CREATIVITY AND STUFFING SAUSAGES
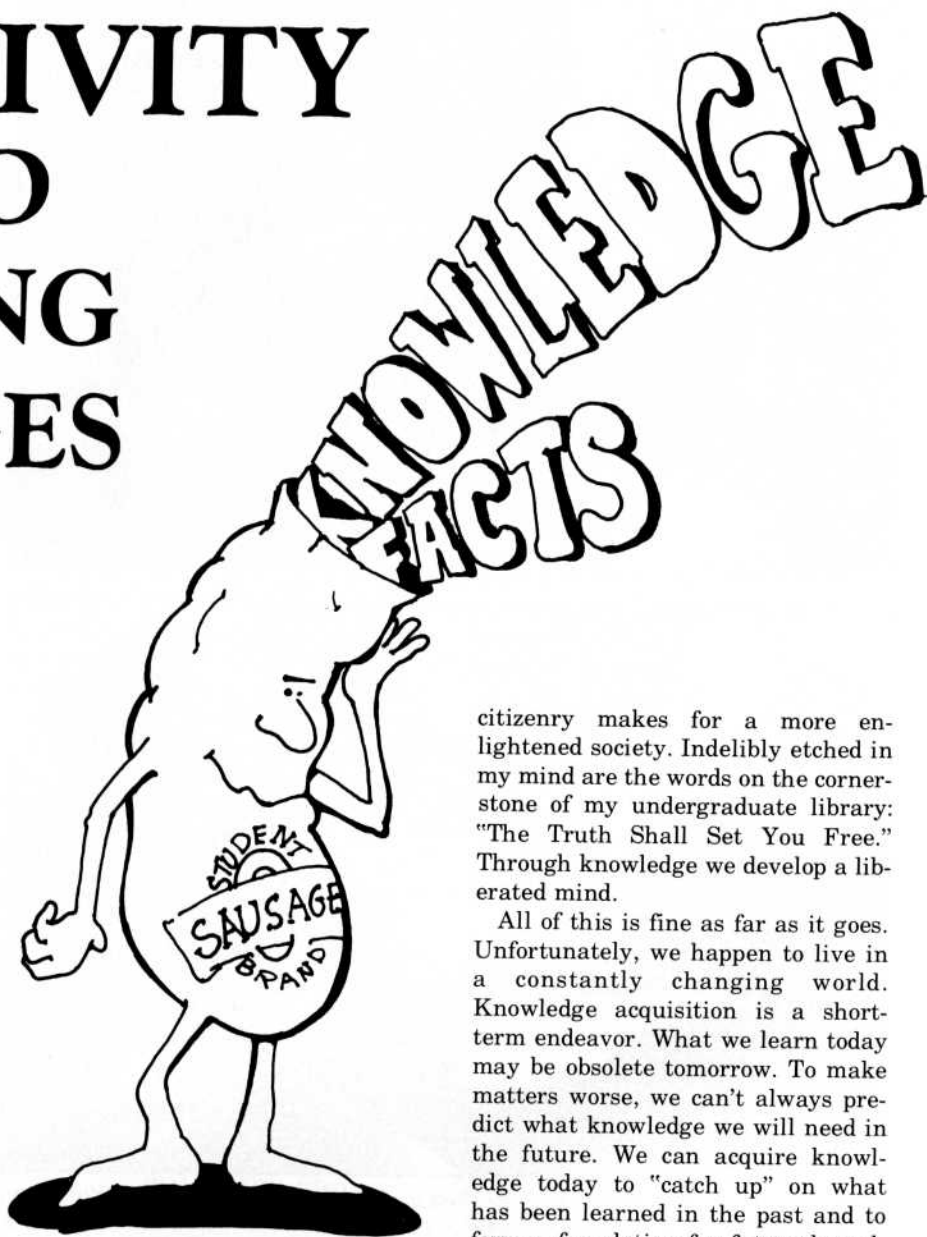

By ARTHUR VANGUNDY

The topics of creativity and problem solving normally are not included in the curriculum of colleges and universities. They don't fit the traditional view of what higher education should be doing.

An examination of course descriptions in most university catalogs will reveal that higher learning institutions regard themselves as repositories of knowledge from which students can make withdrawals. Creativity and problem solving don't seem to belong in this scenario, since such abilities usually are viewed as something you either have or you don't have. In other words, if it isn't knowledge, why teach it?

Perhaps the best reason for teaching creativity and problem solving abilities can be found in a metaphorical expression made by John Gardner over 20 years ago:

(Schools and colleges) . . . must equip the individual for a never-ending process of learning . . . they cannot content themselves with the time-honored process of stuffing students like sausages . . . It is (their) sacred obligation to instill in their students the attitudes toward growth and learning which will in turn shape society.

