

SCHOOLS OF THE FUTURE

How American
Business and
Education Can
Cooperate to
Save Our Schools

Author of the best-selling *Encounters with the Future*

MARVIN CETRON

with Barbara Soriano and Margaret E. Gayle

SCHOOLS OF THE FUTURE:

***How American Business and
Education Can Cooperate to
Save Our Schools***

MARVIN J. CETRON

WITH BARBARA SORIANO
AND MARGARET GAYLE

Sponsored by:
American Association of School Administrators

McGRAW-HILL BOOK COMPANY
New York St. Louis San Francisco
Toronto Hamburg Mexico

Copyright © 1985 by Marvin Cetron

All rights reserved. Printed in the United States of America. Except as permitted under the Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means or stored in a data base or retrieval system, without the prior written permission of the publisher.

1 2 3 4 5 6 7 8 9 D O C D O C 8 7 6 5

ISBN 0-07-010350-X

Library of Congress Cataloging in Publication Data

Cetron, Marvin J.

Schools of the future.

1. Education—United States—Forecasting.
 2. Continuing education—United States—Forecasting.
 3. Vocational education—United States—Forecasting.
 4. Occupational retraining—United States—Forecasting.
- I. Soriano, Barbara. II. Gayle, Margaret. III. American Association of School Administrators. IV. Title.

LA217.C4 1985

370'.973

84-28871

ISBN 0-07-010350-X

Book design by Mary A. Wirth



FOUNDATION FUND

AMERICAN ASSOCIATION OF SCHOOL ADMINISTRATORS

This study of the future of education was conducted for the American Association of School Administrators by Forecasting International, Marvin J. Cetron, President. The views expressed do not necessarily reflect the positions or opinions of the American Association of School Administrators, its members, staff, Executive Committee or Foundation Fund Board of Trustees. This study does, however, provide insights into a number of issues and possible events that should be considered by all schools as they plan for the future.

We wish to express our appreciation to the Foundation Fund trustees for their advice and encouragement:

Trustees

Dana P. Whitmer
Martha Gable
the late Forrest Conner
Edna M. Manning
Jean B. McGrew
Richard Musemeche
Lloyd C. Nielsen
Gale T. Bartow

AASA staff members

Bernard Brill
Ronda DeSplinter
Herman R. Goldberg
Bruce Hunter
Effie H. Jones
Joanne Kaldy
Julia Marsden
Raymond B. Melton
Richard B. Miller
Joseph Scherer
Walter G. Turner
Cindy Tursman

Anne Dees served as editorial liaison for the AASA Communications Department; Gary Marx served as project director.

CONTENTS

	INTRODUCTION	/ 1
1.	<i>Today's Schools: Common Myths—Future Reality</i>	/ 5
2.	<i>The New School: A Future Scenario</i>	/ 14
3.	<i>Technology in Future Society and Future Schools</i>	/ 25
	SCENARIOS:	
4.	<i>Future Lifestyles</i>	/ 37
	<i>Demographic Charts</i>	/ 44
5.	<i>21st-Century Women, Families, and the Schools</i>	/ 66
6.	<i>Minorities and Schools of the Future</i>	/ 73
7.	<i>Funding</i>	/ 78
8.	<i>School/Business Partnerships of Today and Tomorrow</i>	/ 85
9.	<i>Longer School Day and Year</i>	/ 92
10.	<i>Low Pupil-Teacher Ratios</i>	/ 99
11.	<i>Curriculum and Student Standards</i>	/ 102
12.	<i>Teaching and Professional Standards</i>	/ 110
	<i>Epilogue</i>	/ 121
	APPENDIX A: <i>Future Conditions—Implications for School Planners</i>	/ 123
	APPENDIX B: <i>The National Education Reform Reports</i>	/ 145
	<i>Acknowledgments</i>	/ 159
	<i>Index</i>	/ 161

INTRODUCTION

The students who will graduate from high school in the year 2000 will be entering elementary school in less than 3 years. The schools that will guide these students—and shape our nation's future in the 21st century—are being planned today, at a time when education is again in the national spotlight. Nearly 30 reports issued by commissions, task forces, and individuals have made it clear to the American people that their nation will be “at risk” unless they pay attention to their schools.

