

Creativity: Our Best Long-Term Strategy for Success

**presented to the
Hawaiian Electric Company/Department of Education
Conference on Creativity
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Keoni Hall, East-West Center
Honolulu
October 11, 1997**

Good morning! It is an honor to be with you today. I want to congratulate Hawaiian Electric Company and the Department of Education for sponsoring this conference, and I want to congratulate all of you for being here, ready to learn more about a significant and challenging subject.

I see my role this morning as providing a context for the rest of the conference, as well as provoking you to think about fundamental issues regarding creativity and the enhancement of creativity in our schools and our society. As my topic states, I believe that creativity is our best long-term strategy for success.

What is creativity?

One of the most interesting things about creativity is trying to define it. According to Webster's New World Collegiate Dictionary, "creative" means having or showing imagination and artistic or intellectual inventiveness. To invent is to think out or produce a new device or process, to originate or devise for the first time.

What do researchers and writers on creativity say it is? Howard Gardner, in his 1993 book, *Creating Minds*, defined a creative individual as a person who regularly solves problems, fashions products, or defines new questions in a domain in a way that is initially considered novel but that ultimately becomes accepted in a particular cultural setting. According to Mihaly Csikszentmihalyi, in his 1996 book titled *Creativity*, creativity is a process by which a symbolic domain in the culture is changed. New songs, new ideas, new machines are what creativity is about.

Albert Rothenberg, in his 1990 book titled *Creativity & Madness* said that creativity is the production of something that is *both* new and truly valuable.

Something original may not be valuable; something valuable may not be new. Creativity involves both— something new which is valuable.

Teresa Amabile, in her 1989 book, *Growing Up Creative*, defines creativity in a similar way:

Anything that a child does or says can be considered creative if it meets two criteria. First, it must be substantially different from anything the child has done before and anything the child has seen or heard before. Second, it cannot be *merely* different; it should be correct, useful toward achieving a goal, appealing, or meaningful to the child in some way. Most psychologists who study creativity label these criteria *novelty* and *appropriateness*.

She adds that ultimately, what is appropriate is in the eye of the beholder.

I agree with that. Let me relate a personal example. One night about 30 years ago, I was driving in a mountain range on the Mainland, heading across country on my way back to the East Coast. I had just graduated from college, and was headed for study in England. It was dark, and there were few lights along the road. I was in a section that was filled with sharp hair-pin turns. Suddenly, my engine began to roar, and my car lurched forward, rapidly reaching 55 miles per hour. I learned later that my needle valve had stuck, pumping gas into the engine at a high rate. The engine did not respond to the gas pedal. I jammed on the brakes, trying to stay on the road as I spun around the hairpin turns. I downshifted a gear, only to hear the engine roar so loudly I thought it would blow up. As I lurched around that mountain top, I wondered why I had taken college prep courses instead of automotive mechanics. “I’m an educated man,” I told myself, “and I am about to die because I don’t know what to do.” Finally, after the longest two minutes of my life, I realized that I could just turn off the engine.

For me, that was creative. For most other people, the solution would have been obvious. Some of my friends have informed me that those were the stupidest two minutes of my life. But for me, it was something I had never done before, so it was novel, and it was appropriate, because it saved my life.

I think of creativity as a different way of looking at reality. Creative people take things that we all know and see, and do something different with them. They

see relationships that others haven't seen. They juxtapose ideas that we haven't juxtaposed before, or juxtapose them in ways we haven't imagined. Sometimes it is simple. I remember a sculpture by Picasso. He took a bicycle seat, and bicycle handlebars, and put them together in a way which made them look like the head of a bull—the seat was the head, and the handlebars were the horns. I have spent thousands of hours riding bicycles, and never saw those shapes in that relationship until Picasso put them together.

One of my favorite stories is about the little boy who sat and watched the men trying to remove a truck that was stuck in an underpass. The driver was aware of the height limit, but thought if he drove slowly, he could make it under. Instead, he got stuck. They called a tow truck, but they couldn't budge the truck. They were seriously thinking about jacking up the underpass, when the little boy went over and said to them: "Hey, why don't you guys just let some air out of the tires?" That was creative. The little boy had a different way of looking at reality, that led to a solution that others did not see.

We hear about people who have sudden flashes of insight. Often, those flashes of insight are the result of a long and systematic process. The breakthroughs occur after lots of training, experience, hard work, and thought. Progress may be slow and incremental, until something new is spotted or imagined. Also, while we honor individuals who are creative or inventive, most creative acts build on the knowledge and ideas of others. Creators interact with their environment. Furthermore, inventions or creative solutions go nowhere, unless others validate them and use them. In that sense, creativity is a chain, and the inventor may play the role of crystallizing and defining the invention or idea so that it can be considered and picked up by others, who continue the chain.

