades often tell us little about a student’s learning.

Recently, I had lunch with a prominent chemical engineer who
told me about a subject he had actually taken twice, once as an undergraduate and again in graduate school. “To this day,” he said, “I don’t understand that material, but I made A’s in both of those classes. I learned to study in the right way and pass the examinations with flying colors, but I never really learned anything.” He had learned deeply from other courses and had become quite successful in his field. But imagine for a moment that his experience in that one subject had been more typical, that he had gone through school playing the strategic grade game in all of his courses. He could have made high grades without really learning anything.

Maybe you don’t care about chemical engineering, physics, or putting satellites in orbit. That’s not the point. No matter what ambitions you may have, good grades don’t necessarily tell us what you know or what you will be able to do with that understanding. Later in the book, we’ll explore how someone could get an A and still not understand motion, but for now, just bear in mind that good grades don’t necessarily mean you really comprehend anything. In school, we are often asked to memorize lots of stuff that has no influence on our subsequent lives.

Imagine for a moment a different world, a place in which students find deep meaning in everything they learn. In that universe, learning changes who people are and how they view the world. It makes them into better problem solvers, more creative and compassionate individuals, more responsible and self-confident people. Students are able to think about the implications and applications of what they learn. Not afraid to make mistakes and full of questions and ideas, the citizens of this place easily and happily explore new areas with ease while possessing a deep humility about how complex their world can be. Learning remains an adventure. Someone may forget a few facts but still know how to find them when needed.
WHAT THE BEST COLLEGE STUDENTS DO

Such a world does exist for some people. But everyone faces increasing pressures in college and life to learn only for the test or for someone else. Straight A’s in high school or college are great, but—and this is a big qualification—they say little about who you are, what you are likely to do in life, how creative you are likely to be, or about how much you understand. Of course, even if you didn’t get good grades, we still don’t know much about you.

We have seen five types of students in college:

1. Those who receive good grades but become no more productive than their friends who receive C’s and D’s;
2. Those who receive good grades and who become deep learners, adaptive experts, great problem solvers, and highly creative and compassionate individuals;
3. Those who receive mediocre grades but someday achieve phenomenal success because they did learn deeply, despite their transcripts;
4. Those who receive poor marks, give up, and live a life that is largely dependent on others;
5. Those who receive poor grades but tell themselves (without much evidence) that someday they will shine.

Sure, high marks have their rewards. An excellent academic record can serve anyone well in our society. Later in this book, I’ll spend some time helping anyone learn how to achieve an A, but if we had to choose between good grades or deep learning, I’d pick the latter every time.

Fundamentally, we want to promote deep, passionate, joyous, and creative learning. Grades are important, but anyone who concentrates just on making straight A’s will probably not become a deep learner. Anyone who concentrates on deep learning, however, can make high marks. We will show you how that can be done.
The Roots of Success

We have two major sources for our advice. First, we pored over the research and theoretical literature on good students. Thirty to forty years of research have told us a great deal. We paid attention to some of those studies but not all of them. Some of that literature measures good students by their grade point average, and as we've already seen, that doesn't tell us much. Another group of researchers, however, has looked primarily at students who became deep learners. You will see their studies and ideas reflected here.

Second, we interviewed several dozen people who have become highly successful and creative people, good problem solvers, and compassionate individuals: physicians, lawyers, business and political leaders, computer scientists and artists, musicians, mothers, fathers, neighbors, Nobel Laureates, MacArthur “Genius Grant” recipients, Emmy winners, and a few current college students. We share some of their stories: some funny, some sad, but all inspiring.

Integrating Your Abilities and Finding Your Passion

“This is a class,” Paul Baker kept saying, “that assumes you are interested in the work of the mind.” Sherry hardly noticed the guy sitting next to her—a future pro football player—as they both listened intently. Creativity can come in any area, Baker explained, not just the arts. “It could be a sermon, a scientific formula, or a book, but it could also be something you build, a well-planned street system, a beautiful meal, or a well-run gas station.” Engineers, scientists, physicians, musicians, real-estate brokers, lawyers, historians, hairstylists, and others can all become creative people in their own field. A work of the mind, Baker concluded, could be anything fresh and innovative.

Her professor said something that day that startled most of the
class, but Sherry found it intriguing. “A lot of people I know died when they were juniors in high school,” Baker declared. “They’ve got the same concepts, the same ways of looking at conditions about them, the same answers, the same emotional and visual images and pictures that they’ve always had; there has been practically no change in them.”

He invited Sherry and her classmates into a different kind of future, one in which they came to know themselves, and out of that knowledge learned to create and grow. “I hope everyone in this class will decide to take control of their lives, to reach inside themselves, to explore who they are and what they have, and learn to use those inner powers.” He paused and looked at the people sitting in the back row. “Not for success, not to be seen; that’s not important. What is important is that you fulfill your own personal need to keep growing.”

