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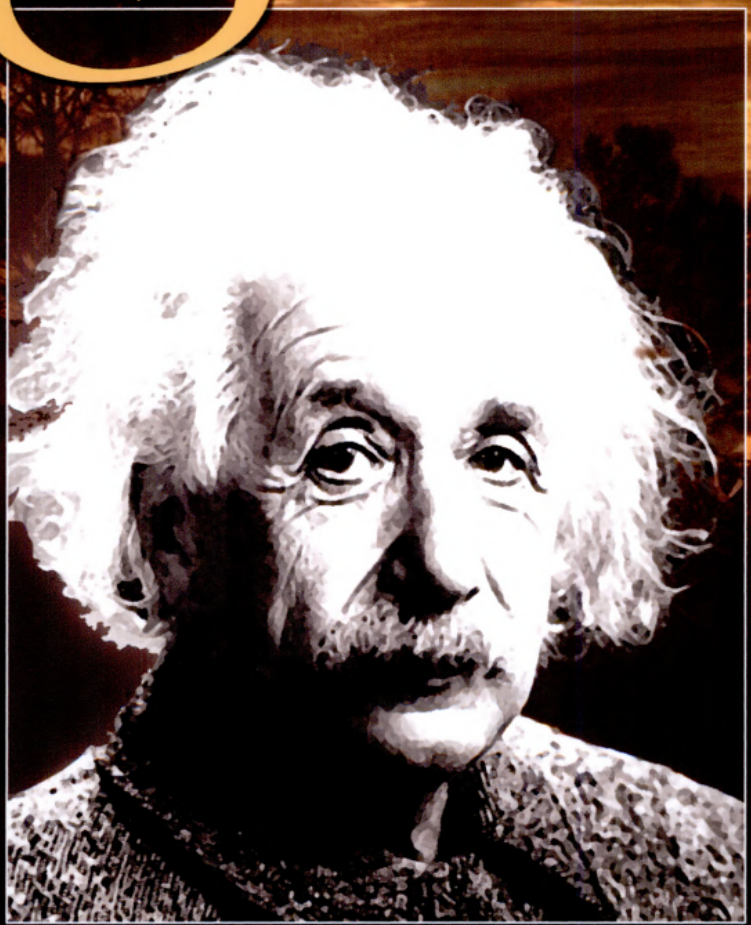

LEARNING TO LEARN

Conrad P. Pritscher

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CONTENTS

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FOREWORD

Carlo Ricci, Ph.D. Associate Professor, Nipissing University, Canada
Author and Editor, *Journal of Unschooling and Alternative Learning*, JUAL

What made Einstein such a brilliant Being? Are there ways that we can approach Einstein's brilliance? What are the implications of Einstein's thought for schools and society? What is the connection between Einstein and Zen and what can that mean for the rest of us? In this book Pritscher brilliantly gives us insights to help us approach the wisdom we have come to define as Einstein. Through what he calls Einsteinian mind openers, Pritscher shares with us what we can all do to be like Einstein. The insights are a great and exciting gift for all those who take the time to read this inspiring and life-altering book. For this reason, this book is not only for educators but also for everyone and anyone who wants to strive to be like Einstein or to help others understand how they too can strive to be like what has become synonymous with wisdom and genius: Einstein. In a more holistic sense this book is about more than mind; it is about empathy, compassion, and kindness and much more. Ultimately, the book offers a better way to live by using Einstein and Zen as models of hope that we can and should all aspire toward. Why should we aspire toward this? Because "The community, to Einstein, is more important than the individual. It is posited that this benefit of the community rather than the individual is at the heart of "kind compassionate thought." And so, who would dare argue against a kinder, more compassionate world?

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When Pritscher first asked me if I would be willing to write the foreword, I was thrilled to be asked. I wondered how I should approach this book; I started to read and highlight the passages that resonated with me. After reading the first page it was clear that this method would not serve. As I stood back and looked at my computer screen, I realized that everything was highlighted yellow. This is a testament to the richness of thought in this book. This is a book that needs to be read and then reread over and over to ponder and truly contemplate the remarkable implications of what is being said. For example, How wonderful and how different would the world be if only this thought were taken seriously: "When students are free they study what is remarkable, interesting, and important for them." For me, in part, this line opens up the possibilities of nonoppressive spaces for young people where they are all free to explore what they value and are passionate about. The result is that young people can truly unfold their inner genius—all this richness from just the first few lines of the text.

One substantive issue that gets explored and really resonates with me is how do we open our minds? With respect to schooling, the question becomes how do we move from a schooling system that believes in an artificially contrived system that plans opportunities for discovery learning, to an educational system that truly implements open inquiry. I see this as a move beyond a progressive model to one that approaches a more learner centered model in which students get to decide what, when, and how they want to learn—a democratic system in which students are truly empowered. One way to think about this difference between a progressive Deweyian model and one that moves beyond that is to focus on what Holt (1999) wrote:

> Almost a century later John Dewey was to talk about "learning by doing." The way for students to learn (for example) how pottery is made is not to read about it in a book but to make pots. Well, OK, no doubt about its being better. But making pots just to learn how it is done still doesn't seem to me anywhere near as good as making pots (and learning from it) because *someone needs pots*. The incentive to learn how to do good work, and to do it, is surely much greater when you know that the work has to be done, that it is going to be of real use to someone. (p. 121)

This difference between Holt and Dewey as pointed out by Holt makes it clear that Holt's authentic and genuine need to make pots results in greater control, freedom, and benefit to the community at large, which is, in part, what Pritscher is getting us to think about. As Pritscher correctly points out, "There is a different quality to the inquiry concerning a topic or question if the inquiry is assigned by the teacher rather than a question or discrepancy chosen by the learner."