And the eminent psychologist J. P. Guilford has added to Gardner's thoughts by noting that:

. . . it is not enough to fill young heads with knowledge, although this is a necessary step; we must give the students instruction and exercise in using that knowledge.

In one respect, students do need to be stuffed like sausages. We all need an information base for solving our problems, whether they be personal or work related. There is no substitute for factual knowledge when it comes to interpreting and learning about the world around us. Moreover, an educated (i.e., knowledgeable) citizenry makes for a more enlightened society. Indelibly etched in my mind are the words on the cornerstone of my undergraduate library: "The Truth Shall Set You Free." Through knowledge we develop a liberated mind.

All of this is fine as far as it goes. Unfortunately, we happen to live in a constantly changing world. Knowledge acquisition is a short-term endeavor. What we learn today may be obsolete tomorrow. To make matters worse, we can't always predict what knowledge we will need in the future. We can acquire knowledge today to "catch up" on what has been learned in the past and to form a foundation for future knowledge acquisition and synthesis. But, knowledge alone can't prepare us for coping with an uncertain future.

What we do need to cope with the future is imagination. That is, we need refined skills for creatively solving our problems. Knowledge acquisition, as currently emphasized in higher education, supplies the content needed to adapt to changing conditions. We also need process skills to apply our ever-enlarging knowledge base. Albert Einstein said it well when he stated that:

Imagination is more important than knowledge, for knowledge is limited while imagination embraces the entire world.

We need imagination to deal with new knowledge so that we can become more effective problem solvers. After all, isn't problem solving what we all do anyway? We solve problems in every facet of our lives. The fact that students are able to master current knowledge says little about their future survival skills. Students also need to become problem solvers, not just stuffed sausages that grind out their contents on demand.

Problem solving generally relies on both analytical and creative thinking skills, even though one may need to be emphasized more than the other, depending on the type of problem. Problems requiring one correct solution (e.g., mathematical problems) will require a predominately analytical approach (structured problems); problems for which there can be more than one correct solution (e.g., the current state financial situation) will need creative solutions (unstructured problems).

Through mastering content, many students can deduce the analytical steps needed to solve structured problems. However, we can't always assume that such problem solving skills will be "acquired like small change with other purchases," as educator G. A. Woditsch claims. And it is even more unlikely that students can improve their creative thinking skills through inferences drawn from content.

Students should arrive in the job

market with basic problem solving skills. We shouldn't be stuffing our sausages and then sending them off to be "cooked" without some preparation. Instead, we should look for ways to prepare students while they still are in college.

There are at least two ways we can prepare our sausages. First, we can provide separate instruction in basic analytical and creative problem solving skills. By developing courses that focus specifically on cognitive skill development and creative thinking and problem solving we can do much to prepare our sausages for the "steaming" that awaits them. Of course, such courses must not take precedence over basic knowledge courses. A knowledge base is a fundamental prerequisite for any type of problem solving.

Second, we can attempt to integrate problem solving skills into the curriculum. By adopting a problem solving approach to the curriculum (or at least selected parts of it), students will acquire the knowledge they need while simultaneously gaining a life-long skill to use when confronted with new knowledge.

There is nothing radical about either of these approaches. Many colleges and universities have been using such approaches for years. Many more institutions, however, should become involved. And the degree of involvement should spread gradually from a few isolated departments to embrace entire institutions.

Implementing these approaches will not be an easy task. Many obstacles must be overcome. The money, personnel and time required for implementation all are scarce resources in most universities. Yet, the potential benefits should outweigh the costs in the long run.

The greatest obstacle to implementing either of these approaches lies not in the costs but in the attitudes and values of higher education personnel. Proposals for change — any kind of change — usually meet with resistance. Sausage stuffing has such a long tradition that it will be very difficult to change the notion that a teacher's sole role is to stuff students with knowledge and push them out the door.

Assuming, however, that courses in problem solving could be implemented and problem solving concepts could be incorporated into the curriculum, I would like to briefly discuss what might be included. Since my particular area of interest has been in creative problem solving (CPS), I will deal with that, instead of trying to look at both creative and analytical approaches.

The course I teach on creative problem solving (Human Relations 5073) stresses creative thinking principles and individual and group techniques for helping with different stages of the CPS process. One of the first major points I make is that we all are creative; we vary only in the degree to which we have developed our creative potential. You don't have to be a da Vinci or an Einstein to be creative; their creative products are beyond the grasp of most of us. To be human is to be creative. The trick is to use our innate and acquired creativity to help us solve our major problems.

Another point I make is that a major portion of being creative is gaining a good understanding of your problem. Most of us make as-

sumptions that restrict our ability to develop new problem perspectives. Problem assumptions must be tested before creative ideas can flow.

