After eight years at Waterloo Grammar School (from ages 11-18), I was admitted to Loughborough College, which was reputed to be one of England’s best teacher-training institutions. My career intent was to teach physical education and geography at the middle or high school level. The premise that undergirded most of the theory, conceptualization and pedagogical instruction during the three years at Loughborough was that the children whom I would be teaching were naturally curious and that they delighted in learning. We were informed that education was the process of nourishing, since its root is derived from the Latin, *educare*, meaning to nourish (others have suggested its Latin root is from *duco, ducere* meaning to lead). A popular analogy among our instructors was that teaching is like lighting a fire—teachers provide the initial spark to the fertile kindling that then blossoms into a mighty fire.

During my four blocks of teaching practice in various schools while at Loughborough, I seemed unable to light mighty fires. I assumed this was a reflection of my status as a neophyte and that over time, experience, on-the-job experimentation, alternate approaches, and added self-confidence would cause my obvious ineptitude to dissipate. However, after a couple of subsequent years of experience and growth in self-confidence, nothing changed. The only conclusion my ego could handle was that the undergirding premise was wrong; in other words, that most young people were not naturally curious and/or they didn’t delight in learning—perhaps because the educational system had defused this natural curiosity and it had been replaced by cynicism that had become habitual and ingrained.

This counter-premise has been the beacon that has guided my interactions with undergraduates at Texas A&M University. It differs from my approach to working with graduate students, which is discussed later in the chapter. The articles of the counter premise are: (i) most undergraduates are not intellectually curious and have no intrinsic love for learning;
(ii) like most of us, they have a propensity for procrastination; (iii) they will take the line of least resistance and do the minimum amount of work needed either to graduate or to meet the expectations of their parents. In short, they resemble my own modus operandi at Waterloo Grammar School and Loughborough College 40 or 50 years ago! These counter premises have guided my pedagogical approach to undergraduate education, which may be described as “benevolent coercion.”

Evidence supporting the counter-premise is easily obtained: announce either that a class or an assignment has been cancelled, or finish a class early. The predominant response is likely to be delight rather than disappointment. Not many student protest letters will be written to the department head declaring that they have been cheated by not receiving some of the educational experience for which they paid.

In every undergraduate class, there are some stellar students who validate the traditional educational premise of intrinsic motivation, but invariably they are a relatively small minority. Another aphorism absorbed in my Loughborough days was that the role of teachers was not to get the eagles to soar; rather it was to get the turkeys to fly. Intrinsically motivated students will learn either because of, or in spite of, us. We simply have to avoid screwing them up. However, 30 years of teaching undergraduates at Texas A&M has revealed that such students, too often, are a relatively small minority.

**Challenge: The Key to Effective Undergraduate Education**

In my view, the real challenge confronting undergraduate teachers is to stimulate growth among the disinterested majority. My intent is to jolt them out of their tendency to pass through college in a state of what I characterize as “permanently superficial,” never experiencing anything in depth, just passing through and getting the boxes checked. From this comes only mediocrity and tedium. I admire people who immerse themselves in a project or cause. I believe this is the key to a happy, fulfilling, satisfying life. I feel no affinity for those who merely dabble, who go through the motions without any emotion. They don’t feel good about themselves and they demoralize those around them.

The advisor to our varsity track team at Loughborough (we didn’t have paid coaches) was fond of saying, “training isn’t fun, it’s darned hard work.” He was a firm advocate of the “no pain, no gain” school of training.
training. Sure, many of the ancillary benefits of being part of the track team were fun: socialization and camaraderie with like others; the respect of peers; the kinetic exuberance emanating from fast and fluid running; the exhilaration that accompanies complete physical exhaustion; and the ego satisfaction of accomplishment. But none of these outcomes occur without the "darned hard work" of training. Similarly, the notion that learning is "fun" does not resonate with me. It is hard work, requires much self-discipline, is sometimes frustrating, and on other occasions is tedious and boring. Becoming an educated person is a difficult, demanding endeavor.

