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“School Won’t Change – Until We are Brave Enough to Change the Way We Teach Teachers”

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My Inspirational High School Science Teacher

These words were said to me in the very last conversation I had with my life-long teacher, friend and mentor – my inspirational high school science teacher. . . . a man who started integrating the curriculum back in 1964. His remarkable way of demonstrating how the world of work related to science and our other subjects totally rocked my young world, forever changing the way I solved problems.

From that time forward, I yearned to see the connections between subject matter. That two-year-long, double period course, known then as integrated science, super-charged my desire to be an engineer. . . . and a teacher; and for the last 50 years has been my splendid dual passion. Along the way, I also honed my gifts for writing and invention. I have never stopped learning since Morris Lerner lit my flame, helping me to fashion a steering wheel and some strategic maps to go along with my finely-tuned, high horsepower engine.

His many assigned ten-page papers (with formal references and footnotes) made us examine the technical, economic, social, and cultural impacts of the scientific topics we were writing about. His classroom pedagogy and commentaries later resulted in my “360-degree problem solving philosophy,” a paradigm I often use in conducting professional development courses for teachers, write about in this newsletter, and discuss in my Gifted Education Press teacher resource books (which GEP has published over the last eight years). He was as hard on our writing as our English teachers. Often he gave us two grades on our papers – one for technical content and one for spelling/grammar! What would your gifted students think of this?

We also applied what we learned with a laboratory activity every single week, and technical electives that had us using head and hands to build and test something practical; two full years of this regimen without let-up. Not one of thirty students who took this course ever quit or dropped out.

Morris also taught me something else that is very important. It is the teacher who controls the learning in a classroom – not standards, guidelines or hierarchy. It is up to the teacher to make it all make sense. How effectively a student learns is all about how teachers were: trained / educated; motivated to tie things together; and their commitment to excellence throughout their career. Teachers first and foremost are the catalyst for learning.

A New Teaching Legacy Grounded in Critical Skills

Before we can ask that teachers be trained and educated differently, we need to understand the world the students of tomorrow will experience. The work-a-day world is a multi-dimensional environment that expects its workers to solve problems cooperatively, through inter-disciplinary, team-based project activities – assessing, evaluating, and making tradeoffs as necessary. Here are the critical skills globally competitive employers will look for. Please notice also how all these skills depend very much on a solid bedrock foundation of good communication skills.

1) Analyze Information

In an information-rich company, people with good planning, organization and analysis skills will be in key positions to manage, process and interpret the huge flow of internal and external data and information. With solid logical and analytical skills, employees should be able to understand the significance of the information and recommend action.

2) Convert Information Into Knowledge

All innovative companies strive to convert raw data and corporate-gathered information into saleable products and services. Executives use this knowledge to help them gain competitive and strategic advantage over other companies. Significant value is placed on individuals who can convert data and information into knowledge, and do it quickly, efficiently and consistently.

3) Sell New Ideas to Management

The ability to implement new ideas and concepts is the real measure of success. To bring ideas to fruition, one must be proficient in selling ideas to the executive who can grant access to the necessary corporate resources. Remember — no one will give poorly packaged and presented ideas the time of day, regardless of how promising they may appear.

4) Communicate Concepts Clearly and Succinctly

This skill is a 'biggie.' Careers have been — and continue to be — severely jeopardized because of poor communication skills. In fact, without them, one's career could be permanently stunted. Employees *must* be articulate. Today's managers often judge employees by how well they express themselves, both orally and in writing. Communication skills are the absolute foundation for all the others.

5) Plan For Timely Commercialization

Getting new products to market is the way companies sustain their cash flow and generate new sources of it. Timely implementation begins with people who know how to plan, organize and execute the commercialization process. Knowing how to plan well allows an employee to handle a variety of different projects, and sends a clear signal that one knows how to use precious corporate resources efficiently and effectively.

6) Be a Team Player

Team-work and collaboration among corporate departments has become a mainstay of industry problem solving. Team members must possess excellent communication skills, present new ideas effectively, and resolve to act together to address corporate problems and needs. Articulate leaders connect their team members and their assigned tasks to the big corporate picture. Selecting the right mix of team members is as important as formulating the problems the team must address.

7) Do Multi-Dimensional, Integrated Problem Solving

Making sound business decisions require more than just the technical and economic aspects of a problem. The environmental, safety, social, political, and regulatory considerations of a new product are also important. Employees need a balanced education so they can make tough choices from a multi-dimensional selection of options. Employees who can think and reason about problems on multiple levels simultaneously are essential in today's complex decision-making environments.

8) Seek Learning Opportunities

Learning must be constant. Continually improving or rejuvenating one's skills to meet new corporate challenges is absolutely essential. Employees must develop and maintain a life-long discipline of learning, honing skills, building new knowledge, and setting new goals. The global economy is a very unforgiving place.

Knowing what will be expected of school graduates, let's ponder how the training/education of teachers might be changed to make the school-to-work transition as effective as possible.

Teaching Relevance

I do love the tradition of student teaching, and wish my profession of engineering had a long-standing component like this in its undergraduate education pedagogy. With the subject of relevance uppermost in many discussions about making students more receptive to their education, I would be a huge proponent of student teachers working in or apprenticed to companies in which their students might eventually wind up working in. For example, if science and math teachers worked for a summer in a high tech company, actually doing meaningful work, don't you think they could show relevance to their students about how algebra, general science, physics, chemistry and geometry are used in problem solving on the job? I would also like to see veteran teachers periodically working in industry and business to keep their relevant skills sharp and focused.

Continued in the June-July 2015 Issue.