To be creative, he emphasized again and again, you must understand yourself, including your strengths and your weaknesses. You must learn to integrate your abilities, to train them to support each other. To do that, you must open up a dialogue with your inner self. Baker asked the students to keep a notebook handy to record their reactions to the exercises. “Write out your life story up to now, and write your reactions to everything we do.” Write in pencil, he told them, “or with crayons. Whatever suits you.” Most important, examine yourself and how you work. “Get used to the pattern by which things come up in your mind and in your imagination. Find out when and at what times of the day you work best and what motivates you.” Is it anger or serenity? Do you want to prove someone else wrong? “What sort of inner needs do you fulfill?” he asked.

Everything you create, he told the class, will come from inside you, so you must know yourself. That’s the reason you must write
your life story and learn to talk to yourself, to find out what’s inside you, and to discard the parts that are old and stale, and enhance and use the elements of yourself that are unique, beautiful, and useful.

Every day thereafter the class began with physical exercises “to get the blood flowing,” Baker told them. “I cannot work with you if you are tired and listless,” he said. “I want the blood flowing and your mind sharp.”

Years later, long after she had helped redesign cities, published a novel, made television documentaries, and worked on projects around the world, Sherry recalled how this phenomenal learning experience began to unfold. Baker talked about work and told the students they had to find out what kept them from working. Write a paper, he said, on your resistance to work. Explore your habits. Think about some really creative work you did in the past, and ask yourself what you had to do before you did that work. What conditions? What mood? Did you put your feet up? Walk around? Look out the window? Did you need a closed space with no distractions? An open area? Where did you go? Visualize yourself working and then go do it. “I have to eat ice cream first,” he confessed.

“Faulkner,” he told the class, “climbed up a tree quite often. He also spent hours with his shoes off, sitting down by the magazine counter of the local drugstore listening to people come and go. And it is said that he wrote all of *As I Lay Dying* while perched on the back of a wheelbarrow stoking a furnace at the University of Mississippi.”

The goal is not to do what Faulkner did, but to understand yourself: to explore who you are, how your mind works, and what keeps it from working. This course, he told the students, is fundamentally about you. It will explore the ways you react to work and acquaint
you with yourself so that you will know what you can bring to the

table. “Many times you may wake up at three o’clock in the morn-
ing, and you should get up then and work. If your mind is alive and
vital, get up and work. What’s the loss of a few hours of sleep if you
can do something?”

Maybe you have to scare yourself into working, Baker mused. Think
about what it will be like when you are old, when you ap-
proach death. Will you have already died inside or will your mind be
alive with new ideas that are unmistakably your own?

First, you must learn about yourself. Next, find a great creative
work of the mind that excites you: see its reflection in others and in
yourself, probe behind that work, seek its inner nature, and explore
the possibilities it suggests. Then find your own passion and let it
drive you. “If you are not capable of excitement, you will never pro-
duce anything,” Baker warned.

Sherry shifted slightly in her revolving chair and took a fleeting

glance around this strange place in which she found herself. On
these four stages in the years to come, she would see a dazzling ar-
ray of lights and sounds, a mind-popping potpourri of scenes that
would whirl about the audience in an array of colors and textures,
lines and rhythms, and silhouettes and sounds. These performances
would blend movies and live actors, breaking all the rules of drama
and bending her senses. Hamlet would appear as three charac-
ters, all of whom would trot about tilted stages that rose from the
back, allowing audiences to look down upon the drama as they
spun in their chairs to follow the course of the play. Action never
stopped. No curtains dropped to cut the movement. No barriers ex-
isted across space or time, only action, constantly pouring around
the room.

But for now, she focused on the words of a single man, perched
upon the edge of one of those four stages and speaking in a way that both bothered and comforted her. Baker warned the students that good ideas or results don’t come quickly, or only to a few select people. If you want to learn something, you have to keep working at it. You must explore, probe, question, relate, brush aside failure, and keep going, ultimately rejecting the easy first answers and approaches. You must keep looking for something better. Don’t worry, he said, that your first efforts will be pretty “skinny.” Better things will come with work. “When I was a boy,” he told them, “I was a catcher on the neighborhood baseball team. Before I graduated from high school, I must have thrown down to second base hundreds of times until I could hit a spot” with precision. “But I had to do it over and over again until it was in my muscles.” Think about how many times it must take to produce a piece of work with “real maturity” and value.

After class that first day, Paul Baker asked Sherry Kafka and a few other students to go for coffee. They walked next door to one of those old-fashioned drugstores with a U-shaped lunch counter where a sprinkling of students sipped soda concoctions while perched upon round red stools. Baker pulled out a form that Sherry had filled out about herself. “I see you want to be a writer,” he noted.