Joy in learning, like joy in sport, comes from overcoming genuine challenges and cannot be experienced without effort. William James was right when he observed that a full "life shall [be built in] doing and suffering and creating." The real satisfaction in life comes from total creative absorption in a task, and not in the extrinsic rewards associated with it. You get the most out of life by being immersed in some facets of it. The deeper we dig into the reservoir of our potential, the happier we become. I subscribe to the idea that "the nectar is in the journey." The reaching and striving are more important than the result. If you don't hike to the top of a mountain, then you don't see the optimum view. The view when you ride up in an aerial tram or automobile is never as good.

Physical challenges are one medium for finding out who you are, but they are elective and so most opt not to explore their potential. The undergraduate academic experience can be conceptualized as being in the same genre as physical challenges, in that it offers a medium for young people in the most formative years of their life to figure out who they are. It has the meritorious attribute of being unavoidable for many.

To excel means to be better than, or to outdo, others. By definition it is limited to the few. Excellence is not achieved without extraordinary effort. If an A or B grade is the class norm and it is achievable with minimum effort, then the incentive for those with high ability to invest extraordinary effort, and the opportunity for them to experience the extraordinary satisfaction that accompanies genuine excellence, is foregone. Further, it deceives ordinary students into believing that their ordinary efforts will be sufficient for them to be professionally successful in society, and discourages them from seeking to enhance their skills and thought processes. Hence, the class syllabus always states, "10 percent of students will receive an A grade, 20 percent a B, 40 percent a C, and 30 percent a D or F."

College is about the process of young people growing into being themselves, about gaining wisdom, and the formation of character. It
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is about them finding out who they are. So, I declare on the first day of class, "You are a hunter, and the prey is yourself." The failure to live up to one’s potential is the supreme tragedy in a human life. Satisfaction in learning comes from overcoming genuine challenges and cannot be experienced without toil. It is only through commitment to a goal, sweat, endeavor, and honesty with oneself that we discover who we are and become who we can be. My obligation is to engage in "choreographed histrionics" designed to harangue, coerce, intimidate, persuade, and encourage those who are not intrinsically driven to narrow the gap between their accomplishment and their potential, so they leave the class changed, believing they can accomplish more than they had ever before imagined.

One of the advantages of being at the same institution for a long period of time is that a reputation is established and it substantially reinforces the immediate actions. "Survivors" of the class exaggerate its challenge with hyperbole designed to positively emphasize their strengths in surmounting it, and a mythical aura envelopes it. The fortuitous consequence is that intimidation is present from day one without me having to be intimidating, which enables me to subtly loosen the apprehension rather than reinforce it.

The approach is deliberately confrontational and intimidating, and its justification is based on the three articles of the counter-premise described in the opening section of this chapter. It is intended to facilitate Thomas Huxley’s admonition:

> Perhaps the most valuable result of all education is the ability to make yourself do the thing you have to do, when it ought to be done, whether you like it or not; it is the first lesson that ought to be learned; and however early a man’s training begins, it is probably the last lesson he learns thoroughly.  

The "benevolent" qualifier in my "benevolent coercion" approach is central to its effectiveness. Naked coercion would merely induce fear, intense dislike, resentment, and distrust. It likely would exacerbate the disinterest in stretching and growth. The haranguing will often be accompanied by a wry smile—the phrase "smiling assassin" was coined by one wit—and will be done in private; by a genuine concern to help students grow; by empathy that students recognize as being sincere; and by an investment in time and energy that close monitoring of each student’s progress requires. (This includes individual 15-minute interviews with all 60 students.)
I believe that no human motivation is stronger than the desire to validate the confidence of those who believe in you. My experience has been that most students are responsive when they are told up-front that they have the aptitude to do well in the class, but that they will be pushed; that occasionally ostensibly outlandishly taxing demands will be made upon them, as periodically happens in the "real world"; that standards will not be compromised; that their work will be criticized bluntly without euphemisms; and that if their performance does not reflect their potential or the expected standards, they will be subjected to ongoing, unrelenting haranguing.

For some, the pressure is too great, and they wilt and fold. If their effort is high, then the standards are not shifted, but empathy and encouragement are offered and contingency plans developed (which remain out of sight of the rest of the class). This has to occur since the goal is for all students to finish the class proud of the effort they have invested and the growth they have experienced. If the effort is low, then they will have the opportunity to surmount the challenge in the following semester.