This book gets us to rethink a lot of things including schooling. We need a revolution in schooling whereby schools change from being merely places where

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individuals get trained to places where schools become centers of education. We need to take seriously the notion of the plasticity of the mind and that there is no critical period for learning; in fact, the best time to learn anything is not when some external agent decides it is best for someone to learn it, but when the individual hungers for that knowledge. Take, for example, reading. Schools believe that children need to learn to read early and the earlier the better. My research around reading finds that there are other ways as well. For example, free schools and unschoolers or natural learners do not teach reading and so children do not learn to read at standard times. The result, they all learn to read when they are ready and they enjoy reading because reading is something they have decided to do and not something that has been imposed on them. Gatto (2003) writes about students at the Sudbury Valley free school,

> In thirty years of operation, Sudbury Valley has never had a single kid who didn't learn to read... So Sudbury doesn't even teach reading yet all its kids learn to read and even like reading. What could be going on there that we don't understand? (p. 58)

There are as many ways to learn to read as there are people learning to read and as soon as a standard formula or definition of how to learn to read gets imposed, then those who struggle within that definition are disadvantaged and even worse, labeled as having deficits that belong to them when in reality the deficits belong to the definition. Also, reading is not limited to a canon, all reading is reading. Furthermore, there is already technology that favors speech and listening to writing and reading and who knows in the near future historians may be talking about tools that people called pens that they used to write on paper that soon were replaced by computer screens and keyboards and who knows what else. They will tell their young that books on devices that read them and computers that write what we speak are relatively new in our history—what I have related is not fiction but current reality; namely, there are devices that read aloud to us whatever is on its screen and write whatever is spoken to it. In a personal experiment I have converted my laptop to do just this and was amazed at the results and simplicity of it all. My point is that what we take as so fundamental and unchallenging in our own time may be replaced in another resulting in a whole different set of skills and groups of people being valued and by extension devalued. To combat this we need to heed Pritscher's words and ensure that kindness, compassion, and love reign, which would result in everyone being valued and cared for.

In concluding this section, I want to quote Pritscher: "If one notices one is primarily 'trained,' that awareness can be an enormous step in one's becoming educated." This book helps us move beyond a training system and into one in which we can become educated.

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of a conspiracy but of an aware judgment deficit. This deficit could not occur without the complicity of our schools and universities. The governmental-industrial-complex includes schools and universities who train people to be excessively obedient to authority, and to refrain from noticing each citizen's ability to decide for one's self. Groups like Blackwater and Halliburton are evidence of a privatizing of much for the enrichment of the rich.

About the former conservative governmental-industrial-complex of 2002–2008, David Geoffrey Smith (in his *Trying to Teach in a Season of Great Untruth*) said: "The largest 300 multinational corporations control 25% of all the world's productive assets, 70% of all international trade, and 99% of all direct foreign investment (see Clarke 1997, Chapter 2). The loyalty of these huge firms is less to the country of their origin than to new virtual communities of international stockholders. The result is a diminishment of the tax bases that national governments are able to wrest from commercial ventures, which in turn affects the quality of social programs that local communities can offer citizens." (Einstein might say that Smith's reporting is evidence of citizens not noticing and not deciding for themselves.)

Support for spending time for present observation is given in *The Mind and the Brain* by Jeffrey M. Schwartz and *Train Your Mind, Change Your Brain* by Sharon Begley. They say: "Through mindfulness you can stand outside your own mind as if you are watching what is happening to another person rather than experiencing it herself... Mindfulness requires direct willful effort, and the ability to forge those practicing it to observe their sensations and thoughts with a calm clarity of an external witness... One views his thoughts, feelings, and expectations much as a scientist views experimental data—that is, as a natural phenomena to be noted, investigated, reflected on and learned from. Viewing one's own inner experience as data allows (one) to become, in essence, his own experimental subject."

Schwartz and Begley noted that William James did this kind of noticing and he used it to help people learn. James helped them learn "hows." Begley and Schwartz offer rew findings in brain research to support this type of learning for self-direction/education.

Brain research is rapidly outpacing teachers' and professors' awareness of what brains and minds can do. Begley, *Newsweek* science editor, reports on Steven Pinker's research: "Many human genes are changing more quickly than anyone imagined. If things that affect brain function and therefore behavior also evolve quickly, then we do not have stoneage brains that evolutionary psychologists oppose... (then we) may have to reconsider the simplifying assumption that biological evolution was pretty much over 50,000 years ago." This writing may help students, parents, teachers, and professors become aware of new possibilities

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to Todd May's *Our Practices Ourselves: Or, What It Means to Be Human*. May holds the Lemon Calhoun, chair of philosophy, Clemson University.

The difference between training and education is that training can be more easily described, defined, and explained (a "that"). Educating teachers and professors relates more to how to become an open teacher who provides conditions for greater student awareness, openness, self-direction, and development of judgment.

Schools have excessively trained at the expense of educating (disseminating too many "thats" while helping students learn too few "hows"). Learning to learn deals more with knowing "how." We need to know many "thats" yet May makes a case for knowing "thats" arise from knowing "how." Schools and universities have neglected developing learning to learn; a life-long task.

If teachers and professors were to examine how the "thats" they teach relate to "how" to live openly in an aware and self-directing manner, their students would learn many "thats" as well "hows." Einstein and Zen move toward helping one learn "how" to pull meaning from experience as the highest and most worthy form of knowing. Such learning is the equivalent of learning to improve judgment and practical wisdom. Learning how to powerfully learn may be the mental equivalent of a nuclear chain reaction.