“No sir,” she shot back. “I am a writer.” Baker laughed, but not in a mocking way, only to recognize and appreciate her confidence. “I wasn’t trying to be a smart aleck student or anything,” she said later, “I was just trying to be accurate. It wasn’t that I chose to be a writer; that’s just what I had become.”

But how did Sherry and other students who took that course later become such creative people? What can you learn from their experiences about your creative self? For Sherry and for hundreds
of others who took that magic course, the most powerful ideas emerged from a new vocabulary that Baker gave them, the validation of their own uniqueness, and the exercises they performed to explore those ideas. I share some of the details of those exercises and concepts to help you see how unusual the road to creative development can be, and to introduce you to a simple yet powerful way of thinking about creativity. What the students in Baker’s course learned summarize some of the major ideas we’ll encounter throughout the book.

Every creative act, Baker insisted, works with five elements: space, time (or rhythm), motion (direction or line), sound (or silence), and silhouette (or color). “Those five elements have always been a part of my thinking on any project I do,” Sherry noted. “They became a universal language for the creative process.” We’ll see the same elements in the creative work of all others we explore, whether they were in the arts, business, engineering, science, or in law.

To help people explore those elements and to understand themselves in relationship to them, the Integration of Abilities course invited students to participate in a series of exercises over a fifteen-week semester, and in each case to write about their inner reactions to them. In the first, they simply walked across a stage twice, once to express tragedy and once to express comedy, using the moments of that experience to think about how they thought about and used space. “There is no right or wrong way to do it,” Baker instructed, “and you will fail only if you do not use the exercise to learn something about yourself.”

In the second, Baker gave students a word and asked them to write whatever came to mind: he asked them to let the thoughts in their conscious mind flow like a stream and to record those thoughts with no concern about form or the rules of writing. He also showed
them a simple line drawing and asked them to start drawing. “Do both everyday,” he insisted, “and date your pages so you can go back to them and study your own pattern of thinking.”

For the third exercise, Baker asked the students to analyze someone they had known for a long time. Students were to explore the background and origins of their subjects, how they lived and their rhythm in life, and, finally, their values and basic philosophies. Did their subjects come from a city or farm, from a big town or small one? What makes them tick? What do they do for fun? How do they work, walk, sit, and talk? What colors do they wear? Take everything you learn about that person, Baker instructed, and reduce it to a rhythm you can clap with your hands. You already have the ability to understand rhythm, he reminded the class. “You’ve been doing it all your life since you were lying in a crib, and you understood who was picking you up by the rhythm of that person.”

But don’t just jump to the rhythm, he warned the class. Anyone can clap their hands in a certain way. That’s easy. Instead, use the study to explore your own way of thinking. How do you react to people, and how are all of the elements you discover integrated in the life of an individual? Most of all, how did you create something original? To work through this task, you must stop being concerned about results. Immerse yourself in the process and through that exercise build a new life.

In the fourth exercise, students picked an inanimate object from nature and began writing descriptive adjectives about it—about its color, texture, lines, mass, and maybe rhythm. They looked at it from different angles and in different moods, and wrote as many words as they could imagine. From there, they began to give it a rhythm, and from that rhythm they created a character, a person who began to act. They wrote dialogue for their character and cre-
ated a scene with words, a space that reflected the nature of the character. “About fifteen or twenty times during the distilling process,” Baker told them, “you are going to get a quick result. Every time you do so write it out and go back and make yourself start over.” He reminded them again to cease being concerned with results and to engage in the process. “When you are building a new kind of life for yourself, this process of discovery is the key to growth.” Don’t rush to a fast answer or a quick result, he concluded.

In the fifth and culminating exercise, the students found an object with several different kinds of lines in it, and they drew on paper those lines they liked. A tree limb, a jagged rock, a flower, anything with complex lines. Then they began to walk out the lines, and to feel the rhythm they encountered and the colors and sounds they might assign to different lines. They began to find out which lines pleased them and which they might discard. They might enlarge some lines as their muscles responded to them and toss aside other, less attractive ones. Baker asked the students to listen to their muscles, to let their physical responses to line and rhythm dominate their reactions, pushing aside entirely any intellectual judgments. This final exercise extended over several weeks, during which the students would produce various works of art that extended out of those lines that they kept and expanded upon. Some would write music. Others would paint, and some would produce a sculpture. But the products didn’t matter. “It is an exercise in which you are going to listen to your own muscles,” Baker told them.