The process of experimentation is essential to some forms of creativity, especially inventions. Creativity is about thinking, doing, observing the results, making adjustments, and then doing it again. As they started saying in the business world about ten years ago: "Ready, fire, aim." You have to take your best shot, see where it goes, and then re-align your sights to get closer the next time. Try, fail, adjust, and try again. In that sense, creativity is more of a practice to be encouraged, than a subject to be taught.

Fly Away Home

I have a video clip to show you that I think does a wonderful job of portraying the creative process. It is a clip from the movie, *Fly Away Home*. In the movie, a young girl living on a farm in Canada finds geese eggs that have been abandoned after a natural habitat next to her home is destroyed by developers. She incubates the eggs, and when the geese hatch, they imprint on her—they see her as their mother, and follow her around wherever she goes.

The young girl's father is an inventor. He realizes that the geese have to fly south for the winter, and since the geese lost their parents when their natural habitat was destroyed, the geese have nobody to show them the way south. The video clip you will be seeing portrays the father's process of figuring out how to lead the geese south. We see how his thinking evolves, how he learns from trial and error. You might pay special attention to the number of times he fails, and the number of times people tell him he's crazy, his idea is far out, he's being irresponsible, and so forth. You will also notice that for him, failure is just a normal step in the creative process. Also, notice that he does not work alone. By the way, the movie is based on a true story.

[Video clip]

Well, the idea works, and they successfully get the geese down south. And in the real story, the geese returned on cue to Canada the next spring, to the same front yard they left in the Fall. It worked. It took a lot of persistence, and failure, but a creative solution to the problem was found.

Why is creativity important?

We've been defining creativity. Let's shift now to a second question: Why is creativity important? I'd like to give two answers. First, it is important to our long-term economic survival. Second, it is important to personal fulfillment and meaning.

Looking at the forces at work in the world today, there is much to be concerned about. Lester Thurow, in his book published last year, *The Future of Capitalism*, described five economic tectonic plates that are shifting dramatically. These are: (1) the end of communism; (2) the shift to man-made brainpower

industries; (3) new demographics never seen before; (4) a global economy, and (5) an era which has no dominant economic, political, or military power. Thurow argued that individual skills are, and will continue to be, the only source of long-run, sustainable, competitive advantage. We will not compete successfully, and have a reasonable standard of living, unless we have the right skills. Those skills include more than reading, writing, and arithmetic skills— they include human relations, problem-solving, teamwork, and communication skills. The shift to brainpower industries means that creativity will be a key factor, one of our only hopes for competitive advantage on world markets.

The fall of communism and the opening of Eastern European countries may create a significant challenge. Many of the Eastern European countries had good educational systems. Their economies have been depressed, so educated people there have lived on very low salaries. My wife and I were in Romania six years ago, and we were told that the typical, educated, Romanian government worker earned the equivalent of only 25 U.S. dollars per month. As their economies change, inflation will hit, and prices and salaries will both go up. The point, however, is that there is an educated workforce in countries like Romania that will work for less money per month than we would— perhaps half, or even a third of what we would accept.

How do we compete for jobs against these good people? It seems to me that if we want to earn more than they do, we have to provide more value than they do. In the brainpower business, creativity adds value. Creativity is more than the ability to solve problems. It is the ability to solve them in simpler, more elegant, more economical, more acceptable ways. We need to be creative, or our standard of living will drop in the coming decades. Creativity is thus fundamental to our long-term success.

It is also fundamental to the long-term happiness of our students. We love our students, and we care about the kind of lives they are going to live. We want to educate them to be lifelong learners, to find purpose and meaning, to find personal fulfillment. Creativity can play an important role here, as well.

In his book entitled *Creativity*, published last year, Mihaly Csikszentmihalyi reported on his study of people who are creative in their work and their lives. He said:

Creativity is a central source of meaning in our lives for several reasons. Here I want to mention only the two main ones. First, most of the things that are interesting, important, and *human* are the results of creativity. We share 98 percent of our genetic makeup with chimpanzees. What makes us different— our language, values, artistic expression, scientific understanding, and technology— is the result of individual ingenuity that was recognized, rewarded, and transmitted through learning. Without creativity, it would be difficult indeed to distinguish humans from apes.