May alludes to the notion that we have our practices embedded in our knowledge, our values, and our daily lives so that our practices are reflections of the aware values and self-directing knowledge we hold. Einstein and many Zen practitioners do that. The "that" is having their lives be a reflection of what they value and know. Their valuing and knowing is similar to an Einsteinian/Zen "knowing how."

Part of what follows may help illuminate and accelerate the practices of Einsteinian learning and empathic, less competitive Zen-type social behavior. Some knowing "hows" from Einsteinian/Zen practice can help accelerate the development of "how" to improve judgment and wisdom.

"Hows" often deal with insight/aha!s. Does brain research include intellectualizing? This book will intellectualize about excessive intellectualizing that may prevent noticing. Some recent brain research by Jonah Lehrer concluded that a person scored well in a measure of insight (measured by a CRA test-using fMRI and EEG). The high scorer was involved with strong focus on present experience generating much insight/many "hows."

Delivery by teachers and professors of what others think is important (often a series of disconnected "thats") does not require great skill. Lower level thinking on the part of teachers, professors, and students is what is semiconsciously asked from the conservative governmental-industrial-complex (look for this to change somewhat with President Obama). When teachers and students are less

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thoughtful, they demonstrate less awareness of broad contexts. With unhoned judgment and minimum awareness of citizens, the conservative governmental-industrial-complex has fewer problems in maintaining power.

Skilled, inquisitive teachers and professors can hone student awareness and judgment through providing conditions of freedom, open inquiry, and self-direction for students to learn "hows." One condition for increased student awareness is a less coercive school atmosphere. Open, inquisitive teachers often view education as Einstein did.

Since school time is limited, time for the implementation of the following suggestions will be taken from common "training" activities (relating to "thats"). "Educational" time could more profitably be given to students to observe what is happening as it is happening (so aware judgment may be self-developed).

Einstein/Zen learning more directly involves "learning to learn" (more like a "how" than a "that"). When one learns to learn, he or she often learns far beyond what schools now offer. Schooling has devolved from education to training partly because of the lack of clear acceptance of the more difficult to define "hows." While "thats" are often very important, teachers, professors, and school administrators often remain unaware that isolated "thats" are frequently trivial whereas "hows" are often at the heart of powerful learning and living. For now, remaking America is also a school and university task. Remaking needs "hows."

Suggestions for a longer school day or a longer school year may be detrimental if the excessive focus on training is not changed to "education." I concur with the idea that much of present day schooling approaches mind-murdering (too many "thats" and too few "hows" killing inquisitiveness). Extending the school day or school year would then simply murder minds more quickly unless there is a shift to noticing one's present experience, more openness, and more freedom for students to study what is remarkable, interesting, and important for them.

Joe Kincheloe, Shirley Steinberg, and Deborah Tippins in *The Stigma of Genius: Einstein, Consciousness and Education* offer many ideas and elaborate on the groundwork for pursuing school change. They reveal many of the problems of modern education and offer solutions. This study advances their thoughts, providing new ideas and conditions to reduce the influence of the Newtonian-Cartesian framework to a more Einsteinian, free, open, less manipulative, more mindful framework. As Einstein said, "Is it any wonder that the modern methods of instruction have not entirely strangled the holy curiosity of inquiry, for this delicate little plant, besides stimulation, stands mainly in need of freedom."

Lip service is often given to extending decision making to teachers. Kinchloe, Steinberg, and Tippins report that the teacher's role in decision making was for the teacher to decide between blue or purple as a color for the teachers' lounge. Most of us have gone through our schools and as a result of our training, we continue to

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accept ineffective attempts to bring about needed change. Most of us have been trained to think an individual can do little to change schools.

Begley states: "It took a while to discern the guiding ideology behind the Bush Administration's poisonous science policies... The truly poisonous legacy of that eight years as one that spread to much of society and will therefore be much harder to undo the utter contempt with which those in power viewed inconvenient facts, empiricism and science in general."

One official explained to Begley and journalist Ron Suskind in 2002 that the Bush administration had nothing but disdain for what it called "the reality based community... people who 'believe that solutions emerge from judicious study of discernible reality.'". Begley said the official told them: "We create our own reality."

Begley reports that public trust in the integrity of science (particularly about stem cells, global warming, and sex education) has been undermined where wishful thinking rather than science was employed. Antiquated frames of reference were used by those who said "they create their own reality." These frames (mindsets) continue to be promoted by our schools and universities in an unconscious manner.

Conventional methods of studying education and of explaining the world are reviewed in the light of new findings. Einstein and Zen practitioners knew from direct experience. David Brooks reports: "Most successful people also have a phenomenal ability to consciously focus their attention. We know from experiments with subjects as diverse as obsessive-compulsive disorder sufferers and Buddhist monks that people who can self-consciously focus attention have the power to rewire their brains."

Students and teachers traditionally were not urged to be powerful researchers (regarding "hows"). Zen and Einsteinian thinking urge teachers and learners to be open researchers, unblemished by what others say they know.

Zen contextualizes facts in an almost unbelievably broad way. Zen had previously been devalued and excluded from Western ways of thinking. In the view of Richard Nisbett's *The Geography of Thought*, Zen thinking may be seen in a different light. Schools and universities have become so far removed from the early Greek notion of playing with ideas that schools now often seem inextricably ensconced as a place where one is to fill one's mind with facts ("thats"), many of which are trivial and most of which will soon be outdated.

Most citizens were trained in our nation's schools and as a result it is taking us longer to discern the guiding ideology behind the former conservative, governmental-industrial-complex. We have been traditionally trained so well to obey authority that most of our teachers, professors, and school administrators are obeying (external) authority by primarily disseminating information ("thats"),

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rather than providing conditions whereby our students and citizens learn to decide for themselves. It is helpful to keep in mind that consciously giving up some freedom, at times, provides more freedom. That implies those thinking for themselves, as Todd May said "have the courage not to know what everyone else knows," will find more powerful learning and democratic living.