A final major point is that deferred judgment is a critical ingredient for generating ideas. All criticism (whether of your own ideas or those of others) should be withheld until all possible ideas have been brought out. Then and only then should judgment come into play.

In addition to these and other points, we spend a considerable amount of time in using a five-step CPS model. After developing an initial, tentative definition of the problem, the model is used as follows:

1. *Fact Finding.* Gather all relevant problem information. Use the "Five W" method to guide your search for information (i.e., ask Who? What? Where? When? Why?).

2. *Problem Finding.* Look over all the information gathered during Fact Finding and develop several different redefinitions of the problem. Then select the one definition that seems to best capture your problem at this time. Consider this redefinition to be tentative and subject to change since new information may emerge.

3. *Idea Finding.* Using a variety of different idea-generation techniques, develop as many ideas as possible for solving the problem. Withhold all judgment during this stage.

4. *Solution Finding.* Look over all of the ideas generated and try to develop workable solutions by modifying or combining ideas. Then generate a list of criteria and use them to evaluate the solutions by rating each solution on each criterion. Finally, select the most workable solution.

5. *Acceptance Finding.* If necessary, develop plans for gaining acceptance of your solution. Consider possible implementation obstacles and devise ways for overcoming them.

Many different techniques can be used for each of these stages. For example, Idea Finding techniques include such methods as brainstorming, brainwriting (a group method involving silent, written idea generation), analogies, synec-

tics, stimulus analysis and exaggerated objectives. Using a variety of techniques for each stage helps to ensure final solution quality.

In regard to the second approach for preparing our sausages — integrating CPS with the curriculum — a common procedure is to approach the course content from a problem solving perspective. That is, in addition to learning the content of a subject, emphasize how to use this content to resolve subject-related problems.

Because CPS represents a generic skill, it can be easily adapted to most courses. However, it usually is necessary to devote a little time to learning a problem solving model and some of the basic concepts associated with CPS. For example, in my leadership theories class, I sometimes will devote one or two three-hour class sessions to learning and practicing the five-stage CPS model. Then the class selects various leadership problems and attempts to develop possible solutions.

All leaders have to solve problems, but they don't always have the skills to deal with ambiguous, un-

structured types of problems. Using the five-step model shows students how a systematic procedure can help structure many of the problems which leaders face.

For example, a manager faced with such problems as a decline in product quality, low employee morale, high absenteeism, or interpersonal conflicts among employees could use the CPS model to develop many different solutions. Employees also can be involved in the problem solving process much as is now done with quality circles to increase participation in decision making. However, using a systematic procedure is more likely to result in high quality solutions and greater employee satisfaction.

We don't need to treat all of our students as sausages. Large numbers of them could benefit from an emphasis on process skills when dealing with course subject matter. Moreover, society in general is likely to benefit if we can equip our students with both the knowledge and the problem solving skills they will need. Hopefully then they can approach the future with more confidence and less uncertainty.
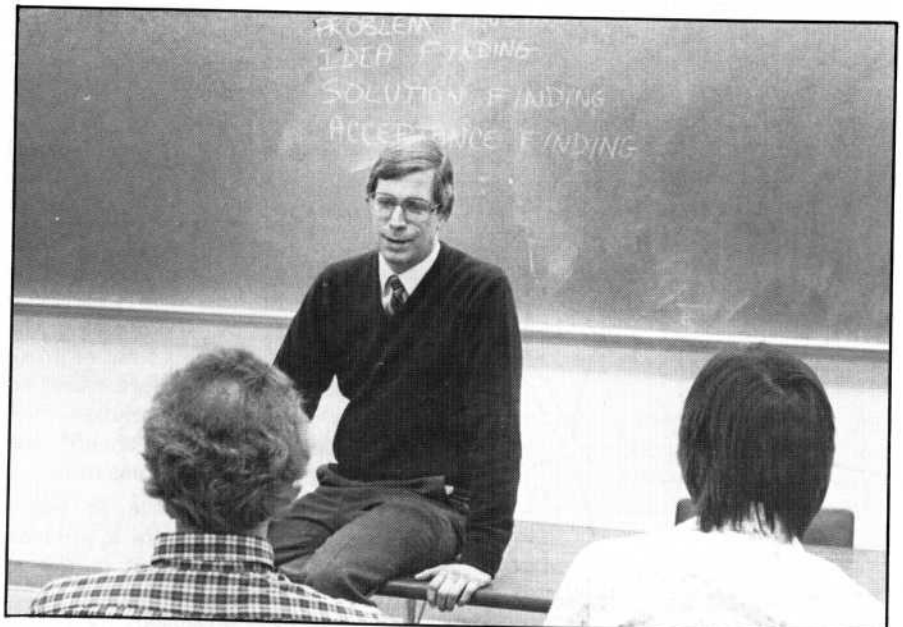
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