During the past several years, dozens of panels, commissions, and other experts have made recommendations on how schools can become more effective. A chart showing an overview of all these recommendations is included in Appendix B.

Some of the recommendations will work in some communities and not in others. Some are based on sound research and some are not, but all grow out of the same basic belief: that continuing to improve America's schools is the key to the United States's future. So during this time of reassessment and reevaluation, schools have an opportunity—and a responsibility—to improve and gain needed support. To make the most of the attention currently focused on education, schools must rally their communities and staffs to formulate plans.

That is why the American Association of School Administrators

commissioned Forecasting International to conduct this study. Schools must make their plans for the future with an understanding of the key issues that will affect education in their communities. A number of these are identified and discussed in this book. School leaders across the nation were asked to judge the probability and potential impact of a number of possible events. Those events and trends judged to be significant in shaping America's schools in the next 20 years are the ones on which this book will concentrate.

- A major responsibility of schools in the future will be to prepare students to enter a rapidly changing job market. If the United States is to continue to compete in the worldwide marketplace, American workers will need to be more highly trained than at present.
- Schools will be responsible for preparing students who are adaptable, who are able to respond quickly to the changing requirements of new technologies. In the near future, workers' jobs will change dramatically every 5 to 10 years. Schools will train both youth and adults; adult workers will need reeducation and retraining whenever business and industry update their operations. In the future, workers will be displaced frequently and they will be moving constantly from one occupation to another. They will need periodic retraining because each new job will be different from the previous one.
- By the year 1990 or 2000, public schools should be training both young and adult students for work. But before they can do this, two major changes will have to be made. First, funds must be available to enable schools to operate these job-training programs and to help them adapt physically to these new demands. Second, educational planners must ensure that schools will be open when adults can attend them. These two changes will mean that the entire school day and school plant will be restructured—not piece by piece, but altogether.
- In the future, schools and businesses will need to work closely in a new business/education partnership. In many cases, the private sector will supply the funds that schools need to expand their programs. Sometimes businesses will actually purchase services—such as training programs for workers—from the schools.

Business leaders will also advise the schools about the changing needs of the marketplace to ensure that the students who enter the work force have the best preparation possible.

- Emphasis on such "traditional" academic subjects as reading, writing, and mathematics will increase—not decrease. Students will need these skills to help them adapt to being retrained every 5 to 10 years. They will also need to communicate more effectively than ever before.
- New technologies, such as computers, videodiscs, and cable television will change the look of the "schoolroom." In the future, students may spend 1 or 2 days each week studying at home. Increased and well-planned use of these new learning technologies will enable machines and humans each to teach what they teach best.
- Because of the additional responsibilities that will be imposed on teachers, they will achieve greater status in American society. In the future, teachers will be paid salaries that are comparable with other professionals. They will work in schools that offer continuing opportunities for professional advancement and training. As a result, education will once again attract the nation's brightest and most qualified students.

The planning to make these predictions a reality must begin now. And everyone in the community must take the responsibility for change. Citizens need to become informed and involved with the decisions that affect their local schools.

This book contains information, ideas, and forecasts that can help schools and citizens come together to plan for the future. The first three chapters set forth a general picture of the trends that will shape schools in the future. Ten key trends are then discussed in greater detail, depicting how education might evolve in 1990 and in 2000.

Before anything can be planned or accomplished, however, realities about education must be separated from myths. Chapter One identifies many common misconceptions and points up present circumstances that will impinge on future educational developments.

We have forecast a basically positive, progressive future for America's schools based on current international and national economic and social trends. These trends could change direction, however,

thereby altering our predictions. But nothing will alter these forecasts as greatly as inaction. If America's citizens ignore these warnings about their educational and industrial future, the United States's economic stability and preeminence will be jeopardized.

TODAY'S SCHOOLS: COMMON MYTHS—FUTURE REALITY

As the U.S. government and many communities now look to change schools in dramatic ways, the criteria for these decisions to revise and restructure the system should be examined. Are current assumptions about both the positive and negative aspects of the nation's schools valid or are they myths? Some controversial issues relevant to the reform movement in the public schools are discussed below.

MYTH Reforms recommended in *A Nation at Risk* and nearly 30 other critiques have been put into effect on a nationwide basis.

