

I Teach Children to Be Inventors

B. Edward Shlesinger, Jr.



An inventor for tomorrow

Even young children can learn a step-by-step process for inventing solutions to problems.

I am an inventor. As a result I often hear, "I've got an idea; why don't you work on it?" "There's a problem with this thing; why can't you invent something to solve it?"

Because I am an inventor, people think I have a special set of keys that opens doors closed to them. Not so! After years of inventing I now realize there is no great mystery involved and that anyone can invent—if he/she is shown how.

I began inventing things at an early age but until about 15 years ago, I had never given much thought to the process of inventing. When I thought about it, I felt that if people—including children—could be taught, for example, how to play a musical instrument, why couldn't they be taught to invent?

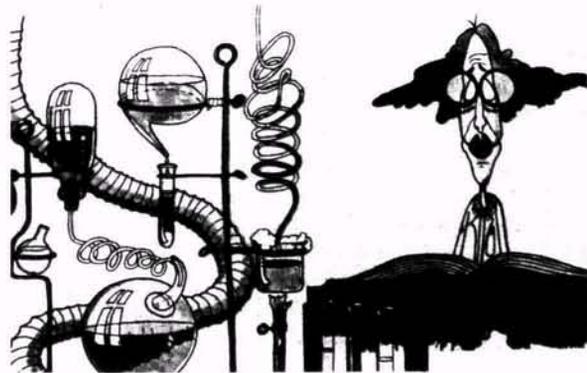
In 1965 I began to formulate a plan to teach inventing. It was not just a shotgun approach (try this; try that) but a step-by-step method, something never tried before. I had two things going for me. First, I was an inventor and recognized the problems of inventors. Second, I was a patent lawyer and saw the inventor's invention as something to be expanded on in order to protect the inventor from infringement.

I put together a course outline, took it to George Washington University, and in 1969 began to teach in the continuing education program of the School of Engineering.

I felt I had something, but I wanted to try my method with a group that had no formal education. With the cooperation of the Department of Corrections of the District of Columbia, I began to teach prisoners how to invent. Though some of them could barely read and write, they were able to devise original and novel inventions.

Since then I have continued to perfect the step-by-step approach and have taught the course to high school students and gifted students in elementary school. The state of Virginia has produced a curriculum guide for intermediate and high school teachers using my book, *The Art of Successful Inventing*, as a text.¹

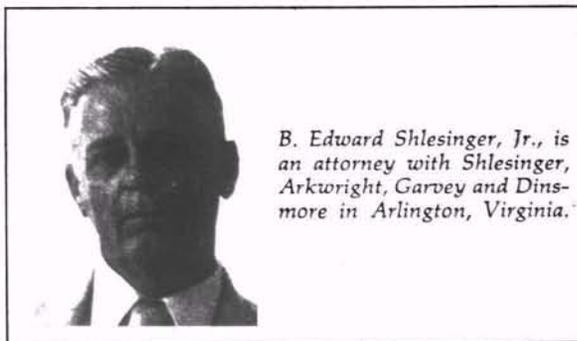
I am currently working on an audiovisual program for children ages five to nine. I find that these children can grasp the concepts and learn to be inventive. When asked the meaning of "invention," a first grader said, "It is making something which has never been made before."



The step-by-step process that I teach these children has 24 keys divided into five major groupings: 1. identification, 2. foundation, 3. data, 4. imagination, and 5. limitations.

Identification involves locating problems needing a solution. Corporations formulate problems for their research engineers, but most people have to find problems for themselves. The course teaches students how to listen for complaints ("this thing doesn't work"); to recognize difficult or inconvenient situations; and to spot circumstances that cause injuries to people or property.

Once a problem area has been identified, the inventor lays a *foundation* for inventing a solution. This is done by using history and classification to establish how the problem came to exist, how it relates to other matters, and what can be expected in the future.

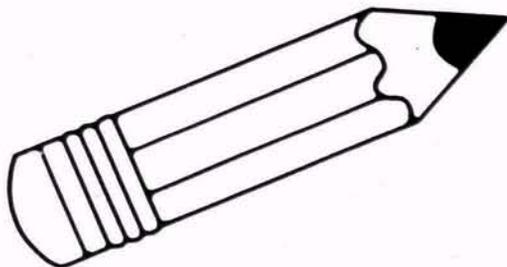


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Next the inventor collects *data* related to the problem area by asking questions to analyze quality and quantity. Students are encouraged to be careful observers by being asked questions such as "How many matches are in a matchbook?" After collecting as much data as possible the inventor uses *imagination* as a tool to solve the problem by applying principles such as forces and effects. Finally, the inventor determines the *limitations* that must be applied to the developing project in order to make it practical and effective. For example, a smokestack can be used to create a draft and eliminate fumes, but government regulations restrict the amount of pollutants that can be discharged into the air.

I have found that this process can help people of any age become more flexible and productive problem solvers. Children are society's greatest resource. If they are creative the world will benefit. Teaching them to be inventive will not only help them solve everyday problems effectively but will produce more resourceful adults, some of whom may develop complex inventions leading to progress for future generations.

Just a few days ago one of my first graders was lost in thought trying to figure out a way to prevent his pencil eraser from wearing out before his pencil was short enough to throw away. If he finds a solution, he might well become a millionaire. 57



¹ B. Edward Shlesinger, Jr., *The Art of Successful Inventing* (Arlington, Va.: Hafner Publication, 1973).

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