President Obama clearly stated that citizens are responsible for our government. Obama campaigned "on the need for improving teacher preparation and educational testing to reflect the kinds of research, scientific investigation, and problem solving that our children will need to compete in a 21st-century knowledge economy."

Some events have gone unnoticed. It is now time to notice that the guiding ideology behind our schools and universities is training and evaluating people for corporations, rather than remaking America and helping people be responsible. When responsible, one can think something, as Einstein suggested, that can't be learned from textbooks. Having the courage not to know what everyone else knows, and the ability to decide for oneself what will secure or endanger one's freedom cannot be learned directly from textbooks, or from simply accumulating information given by authorities.

Examining some of Einstein's social ideas demonstrates they parallel Thomas Jefferson's and John Dewey's ideas about education (development of self-direction which implies noticing "what is"). Zen implies, and experientially demonstrates, the power of deciding for oneself and noticing what is.

Evidence to support this is reported by Mary Carmichael who said: "There's animal research that suggests why something that should lower stress can actually cause stress if it is done in the wrong spirit. In a classic study, scientists put rats in a cage, each of them locked in a running wheel. The first rat could exercise whenever he liked. The second was yoked to the first, forced to run when its counterpart did. Exercise, like meditation, usually temps down stress and encourages neuron growth, and indeed, the first rat's brain bloomed with new cells. The second rat, however, lost brain cells. He was doing something that should have been good for his brain, but he lacked one crucial factor, *control.* He (the controlled rat) could not determine his work-out schedule, so he didn't perceive it as exercise. Instead he experienced it as a rat race. This experiment brings up a troubling point about stress. Psychologists have known for years that one of the biggest factors in how we process stressful events is how much control we have over our lives. As a rule, if we feel we are in control, we cope. If we don't, we collapse." Students do not have sufficient control in schools and universities for optimum development of brain cell and development of self-direction.

Schools and universities can be stressful places and have become training places for corporations where students have little control. As a result, citizens

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is unavoidable. Einstein said: "Modern science when measured against reality is primitive and childlike." Having no "now" may contribute to making physics primitive and childlike.

This writing attempts to show that Einstein, while imperfect, was not only a scientific genius but also a social genius. Extensions of Einstein's thought may help us know more by accepting uncertainty and increasing tentativeness. Einstein implies uncertainty and appropriate "not knowing" may help us know more, and may help one free one's self. Einstein would agree with Roger Cohen who said: "The artificial preservation of the inert dampens the quest for the new." Einstein would also agree with the "impermanence surrounds us" of Zen.

Zen and "not knowing" (in only an intellectual way) go together. As we free ourselves we can more readily accept growing uncertainty, not only about science and technological change, but also about "the market," ourselves, and national and international social intercourse. (Citizens who want excessive certainty may contribute to economic breakdowns and violence.)

Einstein's other breakthrough thinking was being compassionate, and helping one think something that can't be learned from textbooks. Einstein was an aggressive pacifist when it came to promoting justice. Einstein's recent biographer Walter Isaacson said Einstein was a pacifist saint. Einstein was noticeably antiracist. He was probably antisexist and antihomophobic as well.

Richard Nisbett's research shows that East Asian thought is noticeably more holistic than Western thought. Aspects of Eastern thinking helped generate quantum physics about which Einstein had reservations, yet his thinking was broad enough to go beyond Eastern and Western thinking.

Early East Asians never separated philosophy and poetry. As a result of separating philosophy and poetry, Westerners treat justice more as a science. East Asians treat justice more as an art. Einstein's thinking went beyond both East and West as does Zen. Einstein thought a great scientist was also a great artist. Einstein did not make the mistake of separating philosophy and poetry. Einstein sounded unconventional when he said about research: if we knew what we were doing, it wouldn't be called research.

Malcolm Gladwell's 2008 keynote address to the American Psychological Association urged psychologists to study the notion that adversity breeds success. He asked: "Why don't we set up structured disadvantages?" Gladwell said: "The danger lies in not entertaining the question."

One type of structured disadvantage is functional discontinuity. When one is wondering about an event, there is a gap in one's knowledge structure. When a teacher demonstrates a perplexing or discrepant event, something that turns out at variance with the student's expectations, the student is often surprised and a gap often opens in the student's knowledge structure. Focus often assists powerful

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thinking. We will need much more in order to be happy and successful now. Asia, particularly India and the Philippines, has taken many left brain, information age jobs from the United States.

Niels Bohr and Einstein disagreed about some aspects of quantum mechanics, but Einstein would agree with Bohr who noted: "Causality may be considered as a mode of perception by which we reduce our sense impressions to order." William Bryson reported that Bohr said we ought to ask not if quantum theory is crazy, but rather: "Is it crazy enough?" Some of Einstein's thought and that of Zen appear crazy when first considered, especially through looking with habitual, outdated mindsets.

Quantum theory applied to mathematics has created quantum computers, which when kinks are worked out, will compare to present day computers, as atom bombs are to firecrackers. Quantum theory is also now applied to biology. The end is nowhere in sight for joint efforts of people and intelligent machines. Schools and universities are barely considering these matters.

Einstein said: "The finest emotion of which we are capable is the mystic emotion. Herein lies the germ of all art and all true science. Anyone to whom this feeling is alien, who is no longer capable of wonderment and lives in a state of fear, is a dead man. To know that what is impenetrable for us really exists and manifests itself as the highest wisdom and the most radiant beauty, whose gross forms alone are intelligible to our poor faculties—this knowledge, this feeling...that is the core of the true religious sentiment. In this sense, and in this sense alone, I rank myself among profoundly religious men."