REALITY Efforts to improve the schools are just beginning in many parts of the nation. In *A Nation Responds*, a follow-up to *A Nation at Risk*, the U.S. Department of Education notes that 32 states have taken important action.

But *A Nation Responds* sometimes confuses talk with well-planned action. For example, if one school district in a state instituted a training program in robotics, the report credited the whole state with this improvement. If business and school leaders met three times, some follow-up stories implied that suddenly a new coalition of business and education had been forged.

Since 1983, over 30 states have raised academic standards, and more states have such legislation pending. Raising academic standards is not effective, however, unless programs are initiated to help students achieve these new standards. In the same light, strengthening

teacher accountability standards will work only if evaluation procedures are improved. At present, funding for such supportive programs has been scanty and cannot sustain a continuous effort.

If public education is not changed to make it useful and valuable to its students, an even greater crisis than the present one will occur. There will be massive dropouts, causing a shortage of both vocationally trained and college-eligible students. As a result, the employable pool of educated workers will decrease and America's technological edge will be blunted. If reform is not aggressively pursued in the schools, U.S. productivity will diminish even more than it has and the nation will be worse off than before.

Nevertheless, some schools and communities will be able to effect change more quickly and thoroughly than others. Those that have begun are already ahead of the game.

MYTH The education reform reports take into account students of all levels of academic ability.

REALITY Reports have dealt primarily with the 25%–30% of high school students headed for college. They have devoted far less attention to other students, particularly adults who will need job training in the future if they are to remain in the labor force.

Approximately three-fourths of future jobs may not require a traditional college education. Instead, many high-technology jobs will require specific technical training lasting 1 or 2 years. Many high schools may provide this training either in school or on the job site. Adults will comprise the greatest number of this new student body. As we mentioned previously, in order for the United States to maintain its leadership in the future, industry and business will need to update their technological equipment and procedures every 5 to 10 years. Retraining the adult work force will be essential. Some workers will simply learn to handle new systems or equipment. Others will have to master new vocations as old ones disappear.

The students of tomorrow will still attend twelve or more years of school during their youth, but every 5 to 10 years after that they will need additional schooling and retraining. Public schools will become a major base for this retraining.

MYTH Even though basic literacy is a problem for U.S. youth, most adults have the ability to read and write a simple sentence.

REALITY The real question is not whether adults are literate; it is how literate they are. In 1977, the University of Texas did a national survey to determine what sort of skills were needed to function in everyday life—reading a job application; filling out government forms; shopping for clothes, groceries, and medicine; and working in entry-level, unskilled jobs. Using their definitions of literacy, the University of Texas found that 60% of America's adult population cannot read and compute well enough to go through their everyday lives without difficulty.

These adults might find it difficult to train or retrain for available jobs. Schools must provide leadership in dealing with this lack of basic literacy. The gap between what these adults can do and what they should be able to do will only widen as the literacy requirements of high-technology society increase and as literacy itself is redefined.

MYTH Students belong in the schoolroom, where they should be taught concepts rather than specific applications, especially at a time when the job market is changing so rapidly. They should learn about jobs *after* they leave high school, when they enter the working world.

REALITY When students wait to work until after graduation, they are hurting themselves economically. They certainly are missing an opportunity to gain job experience and establish themselves in the job market. Twenty-five percent of the nation's high school graduates were unemployed in 1984. This shocking statistic is due in part, we feel, to the students' lack of knowledge of specific job skills. Of course, students must learn concepts and schools will continue to teach them a traditionally broad liberal arts curriculum. But at about the eighth grade, many students can benefit from school-guided part-time work and, in the future, schools will provide this. Many students will discover, for instance, that they can use trigonometry on the job; they will have the opportunity to write simple newspaper articles or advertising copy for a telemarketing business. They might also use basic arithmetic as bookkeepers' assistants or observe biological and chemical principles as hospital aides. As businesses join schools in preparing students, the academic curriculum will broaden and change.

Students learn to reason more effectively when in practical rather than academic settings, when they are shown how general concepts apply to specific problems. What better way to master an idea than

to use it in a real-world situation where students can see a purpose for learning it? The actual application of ideas to concrete situations will sharpen their desire to learn and guide them toward suitable careers.

Both on the job and at school the emphasis will be on how to think: how to use information and how to work in teams to solve problems. These teams will be much like those in many manufacturing areas today. Students, in turn, may gather information, enter it into the computer, and work with others to evaluate it.