The second reason creativity is so fascinating is that when we are involved in it, we feel that we are living more fully than during the rest of life. The excitement of the artist at the easel or the scientist in the lab comes close to the ideal fulfillment we all hope to get from life, and so rarely do. Perhaps only sex, sports, music, and religious ecstasy— even when these experiences remain fleeting and leave no trace— provide as profound a sense of being part of an entity greater than ourselves. But creativity also leaves an outcome that adds to the richness and complexity of the future.

Thus, if our students are to find fulfillment in their lives, we need to help them to be creative in ways that are and will continue to be meaningful to them. Creativity is an excellent long-term strategy for the happiness of our students.

Creativity in our schools

Now it is time for me to aggravate you with my opinions on schools as a context for creative work. I believe that creative things *are* going on in our schools. Later today you will learn more about how to help students to be inventive. You will learn about creativity models, and classroom management issues. All of this is very important, because our schools were not structured to support creativity. In fact, we built a structure 150 years ago that makes it very difficult for students or teachers to be creative.

David Tyack in his book, *The One Best System*, described the thinking among school leaders in the 19th century. The number of students in public schools was growing dramatically, and educators throughout America were looking for ways to rationalize the school system to manage the growth in

enrollment. They became enchanted with the factory as a model of school organization. Other models that interested them were the army, police departments, and the railroads.

Urbanization and industrialization were converging, and the scientific revolution was underway. Educators admired scientific, efficient production. Their watchwords were rationality, precision, impartiality. They were impressed with the division of labor, punctuality, order, regularity, and hierarchical controls.

William T. Harris, U. S. Commissioner of Education, emphasized that a modern industrial society needed order and conformity— “conformity to the time of the train, to the starting of work in the manufactory,” and this required precision and regularity. “Crucial to educational bureaucracy was the objective and efficient classification, or ‘grading,’ of pupils,” Tyack writes. Students had to be classified, and what they learned and when they learned it had to be standardized. The age of each student was easy to determine, so grade levels were established based on age. The systematic plan of gradation that was promoted in the middle of the century was based on a Prussian model.

The creation of our current school system was not based on our knowledge of how students learn best. It was not based on educational research or an educational theory. It was certainly not based on a desire to help our students be creative. It was based on a desire for administrative efficiency. Educators said that they wanted to make the school system *more bureaucratic*. It is evident that they succeeded.

I know that a lot has changed in the last 150 years, but a lot has not. We are still operating on factory-oriented assumptions that were introduced by our predecessors. We are still focused on classifying, categorizing, and standardizing. I am not referring to teachers in their classrooms, but rather, the administrative system. That system, with the support of the general public, cares more about standard test results than creativity. Standard answers seem more important than creative solutions.

Given current conditions, I imagine that it is very hard to encourage creativity in the classroom. There are so many students, and so many challenges. It is hard to maintain discipline, hard to get through the ever-increasing number of subjects and issues that are descending on our schools, hard to be attentive to the

needs of each individual student, hard to be receptive to a student who wants to do things differently— and do different things.

That is why I am *not* surprised by the results of recent research on teacher attitudes toward creative students. I found an article published in *Creativity Research Journal* in 1995 by Westby and Dawson, entitled “Creativity: Asset or Burden in the Classroom?” Here is the way the article begins:

One of the most consistent findings in educational studies of creativity has been that teachers dislike personality traits associated with creativity. Research has indicated that teachers prefer traits that seem to run counter to creativity, such as conformity and unquestioning acceptance of authority... The reason for teachers’ preferences is quite clear— creative people tend to have traits that some have referred to as *obnoxious*. Torrance (1963) described creative people as not having the time to be courteous, as refusing to take no for an answer, and as being negativistic and critical of others.

A study of architects found that the adjectives associated with the highest levels of creativity were “determined, independent, and individualistic.” Another study found creativity associated with impulsivity and risk-taking. Westby and Dawson made this comment:

Impulsivity, risk taking, independence, and determination may not be the most positively viewed characteristics of children given the teacher’s goals of maintaining order and attending to multiple children. In contrast, the labels found to be associated with the lowest levels of creativity in MacKinnon’s (1963) study were *responsible, sincere, reliable, dependable, clear-thinking, tolerant, understanding, peaceable, good-natured, moderate, steady, practical, and logical*. These characteristics seem well suited to the traditional classroom.

In other words, students fit into the traditional classroom better if they have low levels of creativity.

The authors described studies in which students who had traits associated with creativity, or measured high on creativity tests, were actively punished by their teachers, or were seen by teachers as the students who engaged in the most

misbehavior. And yet, when asked, teachers almost universally say that they place a high value on student creativity. There seems to be a conflict in the findings that teachers dislike creative students, on the one hand, and statements by teachers that they value creativity, on the other hand.