Jonah Lehrer speaks of the dopamine release with a feeling of pleasure on anticipation of what previously created the dopamine release. My survey of students reveals most students do not anticipate their classroom experiences to bring a dopamine reward, except for students who are free to evaluate themselves when they study what is interesting, remarkable, and important for them.

While neuroscience has not yet made definite findings indicating that students learn more profoundly when they are free to decide for themselves what, when, and how to study, asking yourself, under which conditions you best powerfully learn, may be a clue to lead you to promoting more freedom for students.

I do not mean freedom to choose between the even and odd numbered problems in a math book. I mean freedom to decide what is important to study and what and how to study it. When the students are free to evaluate themselves and decide to take certain courses, training in these chosen courses could be graded and often evaluated by the teacher or professor if the student wanted that information. Frequently, however, students are not free to choose from a wide variety of courses. Their electives are often few except in free schools. Schools are often coercive and students, former students, and teachers (most of us) have been programmed not to notice it.

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It is expected that powerful mystic emotions from which one powerfully learns, arise only when one allows the mystic emotion to be present. We have not been trained to be receptive. ***Kabbalah*** means to receive. (Mainly Hebrew, but Christian and other religions also have Kabbalistic writings.) Perhaps the Jewish culture is noted for promoting powerful learning because of focus on receptivity (openness; other meanings also exist). If one pays attention to the mysterious, more productive learning may result. Einstein and Zen practitioners demonstrate they allow for one to feel more control. Self-direction, self-organizing can go on only when one is in control of the direction and organizing.

Paradoxically, seeking in the present is powerful while seeking in the future is not seeking. Experience is most powerful when one notices what is happening "now." Seeking in the future or past may prevent paying attention to what is happening now.

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TRANCENDING LOCAL THOUGHT

All our science, measured against reality, is primitive and childlike.

EINSTEIN

Robert Kennedy, a Jesuit priest, is also an ordained Zen master. To be both a Catholic priest and a Zen master, Kennedy said he had to transcend Christianity as well as transcend Zen. It is difficult to transcend Zen since Zen is all inclusive and transcends rational explanation of events. This book will explore what occurs when we transcend earlier ways of thinking related to the notion of transformation. Transcending includes broadening views of science and art. This book analyzes the process of transcending and transforming to find out when and where this process may profitably be used for optimum human growth and development. The following story will introduce this better:

There is an old story of a farmer whose horse ran away, and the farmer's neighbor came to him and said: "You unlucky man. Your horse ran away."
The farmer responded: "Maybe so."
The next day the farmer's horse came back with another horse and his neighbor then said: "Oh you lucky man; you now have two horses."
The farmer said: "Maybe so."
The next day the farmer's son fell off the new horse and broke his leg. The neighbor then said: "Oh you the unlucky man. Your son broke his leg."
The farmer said: "Maybe so."

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> The next day conscriptors for the local government's army came around to take the son into the army to fight in the upcoming battle with a neighboring state. The neighbor came to the farmer and said: "Oh you lucky farmer, your son will now not have to go into the army and fight in the battle."
> The farmer said: "Maybe so."

The farmer knew tentatively. Extending tentativeness, we may say the farmer knew everything and everyone is in process. We know something through stopping the process of which a "something" is a part. We know with greater certainty when we stop a process to create a permanently knowable event. We know with less certainty when we consider larger contexts as when we, at least at times, investigate our investigating while we are investigating. A form of this investigating is noticing what is happening while it is happening. This book explores whether paying attention to one's present experience is helpful in scientific and nonscientific endeavors. It seemed to be for Einstein.

Einstein said: "I know that it is hopeless undertaking to debate about fundamental value judgments. For instance, if someone approves, as a goal, the extirpation of the human race from the earth, one cannot refute such a viewpoint on rational grounds. But if there is agreement on certain goals and values, one can argue rationally about the means by which these objectives may be obtained. Let us, then, indicate two goals which may well be agreed-upon by nearly all who read these lines.

One. Those instrumental goods which should serve to maintain the life and health of all human beings should be produced with the least possible labor for all.

Two. The satisfaction of physical needs is indeed the indispensable precondition of a satisfactory existence, but in itself it is not enough. In order to be content, men must also have the possibility of developing their intellectual and artistic powers to whatever extent accords with their personal characteristics and abilities." Einstein wanted what may be tantamount to an expansion of our democratic value system including more cooperation while reducing competition. About this Machiavelli said: "There is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things."

Einstein knew that everything that occurs occurs in the present. Einstein also knew everything is in process. $E = mc^2$ is a process. To measure, we stop a process and make what may be nonlinear, linear. At times, doing so may be primitive and childlike partly because we have been trained to think things either exist or do not exist.

Imperfection is a given for all people and events, including measurement, yet people can imagine "perfection." When noticed narrowly, an ideal is perfect.

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EINSTEIN FREED HIMSELF

> For to be free is not merely to cast off one's chains, but to live in a way that respects and enhances the freedom of others.
>
> NELSON MANDELA

> We are all too much inclined to walk through life with our eyes shut. There are things all around us, and right at our very feet, that we have never seen; because we have never really looked.
>
> ALEXANDER GRAHAM BELL

The old story about a person wanting to know where he should be was given the answer that he should look at his feet. This may later be seen as a wise start.

