

Industry and Business Use In-Service Education

A functional approach characterizes programs in business and industry.

THE importance and value placed on in-service education by leaders of industry and business are evidenced by the vast sums of money they spend each year for such programs. In most of the large companies there is a director of education and training and almost all divisions or departments have an educational supervisor with a staff of specialists who either teach or supervise the teaching of many kinds of subject matter. The educational level of these in-service courses runs all the way from the skills area to the decision-making level of top management.

The educational philosophy of business is more pragmatic than it is idealistic. This is because its educational programs must produce tangible results as measured eventually by profits. Industrial in-service education is concerned with the present needs of its people, not with preserving any traditional facts or points of view. The General Electric Company

Ernest W. Anderson is professor of agriculture extension, University of Illinois, Urbana.

summarizes this philosophy with its motto, "Progress is our most important product."

The evaluation of industrial in-service educational programs is based upon observed changes in attitudes, behaviors and personal skills. These programs, for the most part, are designed for selected adults, who are motivated by personal desires for success. The subject matter is often on a high level of learning.

Break with Tradition

Perhaps all teachers can learn something useful if they will examine the general approach industrial education leaders make to teaching. The approach made by many industrial teachers is based on inductive logic rather than deductive logic. This is a different approach than is commonly made in some areas of teaching in our schools and colleges. Examples of the wide use of the inductive approach to teaching are shown in the case method, on-the-job teaching, and variations of the problem solving method.

Educational leaders in business have often been disappointed with the results of using the traditional method of lecturing to their students. They have discovered that "telling" a person is not always the same as "teaching." They would

agree though, that the giving of information, directions or instructions can be a valuable part of the teaching process. However, it was found that even when good lecturers used elaborate and attention getting visuals, they were often unable to stimulate the students to retain and use the major points they were trying to present. A "great show" often was put on, but the participants too often returned to their work with no apparent change in their personal behavior or in their values.

Industrial educators are quite familiar with the differences between what their people know (in terms of being able to repeat words) and what they show they understand (in terms of what they can do in their work). Industrial and educational psychologists for years have been involved in explaining this gulf between "what is known" and "what is done." It is the plague of all who teach. Industrial educators probably have had as much intellectual freedom to explore ways and means of reducing this difference as have most teachers in schools and colleges.

Understanding the learning process can not be separated from understanding motivation. Industrial educators have attacked the gap between "what is known" and "what is done" by exploring the principles involved in motivation. They recognize that a man does what he wants to do—at either a conscious or subconscious level. He does what he does because of ego-involvement. A man moves so as to fulfill his personal advantage, as he sees it, rather than because some teacher or other parent figure directs him to do so.

Orders from a teacher or a boss may be seen by a man receiving them as being to his personal advantage if he were to follow them carefully, so he follows them. The reason he follows them is not be-

cause his boss tells him to do so. It is because he understands why he should follow them from his personal or ego-involved point of view. This subtle difference in personal purpose is understood by the industrial educator. It may not be so well understood by the typical school teacher or college professor whose psychological thinking may be hampered by older philosophies of authoritarianism and power of position.

From an operational point of view, the problem of applying the principles of motivation boils down to how we can help people see what facts, values and attitudes are to their personal advantage if they learn them. This is the process of inductive logic—the reasoning from experiences to principles. This process is in contrast to the traditional or classical approach to education which, as a general rule, rests on deductive logic—the reasoning from accepted truth to application and usefulness.

The inductive approach, as used in industrial education, rests more upon ego-involvement than does the deductive approach. This means that inductive teaching is more personally meaningful to each learner than deductive teaching. As a result, better understanding comes more quickly, and more facts and values are retained for future use because of this understanding of the personal advantage of knowing.

Inductive Approach in Teaching

The emphasis placed on using an inductive approach in their teaching programs by such large firms as the General Electric Company, for example, should challenge everyone working in the educational field.

An inductive approach to teaching assumes that learning comes as a result of

each person's organizing his own past and present experiences into individually meaningful principles or personal theories. The process is similar to the scientific method followed in doing research. Universal laws or principles are developed experimentally through testing various hypotheses.

In much the same way an individual accepts as a "fact" his perception of experiences which he identifies as fitting well and consistently with his interpretations of his past experiences. If the learner feels there is little similarity between the new and the old, a new concept as presented by the teacher or the class leader may not be interpreted properly and may be either rejected or quickly forgotten.

This is why an industrial teacher, using the inductive approach, tries to consider carefully what a student already understands and accepts as his "facts." This is an example of starting where a student is. It is the root principle of group discussion or the case method. These methods work in industry because they are built on the principles of human motivation.

We tend to resist any new concept which we feel is being imposed on us. In contrast, we thoroughly enjoy discovering things for ourselves. This is true for both adults and children. Many years ago W. I. Thomas suggested that one of the deep wishes of all humans is a wish for new experiences.

Using this desire of man to seek and discover for himself is the heart of the inductive approach to teaching and learning. We do not generally resist facts or concepts which we discover for ourselves. Rather, we are motivated to greater activity by our successes in learning. As is often said, success breeds

more success. Satisfying experiences feed our egos and improve our self-esteem.

Industrial and business educators, using the concept of motivation arising through an inductive approach to teaching, see the instructor's role as one of helping the students to explore and examine a problem situation so that each may develop his individual answers. They see a teacher, as did Socrates of old, asking questions to force a student to defend his position or encouraging him to accept a modification of his views when new facts are uncovered. The teacher does not force such change through the power of his position. He helps the student examine more thoroughly his present concepts and asks for any changes that would now seem logical and proper. In the final result, any change in the student comes through psychological forces from within the student rather than through any external motivation from the mind and personality of the teacher.