Westby and Dawson conducted a study to explore this apparent conflict. They found that when teachers were asked to rate 20 characteristics of creativity, the characteristics the teachers chose differed from previous research. The characteristics chosen by the teachers which differed from previous research were the following: *sincere*, *responsible*, *good-natured*, *reliable*, and *logical*. The authors observed that “to be creative and still to be liked by the teacher, children must also display the properties that make them easy to manage in the classroom.” In short, teachers did value creativity, so long as creative students behaved themselves. This leaves the problem that some of the most creative children have difficulty fitting themselves into the traditional classroom environment, and may therefore go unrecognized or even be punished for their creative behavior.

My guess is that class size and the personality of the teacher both play an important role in the encouragement of creativity in the classroom. I have only three children at home, not 30, but even so, I find it hard to be continually open to their individual interests and modes of self-expression. I find it difficult to encourage creativity in one of my children while the other two are demonstrating joyful chaos and I can’t hear myself think. After about ten minutes of chaos, I want order in the house. I have trouble doing it for more than ten minutes, so I admire teachers who are able to be open and receptive to their students all day.

As for teacher personalities, I have no data but my own experience as a student. My own experience was that some teachers were open and supportive of creativity, and some were not—and that was true at all levels, elementary, secondary, college, and graduate school.

High school was the worst. The 50-minute schedule made it nearly impossible to do anything creative during school hours. Art class was almost a joke. It took me 10 minutes to get out my stuff, and 10 minutes to put it away, which left only 30 minutes to try to do anything. I can’t remember doing anything creative.

I also felt, as a high school student, that being creative was frowned upon.

I learned a lot, but I noticed that I was mostly memorizing things, and practicing basic skills. I had to lead a second life, after school, to find outlets for creativity.

That leads me to a few general suggestions. One is that the extra-curricular program can help develop skills that employers want and students can use lifelong— creative problem-solving, human relations, communication, and teamwork. It fascinates me that we continue to use our extra-curricular skills on a daily basis, long after we have forgotten the date of the Boston Tea Party or the length of the Amazon River.

Role-playing can be very instructive and creative. When I was at Chaminade University, we conducted a history simulation course. Our students studied Europe as it was in 1908, and then were assigned the roles of historic European leaders in Britain, France, Germany, and the Austro-Hungarian Empire. One student was Grand Duke Nicholas of Russia, another was British Prime Minister Asquith, and so forth. After researching their roles, the students began a three-week simulation, including a treaty signing ceremony and a Grand Ball which were both conducted in the costumes of the period.

There was a control group to oversee the simulation, to make sure that actions taken by the students were consistent with basic historical facts. However, students did not have to repeat what actually happened in history. For example, in the simulation, Russia changed history by immediately convincing the Balkan states to form an *entente*, and then enter into an alliance with Russia. The Germans, outdone diplomatically, were very quiet until the end of the simulation. Then, in the last few minutes, while the leaders of Europe danced at the Grand Ball, the German Army crossed the Rhine.

Because the students had to make decisions, and the decisions had to be based on facts, they studied hard, and learned a lot. They also had many opportunities to respond to events in very creative ways— and they did.

Interdisciplinary projects offer a lot of opportunities for creativity. Most of us, in our lives after graduation, have to draw information from various sources and integrate various tasks in order to solve a problem or get a job done. A long-established creative opportunity is the science fair project. The student has to think up the question, develop a method for testing the hypothesis, conduct the experiment or research, construct the display materials, write a description and

explanation, and so forth. Teachers are usually involved in advising and mentoring, which can make this an especially valuable experience for students.

Best of all, we have the Invention Convention, now in its 7th year. A science fair project asks: What is? An Invention Convention project asks: What could be? That's a significant difference, one that is very exciting. Remember also that the inventor in *Fly Away Home* took months to develop his new airplanes, with lots of trial and error. An invention developed over several months, for the Invention Convention next spring, can provide a similar experience for students. I applaud your presence here today, and urge you to encourage your students to participate in this special opportunity to be creative.

Think about Edison, and how many times he tried a new material for the filament in the electric light bulb. He tried hundreds, before he got the right material. A student in the classroom is often judged a failure after his or her first few unsuccessful attempts. By contrast, an inventor hasn't failed until he or she *stops trying*. The Invention Convention is an opportunity to show the results of sustained creative activity—the work of students who didn't stop trying.

The balance between uniformity and creativity

Creativity is needed to generate new ideas, new ways of thinking and doing, some of which will be consolidated and relied upon, becoming part of what is standard and uniform. Uniformity can preserve the best of what has gone before. That uniform standard must then be challenged for further progress to occur. There is thus a need for both creativity and uniformity. The tension between the two is good.