Einstein was a highly aware, profound inquirer. One might be surprised that Einstein said: "The true value of a human being can be found in the degree to which he has attained liberation from the self." Did he think anything was more important than learning to be free from a separate self? Awareness and inquiry appear to be a route through which Einstein highly valued learning, and the value of liberation from the self. Gladwell's book *Outliers* demonstrates the importance of Einstein's early experience and a family that loved wonder and learning. Even though a part of his brain was 15% larger than average, Gladwell would give nurture more importance than nature for Einstein's genius. Einstein was aware that people and physical events were more connected than separate. Awareness of a greater connection than separation was the liberation about which Einstein spoke. One can tell when one has awareness of a greater connection through noting when one behaves kindly. Theodore Rubin wrote: "Kindness is more important than wisdom, and the recognition of this is the beginning of wisdom." Einstein's concern for the community indicated Einstein would agree with Ruben.

Einstein, while imperfect, was a very kind person. He said: "Only a life lived for others is a life worthwhile... The life of the individual has meaning only insofar as it aids in making the life of every living thing nobler and more beautiful. Life is sacred, that is to say, it is the supreme value, to which all other values are subordinate. This statement is very closely connected to Zen. His liberation from the self led him to think that all he needed was a table, chair, bowl of fruit, and a violin. He appeared to often be surprised at all the praise and accolades he received. Einstein seemed to be humble and self-aware as evinced by his following statements:

> Try not to become a man of success but rather try to become a man of value...
> A hundred times a day I remind myself that my life depends on the labors of other men, living and dead, and I must exert myself in order to give, in the measure as I have received, and am still receiving...
> The high destiny of the individual is to serve rather than to rule...

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quantifiably). Because aspects of powerful learning, such as "present awareness, self-direction, open inquiry, and loving learning," are difficult to measure, schools and universities often do not have powerful learning goals for daily classroom activities. As a result, American schools and universities are grossly failing. It is projected that powerful learning arises from open awareness. Awareness is present awareness. What one remembers is a present remembrance, and what one now says about a possible future happening is a present anticipation. Past and future exist only as a present remembrance or a present anticipation.

The following is a paraphrasing of Begley's *Newsweek* column on global warming. I changed the topic to schooling: Poor schooling is a cause of this year's evidence of poor judgment.

It is almost a point of pride with school reformers, whenever we notice poor judgment reflected in any election, any injustice, hunger, general lack of health care, or other societal devastation, that educators trip over themselves to absolve the common practices that now go on in schools and universities. No particular schooling event, goes the mantra, can be blamed on some things so varied and general.

Poor schooling was the norm before educators began filling minds with mind trapping trivia such as found in many curricula. So this or that evidence of poor schooling could be the result of the same natural forces that prevailed hundreds of years ago—careless delivery of curricula, lack of funds and quality teachers, class size, low interest levels on the part of teachers and students—rather than the core of schooling.

This pretense has worn thin. The frequency of poor teaching as well as the excessive testing of trivia are partly generated by the outdated school mindsets.

The No Child Left Behind law is now commonplace. As was said in the 1993 Nation at Risk report, if an unfriendly foreign power would place on our society the poor schooling we now have, we would consider it an act of war.

Political conservatives and political liberals, according to Lakoff, account differently. Most of what is said here arises from a political liberal frame. Lakoff concludes that the conservative political view destroys democracy and freedom of the type our founding fathers had in mind.

Lakoff says meaning is found within frames, narratives, and metaphors. Different frames give different meanings to narratives and metaphors. Often we hear there is no one narrative to explain all narratives. That is true and has meaning within more open, more liberal frames. It is not true within narrow, rigid, conservative frames. Inquiry, to the narrow people desiring certainty, is that which supports and confirms what is thought to be true; often that thought to be revealed by God in the Bible or Quran. As mentioned, the U.S. federal government, from 2002 through 2008, only accepted research reports that already agreed with the

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political conservative frame. This narrow mindset accepts research that supports it and rejects research that does not. "Frame" is similar to my use of "mindset" in that both are fixed and often comprehensive. The more liberal mindset is noticeably more open and less fixed.

Begley reports brain plasticity reveals we have power to change our brains even into our later years. She also mentions new neurons can be formed. Not long ago it was thought that new neurons could not be formed after a certain age.

This study examines change and activities related to brain plasticity, open inquiry, unlearning, and awareness for what Einstein thought was powerful education. Some notions may need to be unlearned in order to guide or reveal what hypotheses could now profitably be tested. Einstein and other Nobel laureates used unproved and perhaps un-provable ideas as guides to discoveries that might later be proved. It is assumed that the process of brain plasticity may be used as a guide to explore the process of open inquiry and unlearning even though the process of open inquiry may never be clearly defined. Open inquiry is difficult to define since it is a complex process that does defining. Awareness, by many views, is even more basic than inquiry.

Wired reports: "We're nowhere near figuring out how to see into the future, but neuroscientists are devising a method to predict mistakes. The *Proceedings of the National Academy of Sciences* published a study where researchers recorded neurological patterns preceding careless errors. This could lead to a biofeedback system that *helps us catch mistakes before making them*. That's certainly more civil than throwing a group of test subjects into a tub and plugging them in."

Most researchers rely on methods and procedures of physics and mathematics. A quick look at some recent findings may help note that social science may profit from going beyond methods and procedures of physics and math. Noticing some uncertainties in math and science may also help us accept more uncertainty in the social sciences. The brain's plasticity facilitates one's knowing as well unlearning what is not so. As has been said, when one's only tool is a key, every problem may appear as a lock.

The brain's plasticity may help one notice one's brain has many tools some of which may be highly fuzzy. The brain's plasticity may help us reduce some certainties, accept the gross uncertainty that arises with noticing that the universe has no edges or center, and accept notions of quantum physics such as a particle going through a slit, and not going through a slit, simultaneously. A flexible open brain can help one notice the value of accepting ambiguity and uncertainty. Brain research is of great interest to the Dalai Lama. He wrote the Foreword to Begley's *Train Your Mind Change Your Brain*.

