Schools Face Cultural and Technological Change

"Is your school developing the attitudes and understandings that will help provide emotional stability in times of change—the first requisite for the decades ahead?"

The truism, “we are living in a changing society,” is agreed to by all. Likewise we accept the corollary, “the schools must change to meet changing conditions.” Comparatively few have studied the specific problems, “How must we change? What are some of the things we should do differently in the classroom to meet the changes brought by technology?” The needed changes are seldom simply new courses. They are changes in the content of present programs, changes in the teacher’s viewpoint on the world in which he is living. They start as early as the kindergarten and continue through what must become the public school of the next decade—a thirteenth and fourteenth year of school, the “community college”; plus an adult education program which is geared to helping people examine the changing society and make their adjustments to it. A few of the many questions teachers may have to face are the following:

1. Are we recognizing and utilizing the new vocabulary and concepts of the child growing up in a culture different from ours?

“What is a dipper?” The primary school child in an urban community who asked this question emphasized the changed society and culture in which he has grown up—a culture in which water is now usually obtained from a faucet or drinking fountain. The school lesson at the time was on the stars and planets. The teacher was helping the children identify the constellation of the “Big Dipper.” Not a member of the class knew what the traditional “dipper” of the household was. The teacher was forced to locate such a utensil and bring it to school as an illustration. The astronomy lesson became also a lesson in “What was life in Ohio like before there were city water systems?”

How many such words and concepts common to the teachers in your school carry little or no meaning to the children in the classes? Likewise, how many words and concepts relatively common to the children are either unknown to the teacher or regarded as technical and scientific? This year children received as Christmas presents facsimiles of the “Thinking Turtle,” responding to light or touch. Only a short while ago the electronic turtle was a curiosity of M.I.T. engineers as they explored ideas for the “thinking machines” of today.

Today the intermediate grade youngster may be familiar with terms such as transistors, photoelectric cells, and relays (not the relay races, either). He may not know “dipper” but he frequently under-
stands the ideas behind the working of the two and three stage rockets. Ideas and concepts of centrifugal force which a decade ago might have been discussed in a high school physics course are now a part of the children's television programs which discuss and explain, for example, the man-made satellite to be launched in 1957. The youngster already has a fair concept of distances between parts of the solar system in light years, of the relative size of the planets, and an understanding that "storms" on the sun can cause electrical disturbances on earth which cause weather changes and radio and television interference!

"Are high school students able to grasp an understanding of the reasons why some kind of international government is a necessity?" This question was put to a teacher who had been in college studying current affairs at the time we first recognized Soviet Russia. This teacher had studied about the rejection by the United States of the League of Nations and knew about the various attacks on the philosophy of the United Nations.

A possible answer is that many intermediate grade children understand the need for international law. Have you watched any of the children's "space programs" lately? If not, try it. While the general plot may be as corny as the old melodrama, one basic idea is almost always present: There is a need for interplanetary law and order. If there is going to be communication, travel and trade, there must be a system of law in the universe and a means of enforcing it. For children with this background the concepts involved in studying the problems of international law and order on this planet will not be quite so new or startling.

Has your curriculum planning included a study of the vocabulary and concepts which are different for children and teachers because of changes of the past decade? How far behind the children's acceptance of new ideas do the teaching programs lag?

2. Have you studied the effects in each of your school districts of the rapid urbanization which is a part of the American population movement?

The concentration of population in urban areas surrounding production centers is a feature of our present growth. It stems partially from the technology and automation which in a decade have reduced the number of farmers by a fifth. It also results from the technology in industries such as coal mining where, as in agriculture, a reduced labor force turns out a greater volume of production than we have ever had before. The surplus labor force moves into the industrial areas. This is true of all sections of the country. A study of population movement in Oregon showed that only 17 of 133 counties did not lose farm population, a movement similar to the national trend only of greater magnitude.

Examples of the clashes of cultures resulting from this movement can be found in every urban area. In the Midwest it is frequently the conflict caused by the people from the marginal farms or the coal mining regions of the southern Appalachians moving into the industrial areas. A teacher, raised in the middle class urban traditions, may criticize a child for failure to take part in group activities. She does not realize that the child may have come from a lonely valley farm where his dog was his main companion and where one had to find his leisure time resources largely within

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himself. Have we, as curriculum leaders, helped teachers to think through the things we might do to assist these students in adjusting to a strange society? Have we studied the background of each of the several cultural groups we may find in our rapidly growing urban developments?