Sometimes, creativity is an act of rebellion, and sometimes, a rebellion is just what we need. I want to share with you another video clip. It's the last ten minutes of an Australian movie entitled: *Strictly Ballroom*. It's a wonderful satire, a touching love story, and a great reminder that we can become so caught up in the rules that we forget the joy of life. In the story, Scott Hastings is a young man who has been trained since childhood to be a championship ballroom dancer. His mother and father were successful dancers, and they work at a dance studio. Scott is a serious contender for a championship, but he also feels confined, and limited, by the highly prescribed and specified dance routines. He wants to be creative, try his own steps. He meets a beginner, Fran, a young Spanish woman. Fran is shown

as very plain, no make-up, and big glasses. She comes from an economically disadvantaged family of Spanish immigrants who live on the wrong side of the tracks. Fran sees Scott practicing his unauthorized steps at the studio one night. She introduces him to her family, and her father and grandmother teach both of them their own style of dancing. For Fran's family, dancing is not for show, or competition, or trophies. It is at the center of their culture. They dance to the rhythms of their own heart beats.

Scott knows that he cannot win the championship if he dances these unauthorized Spanish steps, but it is the way he really wants to dance. It's his chance to be creative. His mother presses him to dance with a partner she has selected, a young woman who only dances the authorized steps, and can therefore make Scott a winner. At the last moment, Scott decides he wants to dance his way, even if it means he cannot win.

The video clip begins with Scott rushing outside to ask Fran to come back and dance with him in the finals. Suddenly, we see him sliding out onto the dance floor on his knees, a dramatic, totally unauthorized, defiant entrance. There are two things I want to mention. First, the man who begins clapping, after the music is cut off, is Scott's father. We learn late in the film that Scott's father, when he was a young man, wanted to dance creatively, too. But his wife would not dance with him, because she wanted to win. The father gave in, and lived the rest of his life, regretting and imagining what might have been. The movie shows him, late at night, dancing alone on the rooftop of the studio building, doing his own unauthorized steps. Now, he sees that his son has had the courage to do what he wanted to do in his own youth, and he begins to clap, slowly and deliberately, the tears rolling down his cheeks. A second little note: It is the dancer that Scott has declined to dance with, the one who could have made him a winner, who plugs the electricity back in again so that Scott and Fran can continue dancing the unauthorized steps.

With that as a lead-in, here's the clip:

[Strictly Ballroom]

Scott and Fran created something new, and it was viewed as a rebellion. It *was* a rebellion. It was a rebellion against being standardized automatons, all doing the same prescribed, authorized steps. It was a rebellion in favor of the joy of

dancing, and the joy of life. At the end of the movie, people remember that dancing is fun. They climb out of the bleachers, flood onto the dance floor, and begin to dance. It make sense: We were born to dance. It's part of who we are as human beings. It is a way to express ourselves, and be truly alive.

There needs to be a balance between uniformity and creativity. It seems to me that the drive for uniformity is stronger than the drive for creativity. I offer no empirical data to support my view. It has just been my experience that a lot of people want to nail down ideas and put people in pigeon holes. They want to master their environments, get things under control. So I'm not worried that we will have too little uniformity. I am worried about whether there will be enough elbow room for creativity.

Conclusion

In conclusion, creativity involves something that is both new and valuable. What is creative for one person, may not be for another. Creativity often involves a long process of trial and error, as we saw in the video clip from *Fly Away Home*.

Creativity is important to our long-term economic survival. To compete successfully in the world economy, we need to add value, and creativity is an important way to add value. Creativity is also important to our goals as educators. We want our students to find purpose, meaning, and personal fulfillment. Creative experiences give us a sense of fulfillment, and leave us with results that add to the richness of our lives.

Our schools were not structured with creativity in mind. They were based on the factory, and were designed to produce standardized students. When class sizes are large, it is hard to manage a class and also encourage individual creativity. I learned as a student, however, that a teacher who truly wants to encourage creativity can create an environment which promotes it. I know you are here because that is what you are doing and will continue to do.

Finally, creativity often means challenging or questioning fundamental assumptions. Sometimes, creativity is a rebellion, and sometimes, a rebellion is just what we need. In the movie *Strictly Ballroom*, we saw a young man choose creativity over the established standards, rebelling against the rules, and reminding everyone by his own courage that the whole point was to share the joy of dancing

and the thrill of being alive. We need both uniformity and creativity. However, since the drive for uniformity is so strong, we need to encourage and protect creativity, even an occasional creative rebellion, or we will forget what it means to be human and what it means to dance.

God bless you, and Godspeed.