In all of these exercises, Sherry and her classmates found rewards not in the results they produced but in the opportunity that each exercise afforded them to explore their own thinking and how they responded to space, time, color, sound, and silhouette. No one cared
Index

Abbott, Andrew, 204
Adaptive expertise, 10, 24, 41, 233, 242, 258; vs. routine expertise, 37–38; and curiosity, 45, 63
Allen, Will, 27–31; family of, 28–29, 30; and Growing Power, 29–31
All the President’s Men (film), 145
Amber Initiative, 190
Anki, 245
Anxiety, 166–169, 170–171, 174, 175
Aristotle, on learning by doing, 230
Armbrust, Shawn, 144–151, 155, 160; family of, 144; and Anthony Porter case, 146–150; and Mid-Atlantic Innocence Project, 150–151
Aronson, Joshua, 85
Artificial intelligence, 121–125
Attitudes vs. beliefs, 236
Attribution studies, 252, 253
Authority, 152–153
Awe, 19, 47, 57, 82. See also Passion

Baker, Dean, 205–209; on Swarthmore, 208–209; on grades, 209
Baker, Paul, 25–26, 35, 82–83, 127; on creativity, 3–4, 5, 11–13, 14, 16, 26, 27, 30, 35, 46, 48, 64–65, 74, 88, 187, 226; on growth, 3–4, 12, 18, 24, 47–48, 119, 152; on dynamic power of the mind, 4, 5, 24, 47; on self-knowledge, 4, 12–14, 64–65, 118; on uniqueness, 4, 16, 88, 119, 187; on excitement, 14; exercises used by, 16–21, 88, 226, 249, 250; on values, 17; on writing, 250
Bandura, Albert, on self-efficacy, 118
Bargh, John, 238
Baum, L. Frank, The Wonderful Wizard of Oz, 112
Beeman, Mark, 84
Bell, Derrick, 254
Bernstein, Carl, 145
Bias, 77–80
Biggs, John, 156
Blackwell, Lisa, 128; “You Can Grow Your Intelligence,” 126–127
Blame, 116–121
Bloom, Benjamin, 238
Bok, Derek, 229
Bolt, Robert, 54–55, 210; A Man for All Seasons, 54
Boredom, 232
Brain: mental models, 32–33, 34, 65–71, 81, 140, 141, 207, 230; construction of reality by, 65–71, 97; Spock brain, 71, 72, 73–82, 85; alligator brain, 71, 72–73, 85; pleasure brain, 71, 82–85; and Jeff Hawkins, 121–122, 124, 125; growth of,
INDEX

Brain (continued)
125–128; cognitive activities, 237–238; and multitasking, 248; and exercise, 249
Branden, Nathaniel, on self-esteem, 164–165
Bransford, John, 233–234
Butler, Ernest, 25–27, 48, 127
Butler, Sarah Goodrich, 25–27, 127
Campbell, Duncan, 182–188; family of, 182–183, 184; on creativity, 184; and justice, 184, 186–187, 210–211; on grades, 185; on Steinbeck, 185
Carnes, Mark, 83
Carrey, Jim, in The Truman Show, 65
Charney, Dennis, 212
Children’s Course, 186
Children’s Institute, 186
Chrucky, Andrew, on liberal education, 209–210
Cisneros, Sandra, The House on Mango Street, 195
Civil Rights movement, 139, 142
Clark, Kenneth, 85
Colbert, Stephen, 51–55, 87, 225; family of, 51, 53, 73; relationship with Ann Woodworth, 53; on failure, 53–54, 111, 172; relationship with Lee Roloff, 54; on worrying, 54, 175; and Robert Bolt, 54–55, 210
Cold War, 254, 255
Common humanity, 172, 181, 214
Community of academic learners, 252–256
Compassion, 6, 11, 49, 56, 187, 201, 212, 220, 225, 231, 235; and deep learning, 9, 10, 24–25; self-compassion, 172–176, 180, 181, 182, 227
Competition, 119–120
Confirmation bias, 77–78
Cost of education, 258
Course selection, 28, 60, 103, 195–196, 199–200; for deep learning, 2–3, 5, 25–26, 177–179, 227–232; and tests, 228; and grades, 228–229; and values, 231
Credit, 116–121
Crick, Francis, 121
Crocker, Jennifer, 168, 172
Curiosity, 6, 24, 37, 48, 50, 51, 62, 73, 116, 125, 177, 187–188, 192–193, 195–196, 207, 219, 231, 258, 259; of childhood, 44, 45, 47, 91, 159, 183, 187, 212; Neil deGrasse Tyson on, 45; and adaptive expertise, 45, 63; and critical thinking, 45, 158; and creativity, 45, 187; and deep learning, 55, 62, 63, 212; and liberal education, 203–204, 214, 220
Danner, Mark, The Massacre at El Mozote, 254–256