In the 1970s, I shared a platform with Kevin White who was mayor of Boston for 16 years. He said something that resonated, "I hate these constant crises; but without them would we ever get anything done?" A few years later I was discussing this notion in my graduate class, when a Chinese student stood up and drew the Chinese symbol for crisis on the blackboard. It consists of two characters, one meaning danger, and the other meaning opportunity. A crisis is dangerous—it creates a level of uncertainty, an element of risk, a margin for failure—but it raises our energy level, gets us agitated, forces us to do things in a different way, to look for better solutions; so it is also an opportunity for us to grow and develop.

Thus, on the first day of a new semester, I lay out my goal for the class: "My job is to create a series of crises for you and to help you grow through resolving those crises. Growth requires that we redefine the perceived limits of what we believe can be achieved. Hence, the objective is to back you into a corner and make the standards higher than you feel are reasonable." As John Stuart Mill noted, "A pupil from whom nothing is ever demanded which he cannot do, never does all he can."

Students as Producers of Education

I have always had problems with some of the nomenclature associated with education. The term "teacher" has been particularly bothersome.
When I left Loughborough College, my first job was in a comprehensive school (high school) with 1,500 students in Kirby, just outside Liverpool in England. Kirby was one of Britain’s post-war new town disasters. The planners transplanted 50,000 people out of the central city slum areas of Liverpool, into a green field’s public housing project, which constituted the new town, ten miles out of the city. There were no public amenities, few social institutions, and no social networks. Not surprisingly, when I arrived in Kirby it boasted the highest per capita juvenile crime rate in the United Kingdom.

It took all of two days of standing in front of classes in that comprehensive school for me to realize that I wasn’t going to teach anybody anything. Rather, the children elected whether or not they were going to learn. Tragically, the great majority opted not to learn and helped formulate my counter- premise of education. This experience led to the revelation that students are not consumers of education, they are producers of it. This is the essence of the Chinese proverb, “A teacher can open the door. You must enter by yourself.”

The term “teacher” did not describe what I did in Kirby. I came to realize that my role was that of facilitator. It involved creating an environment that would encourage, cajole, or intimidate children to invest effort in learning. A corollary of this role recognition is that education only occurs if a student is encouraged, or can be persuaded, to exercise the self-discipline needed for learning to occur. Education is one of the few remaining facets of life about which one can say, “You get out of it about what you invest into it.” Through being intellectually challenged, students find out who they are.

In my first week at Loughborough College, I met with my education tutor. He asked, “Mr. Crompton, what are you going to teach?”

“Physical education and geography, sir,” I responded. “No lad,” came the reply. “You are going to teach children.”

That wonderful, fundamental insight passed along on day one of my formative teacher-training period has stayed with me throughout my career in education. Parks, recreation, and tourism are merely a convenient meeting place that provides a medium through which I can help students find out who they are. After being in classes, if students pick up an idea or two which is of some use to them in a career in parks, recreation, and tourism, then that is pleasing; but it is not really important, and it is certainly not my primary desired outcome of our interaction together. In my view, we have minimal responsibility to impart vocational knowledge on how to perform pragmatic, specialist skills used by practitioners. In the Internet era when knowledge is instantly accessible, it is redundant.
and useless for students to be required to memorize so-called “facts.”
The seven points of this or the five stages of that are not meant to be
memorized. That is what the Internet and books are for—as references to
consult when factual information is required. I certainly do not know all
of the so-called facts that are between the covers of the books I have writ-
ten. If I do not feel it necessary to memorize all that material, then why is
it necessary for students to memorize it?

I spent one hour of every school day in my last two years at Waterloo
Grammar School studying English history from the end of the Napoleonic
Wars in 1815 to the start of World War I in 1914. If you were to ask me
now—45 years later—to write an essay on that 100-year period, it would
be a challenge to fill five sheets of paper. Is this indicative of wasted
time? Of course not! Education is what is left when all the facts are for-
gotten. The facts of history were not important per se. It was a wonderful
medium for enhancing understanding of contemporary society; gaining
insights into the deterministic role of societal characteristics in molding
events; developing critical thinking ability; learning to write, through
having to do lengthy weekly essays; gaining confidence in speaking
through arguing the relative merits of different interpretations of events,
their consequences, and their implications; and learning to conceptualize
interrelationships between ostensibly unconnected events.