Research studies in both sociology and educational psychology show that we learn faster and more thoroughly in a group discussion situation than in a traditional lecturing situation. This has been demonstrated to the satisfaction of industrial educators in their programs. Group discussion speeds up the learning process probably because we tend to be less resistant to a peer person than we are to a person in authority. A group leader needs to play the role of a peer by encouraging the leadership position to move among the members of the group. This procedure capitalizes on the group discussion situation and is widely taught and followed as a teaching skill among industrial instructors. Probably many business leaders could demonstrate useful tech-

(Continued on page 366)

(Continued from page 363)

niques of teaching that would improve the proficiency of some teachers.

Two-Way Communication

From a theoretical point of view, the inductive approach to teaching and learning rests on a concept of two-way communication. The learner learns what stimulates him and makes some kind of sense to him. In the same manner, the "receiver" or student receives and understands what he has decoded or perceived from his sensory stimuli. In a group discussion, as now commonly used in industrial education, the situation permits a person to "talk back" to a discussion leader or to another participant. This freedom allows the individual to continue examining a new concept until he is ready to accept or reject it, or perhaps, to modify it.

This freedom of expression also permits an instructor to evaluate the progress of a group and the direction in which it is moving toward a solution. It also allows all persons present to hear the various individual interpretations, as they express them, that are being made by the vocal members of the group.

Each person is encouraged to accept, modify or reject these various concepts as they perceive them in light of their own past experiences. As people discuss their differences of opinion, they are able to come to a solution that has more support from the group than one imposed by an authority. Two-way communication leads to personal conviction and to a commitment to action, of some sort, by the participants. The final decision is understood by all involved, even if it is not approved by all, because each person has done his own thinking.

From industrial and business educa-

tion we can learn the importance of thinking about different levels of learning. All learning is not identical. Some of the apparent conflicts in educational research may be caused by assuming that all learning is simply learning. It would seem that industrial educators think of at least four levels of learning as follows: (a) muscular or mechanical skills, (b) simple recall or memory of facts, (c) cause and effect relationships, and (d) abstract symbolisms in a dynamic interacting situation.

Industrial education personnel seem to appreciate more fully the significance of these different kinds of learning than do many persons in more traditional education institutions. They recognize and accept, with no apparent feelings of philosophical inconsistency, that the learning needs and learning process of a lathe operator may lie more in the area of manipulative skills than in the memory of many facts or relationships. A foreman is expected to be able to appreciate the need for proper material flow through his region of control. However, it is management at an executive level that is expected to make decisions where economic and mechanical factors of marketing and manufacturing meet and interact.

Each man, at his own level, receives the kind of educational experience that helps him develop in the place where he is and eventually move beyond it. These educational experiences must be selected so they will help him solve the problems which have meaning to him at present and which will stimulate him to seek new areas of learning to conquer. This pattern of procedure rests on the motivational concept that man is more concerned with the present than he is with the future. Many traditional industrial education programs, however, rest on an

assumption that people should be forced to learn something because it will be "good" for them some day.

The industrial emphasis on the here and now of a situation does not mean that industry does not plan for the future of its personnel. Industry assumes that a foreman, if he has the ability and the desire, can become an executive. Industrial education recognizes that there are stages of growth and development and that such development is a slow process. They look upon education as a growth process rather than an "outpouring" of facts to the students by the teachers.

It may be unfortunate that teachers in schools and colleges do not consider more seriously the significance of different levels and kinds of learning. Clearer appreciation of student growth toward maturity might improve our teaching. Too frequently in our classes we emphasize only the area of abstract thinking. We apparently fail to realize what must precede this kind of learning. We seem to lack an understanding of the real and significant differences in interest and ability as a major characteristic of our students. We have made a fetish of "individual differences" in our discussions, but we tend to cling to the old concept

that everyone needs to have the same experiences and needs to know the same facts if he is to be considered an educated person.

Summary: 1. The industrial educator is interested in both the retention and use of knowledge learned, with emphasis on usefulness. Industrial people stress the point that when new facts, attitudes and values are needed to be understood, they are best learned when they are approached through personal involvement.

2. The inductive approach to teaching is used by many industrial educators. They assume that each person must organize the material presented into individually meaningful patterns if he is to understand and retain the concepts.

3. Industry and business teachers encourage honest differences of opinion in the search for new and better ways to do a job. This is especially true in executive development programs.

4. By using the inductive approach to teaching and learning, persons in industry show their appreciation of the significance of individual differences in both ability and interests. Their educational philosophy is that each person should be considered as a worthwhile individual with his own peculiar levels of interest and native ability.

Organizing for Growth

(Continued from page 339)

development of K-6 science curriculum guides, with 7-9 and 10-12 in process; and this year, a study of language arts K-12 is under way.

This organization has made possible the coordination of in-service education at all levels, yet it possesses a flexibility that includes a kindergarten education workshop and a unit of the International Reading Association. It helps to meet the

needs of individuals, individual schools, and a school system.

In summary, effective organization for in-service education must be evolved in each school system. What Belleville and other districts have done may be adaptable, but it should not be considered adoptable. Creation of an effective organization requires much time; yet not too much for the school system that hopes to realize continuous benefits for education.

Copyright © 1960 by the Association for Supervision and Curriculum Development. All rights reserved.