The population movement is frequently in two directions. Fifty miles is now common commuting distance by car. The city worker moves to the suburbs or small rural community in search of room. The rural community and village not only feel the pressure of increasing population, but the pressure of different ideas regarding work, recreation and community life. If the new population of industrial workers are members of labor unions the old community dislike of being upset by newcomers may take on the added rejection of industrial unions and the social policies for which they are working. Have you developed the resource units which will help both students and teachers better understand the labor union movement and other aspects of industrial life? A recent questionnaire to 50 school systems in heavily populated urban areas showed only one having such a teachers' guide.

3. Do you know the changes taking place in your community as a result of automation and advanced technology? Do you know the predictions of engineers for such changes?

"The greatest immediate impact (of automation) may well be on office occupations and control functions such as scheduling and accounting," say George B. Baldwin and George P. Schultz of the Industrial Relations Section of Massachusetts Institute of Technology. "A sharp cut in employment for routine office work" is one of the impacts of automation seen by Peter Drucker, economist and industrial consultant. While Mr. Drucker sees this as not a catastrophe, "because most of this group is made up of young girls just out of school," it may well be in the nature of catastrophe if the school is busily preparing students for jobs which do not exist!

Even though you are preparing students for the jobs of today they may have to come back shortly to retrain for tomorrow's jobs. The National Manpower Council states, "Many of today's electricians will have to learn electronics if they wish to retain their skilled status. Pipefitters may have to learn hydraulics. A skilled worker who formerly measured with calipers and now uses a micrometer will soon have to learn to work with tolerances measured with light waves. There may be almost no place left for the unskilled industrial worker." Is your school developing the attitudes needed for providing skilled workers for a society based on automation? If the skilled worker must expect, as many have predicted, to find that the use and value of his skills may disappear every ten years, requiring him to go back to school for new skills, is your school helping develop attitudes to accept this change?

As a teacher, imagine your shock if your teaching field were to be suddenly abolished for next year and you were told to go back to college and retrain for another kind of teaching! Imagine starting again as a "beginner." Yet, this may be the common experience for the industrial worker. The 50-year-old operator of a multiple-head drill press may find it difficult to accept the fact that his specialty is gone and that he must retrain, if possible, to become an electronic repair mechanic. A prospective accountant may be finishing his training just at the time a digital computer takes away the majority
of jobs in his field. Consider his problem in immediately going back to school to learn to become a programmer for a digital computer. The president of the Standard Register Company states that within ten years we may need 1,000,000 "programmers," whereas today we are training about 20.

Starting in the earliest grades the school will have to devise those educational experiences which will prepare the individual for changes he is bound to face. Is your school planning to meet these educational experiences?

Many engineers expect that decreased employment in direct production and distribution is bound to result. Coal mining and agriculture have already been cited. Other industries show the same trend. While oil refinery production rose by 22 per cent from 1948 to 1954, employment fell from 147,000 to 137,000. This is apparently true even of the electronics industry itself. The Bureau of Labor Statistics reports that while electronics output in 1952 was 275 per cent higher than in 1947, the volume was produced by only 40 per cent more workers. The newest industry is not providing greatly increased employment.

Will the nation's educational, cultural and recreational facilities be capable of meeting the challenge of increased leisure made possible, even enforced, by automation? While society must face the problem, the schools, too, must see the "handwriting on the wall."

In the journal, Sociology and Social Research, Frank T. Carlton states:

"... democracy in the middle years of the twentieth century continues to demand citizens who are willing and able to take responsibility. Voluntary action by devoted and intelligent individuals is extremely desirable to improve local conditions.

"What is to be the effect of increasing leisure time as a consequence of automation? Will a reasonable portion of this additional leisure be used for education in regard to problems of democracy? Will it be used chiefly for sports, or for idleness and dissipation? In an advanced technological era, the future of democracy may depend in no small measure upon the answers finally given to these queries."

While the school may have to "play by ear" the changing technical training for jobs in the new society, the social problems are becoming increasingly clear for us today. A major problem connected with automation is the need for cushioning the emotional shock to people as they face the needed rearrangement of their lives. Is your school developing the attitudes and understandings that will help provide emotional stability in times of change—the first requisite for the decades ahead?