My responsibility at the undergraduate level is to insist students de-
velop a higher level of competency in literary, numerical, and computing
skills; to facilitate their learning how to analyze and solve problems; to
develop confidence in their public speaking and presentation abilities; to
develop group-process skills; and to build self-confidence and self-esteem.
It is not a question only of acquiring factual, technical knowledge; it is
a question of students being pushed hard to make mental efforts that are
subjected to criticism. My challenge is to move them past “permanent
superficiality” to help them form good habits in terms of basic skills,
thinking processes and so on, so they gain insight into what constitutes
excellence. If students have not experienced being intellectually stretched
they remain unaware of the upper boundaries of their capacity, and they
will, by definition, lead a suboptimal life.

A few years ago I received a fax from David A., who was a former
student. He is my record holder. He took a class six times before finally
passing it with an “A” grade. He failed the course twice; he dropped it
three times; and finally he immersed himself in it and emerged triumphant.
David had graduated ten years prior to my receipt of the fax, and he now
had a position as head of quality control for a large retailing chain. He
wrote: “Never change the standard or the approach. It was the best thing
that ever happened to me." I suspect the philosophy espoused towards undergraduate education in this paper would earn me an "F" and much derisive chastisement in many pedagogical theory and technique classes offered in education curricula. But 30 years of undergraduate teaching at A&M and feedback from those students have convinced me there is merit in the counter-premise and an approach of "benevolent coercion."

**Graduate Collegiality**

Interactions with graduate students are different from those with undergraduates because the conventional premise of intellectually curious people who are enthusiastic about learning for the most part is validated. As my career has progressed, I have become increasingly conscious of how little I know. There appear to be three reasons for this growing awareness of my inadequacies. First, it is a natural manifestation of the aphorism: The more you know, the better you understand what you don’t know. Second, the exponential expansion in the number of those engaged in research in this area and allied fields in the past three decades has made it increasingly difficult to keep abreast of this work as it relates to my research programs. Sixteen years ago it was noted that, "The explosion of publications and electronic information in most fields has made it difficult to feel confident of mastery outside a single theoretical paradigm and methodological attack on a designated problem." Since that time the difficulty has only been accentuated. The third factor is the evolution of computing technology and the more advanced statistical analysis techniques and research designs this has facilitated. The aggregate effect of these factors is a realization that my knowledge base is relatively small, and the only way that I can sustain a viable research program is to partner with others whose skills and talents complement mine.

Early in my career, I wrestled with answers to the fundamental question: What business am I in? Recognizing my limitations, the conclusion I reached was that I am not in the business of doing research; rather I am in the business of getting research done. My primary partners in this endeavor have been graduate students. The term "graduate student" bothers me, but it is a convenient "handle" that I have been unable to replace. Unfortunately, the term connotes a sort of modern day serf who serves his or her apprenticeship at the beck and call of the master, before emerging from the departmental chrysalis as a full-fledged professional or professor. This is demeaning and entirely inappropriate. Many of the individuals pursuing graduate degrees with whom I have worked, have intellects, ex-
perience levels, skills, and talents that exceed my own. They are students only in the classic sense that we are all, or all should be, students.

The professor-graduate student relationship is frequently perceived as being one-way, with knowledge flowing from the professor to the student. But that is a myth. Indeed, in my case the antithesis is the case—the unidirectional knowledge flow for the most part is directed from graduate student to professor.

The graduate students with whom I am privileged to work are my primary colleagues. My faculty peers at A&M are supportive of my research endeavors and they are my friends, but their particular professional interests are different from mine. My graduate students and I have sought each other out because we share common professional interests, have a mutual respect for each other’s talents, and because the chemistry between us is good.

My primary role is to conceptualize and manage the research program, generate funds to implement it, and recruit good graduate students to do the actual project work. I am captain of the ship, responsible for steering it safely to its destination, and making sure the resources are deployed effectively, but I don’t work the engines. This perception of my role emerged early in my career from a conversation with Dr. Albert Cotton, a distinguished professor of chemistry at A&M. He has published over 1,500 refereed papers—his typical output is 50 per year. He told me, “I do not work at the bench with the test-tubes. If I did, my productivity and that of all the people who work with me would plummet. My job is to facilitate the work of my doctoral candidates and post-doctoral associates, ensure they get good training, and ensure goals of the long-term research program are accomplished.” He is right. Texas A&M does not pay me a distinguished professor’s salary to collect data and work computers. My challenge is to leverage my resources to maximize output, not to do it myself.