Begley reported in December 1, 2008 *Newsweek* column that people tend to become more conscientious and emotionally stable from ages 20 to 40. She states:

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"After age 40, they tend to become less open to new experiences and ideas, and less outgoing. All of these traits have been linked to genes. That curiously—and here's hope for anyone who resents his genetic baggage—the influence of genes wanes with age: in middle and later adulthood, environment plays a larger role than genetics in shaping personality, a hint of the power of accumulated experiences." Gladwell agrees.

Begley reports that DNA is not "an inert set of blueprints; it responds to life experiences." She gives an example of a study in which rats that are groomed and licked by their mothers "turn off brain genes linked to fear of the unknown and neuroticism." She says that humans can change broad traits that were previously thought of as stable, including "openness to experience, consciousness and sociability," if one changes one's beliefs.

These findings support Einstein's notion that through noticeably changing modern methods of instruction, students can think something that can't be learned from textbooks. Begley states: "Something that seems like a small intervention can have a cascading effect on things we think of as stable or fixed,... including extroversion, openness to new experience and resilience—all of which are thought to be partly genetic." Research is demonstrating what Margaret Mead said many years ago; that we're using only 10% or less of our brainpower. Einsteinian/freer/Zen type schooling can change that.

Being less certain may help open our minds to previously unconsidered possibilities. Researchers will be ill-prepared to do breakthrough research unless those researchers give themselves permission to make mistakes. Schools and universities have trained us to avoid mistakes. Brain plasticity can help one educate oneself so as to allow one to accept making mistakes. We could improve schools and society by encouraging school personnel to allow students to "make mistakes." As Max Planck, the founder of the quantum physics theory, said, "Let us get down to bedrock facts. The beginning of every act of knowing, and therefore the starting point of every science, must be in our own personal experience." Changing our brains changes our experience. Begley shows that changing our experiences changes our brains.

Einstein's personal experience led him to the value of liberation from the self. I interpret his idea of liberation from the self as "liberation from a separate self." He saw each of us were more connected to each other than disconnected as Zen masters imply. He said: "Only a life lived for others is a life worthwhile." He also said: "The high destiny of the individual is to serve rather than to rule." Notice the type of education and experience Einstein had in order for him to conclude: "Human beings can obtain a worthy and harmonious life only if they are able to rid themselves, within the limits of human nature, of striving to fulfill wishes of the material kind." The Dalai Lama thinks freeing oneself from being a separate self helps one become kind.

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Einstein also remarked: "Our task must be to free ourselves by widening our circle of compassion to embrace all living creatures and the whole of nature and its beauty." Note that Einstein also said: "Without deep reflection one knows from daily life that one exists for other people." Some of Einstein statements are similar to those held by some Zen masters. Existing for the unit of others and one's self is what Zen Buddhist Bodhisattvas do.

We are all involved in a web of social pressure. About this, Harvard's John W. Gardner said: "The creative individual has the capacity to free himself from the web of social pressures in which the rest of us are caught. He is capable of questioning the assumptions that the rest of us accept." Einstein seems to agree with Gardner. Einstein was highly creative and he wished that creativity would be a part of each of us. Einstein said: "The world is a dangerous place to live; not because of the people who are evil, but because of the people who don't do anything about it."

To reduce the danger, not only for the reader but also for the reader's family, friends, and community, resystemizing our schooling may help us better see what Einstein saw when he said:: "Peace cannot be kept by force; it can only be achieved by understanding."

Very close to statements of some Zen masters is Einstein's statement: "A human being is a part of the whole, called by us 'Universe,' a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest is a kind of optical delusion of his consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty. Nobody is able to achieve this completely, but the striving for such achievement is in itself a part of the liberation and a foundation for inner security." That too could have been said by many Zen practitioners.

Einstein's ideas are interspersed throughout this book. In order to communicate some nuances of his thought, I've given a brief review of recent findings.

PHYSICS AND AWARENESS

Within the past 15 years physicists have found that only 4% of our universe is matter and energy. The remaining 96% is dark energy and dark matter about which almost nothing is known other than that dark matter and energy appear to be facilitating the expansion of our universe (73% is dark energy and 23% is dark matter). Physicists are now searching for a "god particle," also called a Higgs particle. Peter Higgs, physicist, predicted its existence over 40 years ago, and when

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backward. As far as they can tell, though, time is one way process; it never reverses, even though no laws restrict it."

To make it easier to accept social change, more interesting and infrequently considered facts are given. Unusual and impermanent events surround us. Georg Cantor found some infinities are bigger than others. Cantor's finding is reported in *The Infinite Book*. Bruno Maddox says in the May 2008 issue of *Discover Magazine*: "Three words that could overthrow physics: 'What is magnetism?'" There is much about magnetism that physicists do not know. "Nobody knows how a magnet can move a piece of metal without touching it," says Maddox. Furthermore, biologists do not know what life is, mathematicians do not know what proof is and philosophers do not know what truth is. As you read more you may notice that tentative knowing may improve our general knowing, and expand one's openness thereby allowing one to more fully become aware of what is.

> What is now proved was once only imagined.
> William Blake

Blake was a poet who anticipated unification when he said:

> To see the world in a grain of sand,
> And heaven in a wild flower.
> To a hold infinity in the palm of your hand,
> And eternity in an hour.

Another Jonah Lehrer book, *Proust Neuroscientist*, shows how poets and artists were our first neuroscientists.