Working collaboratively with my graduate student colleagues enables both sides of the partnership to focus on our strengths. We all need to retrain, but we are limited in the extent to which we can do it. I believe that if I invested the time, I could probably learn some of the things I do not know. But I have always believed in concentrating on my strengths and covering my weaknesses by collaborating with others who are strong in those areas. This seems to me to be a much more efficient and productive approach.

My graduate student colleagues are exposed to cutting-edge courses with excellent instructors from across the campus. My cutting-edge courses were done 30 to 35 years ago. The result, of course, is that they
know more than I do about research methods, statistical tools, and the current literature. I learn through them, secondhand—they take the courses. All my doctoral candidates who have graduated were technically more knowledgeable than I was. If they were not, then I would have screwed up badly as their advisor and facilitator.

Working collaboratively in this way means that almost all my publications are coauthored. The primary author will usually be a graduate student, reflecting that he or she did the nuts and bolts of the research. I will be second author, reflecting my conceptual and intellectual input, my provision of resources needed to do the work, and my contribution to actually writing the paper. I have been criticized for this—although not to my face. Some people have suggested that my reputation has been made on the backs of my students, and that my approach is exploitive. Of course, they are right. I do exploit the people who work with me by using their talents to complement my own and further my research program. That is the best way I know to provide them with opportunities to learn to do good research, and the best way I know to get the threshold volume of research done that moves a research program forward. If others do not approve of my modus operandi, then that is their problem. I am comfortable with the way I operate and to the best of my knowledge so are the 60 people whose graduate committees I have chaired to this point. As far as I am concerned, nobody else’s opinion matters.

My motives in working with graduate candidates are entirely selfish. In addition to constituting the engine that moves my research program forward, a partnership with them is the only way I know to institutionalize any impact I may have on the field. My own books, papers, speeches, and workshops can have only a transitory influence at a point in time. However, if I can place in my career 30 well-trained professors in university positions and 50 well-trained practitioners with master’s degrees in agencies, I believe it will make a difference. That is what I have been seeking to do.

As my primary colleagues, I view my graduate students as being equal in stature to myself. The easiest part of encouraging them to recognize this equality is to listen and act upon their advice and input. To further reinforce it, I ensure their offices are close to mine and that we interact on most days. If there is no professional reason for them to come to my office, I go to theirs to make a social visit. In a conscious attempt to reverse the inherent power structure in our relationship, they have keys and access at all times to my office and laboratory, and to all the equipment within them, such as phones, photocopying, postage, books, computer accounts, and so on. I quite deliberately do not have access to their offices.
Since they are my primary colleagues, their work takes priority over everything else I do. Momentum and morale are everything. If graduate student colleagues want to visit, it happens immediately. I am not into appointments or office hours. If they want me to review something, it will get a one-day turnaround. My primary professional reason for being is to facilitate their work. Everything else I view as being of secondary importance.

To maximize the synergy among my graduate students, for most of my career I was committed to fostering a research team. This meant encouraging and nurturing professional relationships among them. I believe social engineering is of prime importance in achieving this. They need to be either in offices together or in proximate offices, because they have much to learn from each other. Inter-peer learning develops from working together on joint projects; by toiling together on the same courses; at social events; and in meetings of research project groups. There is no single formula for developing inter-peer learning; it depends on the chemistry of the people, their particular interests, and stage of their degree program.

Because learning from peers is critical, I believe it is imperative that a research team has a threshold number of individuals who frequently interact. Without this, the learning process is likely to be substantially impaired. The power of this bonding, of course, endures long after graduation. The bonds built among people working together in graduate school last forever. Indeed, one of the most exciting aspects of the process for me, is seeing the professional and social bonding continuing to build between the 60 or so people whose graduate committees I have chaired. Observing the respect, trust, and support for each other that they exhibit is enormously gratifying. Of course, the bonding is not only between peers, it is also between them and myself. What a privilege—the opportunity to develop and nurture friendships that last a lifetime and which span national boundaries and political ideologies. These friendships and networks remain supportive long after students have graduated, and they provide reinforcement that contributes to sustaining a research program over the long term.