How often do we notice that the sum of the even numbers equals the sum of the odd numbers plus the sum of the even numbers? We often don't notice until it is mentioned that infinity equals infinity. (Both odd and even have no last number). When we say infinity do we know what we are talking about?

There is magnetic resonance imaging scan called fMRI that enables one to see brain activity. The fMRI may be used, at some future time, not only as a lie detector, but also to determine the extent of complex brain activity (perhaps including complex learning to learn, the process of inquiry, and aware self-directedness).

Sir James Jeans said: "We find that we can best understand the course of events in terms of waves of knowledge." Rarely do journal articles and books include the notion of an educator's equivalent to the mathematician's zero. When mathematicians invented zero near 750 CE in India and Central America, mathematicians were able to perform calculations that were previously impossible. The educator's zero is still in the "what if stage" but what if educators had the equivalent of a mathematician's zero applied to student learning in classrooms.

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My informal research over many years reveals that within the frame or mindset of most citizens and more than half of all teachers, "teaching" means "telling." Teacher telling often implies training. Einstein and Zen know that ahas! arise mostly from noticing for oneself (what is going on in oneself) rather than knowing from being told.

As physicist Edward Witten combined five string theories into M theory that attempts to explain everything (unite quantum mechanics and general relativity), might an exploration of the limits of theory building be useful? Exploring these limits may help us note the conditions for using brains in a better and more efficient way. Ray Tucker, a Bowling Green State University researcher, found speech students achieved 90% of their achievement in preparing and developing speeches in the first 10% of the time. The last 10% of their achievement took 90% of their time.

Is there a need for exploration before hypotheses are formed to help us find better answers to what could productively occur in classrooms in the light of these recent findings? Explorations are commonly done within accepted frames and paradigms. Multiple frames are sometimes used by individuals. Is there a need to explore limits of productive shifting of some frames and paradigms ?

Newton and Leibnitz have invented infinitesimals, an amount too small to measure that facilitates calculation. If infinitesimals can't be measured, what degree of uncertainty is acceptable? Is there not some uncertainty when we consider a point in mathematics as having no dimensions and in subatomic physics, as having only one dimension?

Some physicists hold there can be big bangs other than the "big bang" that created the universe. Some physicists hold these other big bangs may create parallel universes and include multiple dimensions. Physicists are creating what may be thought of as "near universes" in laboratories by cooling atoms to within a few thousands of a degree from absolute zero.

Steve DeMaio gives evidence of how far schools, universities, and students have strayed, partly through carrot and stick motivation, from striving for morality in their actions. He says: "A disturbing article from the *Chronicle of Higher Education* crosses my path. It's about an international 'essay mills' network—essentially, a global cheating ring in which students from U.S. universities as reputable as University of Pennsylvania and MIT outsource the writing of their papers and, yes, dissertations to shady companies that employ underpaid, English-proficient workers in the Philippines and elsewhere. The system is complex, and students' reasons for using it run the gamut. But the common thread is paying someone else to 'make a show of it' for you— to help you merely clear the academic bar, not actually master the art of the vault."

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Some of the vast, murky notions are mentioned to help explore connections between fields that may require looking at higher than acceptable levels of murkiness within our present paradigms. Some paradigm shifting may help us keep abreast of change. When teachers and professors see that consciousness is to brain as wetness is to water, will classroom activities change? What is the role of open inquiry and present awareness in and out of classrooms?

Bernard d'Espagnat, 87, will receive the Templeton Prize of May 5, 2009. He played a key role from the mid-1960s through the early 1980s in the exploration and development of quantum mechanics, focusing on experiments testing the "Bell's inequalities" theorem. D'Espagnat said: "Mystery is not something negative that has to be eliminated," On the contrary, it is one of the constitutive elements of being.

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This book makes a strong case for free schooling, comparing the mind of Albert Einstein—who said much—to Zen conscious practice, which says little but encompasses everything. Examining the work of brain researchers, neuroscientists, physicists, and other scholars to illuminate the commonalities between Einstein's thought and the Zen practice of paying attention to one's present experience, the book reveals their many similarities, showing the development of self-direction as a key to fostering compassionate consideration of others and to harmonious, semi-effortless learning and living. Examples demonstrate that students who choose to study what is interesting, remarkable, and important for them tend to become more like Einstein than students with the rigid school curricula; students who are free to learn often demonstrate empathy, and less rigid rule-following, while involved in the process of imaginatively becoming their own oracles and self-educators.

"[Full of] discoveries and sudden surprises, *Einstein and Zen* overflows with life from start to finish. It will open new ways to imagine the art of teaching, and to live a life of learning."

Bill Ayers, Distinguished Professor of Education and Senior University Scholar, University of Illinois, Chicago

"'You Are Your Own Oracle' begins one section in this Einsteinian provocation to open inquiry. Such passionate curiosity, Pritscher appreciates, exhibits humor and playfulness as well as compassion and commitment. Self-direction and thoughtful engagement with the world coincide in this Zen-like meditation on the meaning of education."

William F Pinar, Professor and Canada Research Chair, University of British Columbia

CONRAD P. PRITSCHER received a B.A. from Saint Mary's University in Winona, Minnesota, an M.A. from DePaul University, and a Ph.D. from the University of Toledo. He taught graduate philosophy of education and multicultural education at Bowling Green State University. He is also a graduate of the Gestalt Institute of Cleveland, Postgraduate Intensive Training Program. He is the author of three other books: *Re-opening Einstein's Thought: About What Can't Be Learned from Textbooks*; *Quantum Learning: Beyond Duality*; and (co-authored with George David Miller) *On Education and Values*. He is a former President of the Ohio Valley Philosophy of Education Society and former chairman of the Bowling Green State University Human Relations Commission.

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