Dependability and teamwork at school will pay off on the job. A Johns Hopkins University study shows that employers are interested in dependability and in how well students accept supervision, work together, and show initiative. Students will have the opportunity to learn other skills as they periodically return to school for retraining and to prepare to move up the career ladder.

MYTH Teaching job training in the schools is a waste of time since jobs in the future will be changing so frequently because of technological advances.

REALITY The skills needed for jobs today are changing and will continue to change in the future. For example, the half-life of the skills an engineer learns in college today is 5 years; new knowledge will replace much of what he or she knows.

But job obsolescence is not a major factor if the population has been well educated to start with. Although the first high-tech job may require 1 or 2 years of training, the next job often less than a year to learn.

MYTH Computer skills and related technological skills will make students successful in the job market of the future. It will be unnecessary to provide a general academic education since it will have no bearing upon what students will be doing in their prospective jobs.

REALITY Future workers, even in the technical jobs that will make up more than three-fourths of the job market, will need to have the traditional skills that public education once provided. As jobs change in the future, it will become necessary for a worker to read increasingly complex materials, write more persuasively than in the past, and use basic principles of math and science with ease. Traditional, basic literacy skills will only increase in importance.

MYTH The most intelligent students in a class should be singled

out to receive special attention, since it is they who ultimately will develop new products, technological advances, and industries.

REALITY Creativity is only moderately related to intelligence. Up to about 120 IQ, there seems to be a strong correlation. After that, students with high IQs often become quite narrowly focused and sometimes lose the flexibility necessary for creative problem-solving.

Over the next 15 years, tremendous gains should be made in understanding how the brain develops and why students excel in one area of endeavor, but not in others. Students will be categorized not by IQ, but by different learning behaviors and abilities. They will move from one problem-solving group to another based on their potential for development of various job skills, their creative skills, and their group interaction skills—not solely because of academic strength.

MYTH The best way to teach a student whose first language is other than English is to teach him/her in his own language first and in English second. It is a double burden for a student to learn new concepts at the same time he or she is learning a new language.

REALITY For most students, training in English first may work best. The decision rests on several factors: the age of the student, what the first language is used for versus what English will be used for, what role the home language has in the student's surrounding community, and how the decision will affect his or her self-esteem. Self-esteem may be one of the most important considerations. Some Hmong students from the hills of Cambodia, who come to this country with little experience in schooling, may find the formal classroom situation strange and intimidating. Very young Hispanic students may adapt easily to a new language. Adult foreign language speakers on the other hand come to school to learn English; they do not need help in maintaining their home language. By the year 2000, through the use of videodiscs and simulation for language instruction, students will find themselves beginning to use English more quickly than they can now.

MYTH Employers make no distinction between white and black high school graduates when hiring. They are more concerned about whether the students have graduated from a good high school.

REALITY According to a Johns Hopkins University study, employers prefer to hire blacks who attended suburban high schools over

blacks who attended inner-city schools of all-minority populations. Apparently these employers feel that suburban students will be "better long-term risks," having come from racially integrated schools with populations comparable to those found in most business settings. Hence, the location of his or her high school directly affects a black student's chances for employment.

MYTH Computer education in public schools will enable poor school districts to offer educational programs equal in excellence to rich school districts.

REALITY Computers in the schools will not affect academic achievement as much as computers in the home. Even though 53% of our nation's schools now have computers, there still aren't enough for children to learn effectively on them. By 1995, most households will own a computer for educational purposes, but only by the year 2005 or 2010 will computers be as commonly distributed and accessible in schools. Parents—not schools—will determine initially how computers will affect education.

Therefore, in these early stages there will be greater differences between rich and poor schools because of computer education. The children of parents who stress educational uses of computers will simply move faster academically than children whose parents lack the machinery.

Initial information from a 1984 study by Future Computing, Inc., however, shows that lower-income families have bought computers at a greater rate than upper-income families. If the prices of both computers and software become affordable to the general public, poorer families will buy educational packages—as they have bought encyclopedias, dictionaries, and educational toys—at great sacrifice and on installment plans. Schools will need to advise interested families on educational software and should even provide them with access to computers.

MYTH Education should remain, for the most part, the sole province of the teachers, since they are best equipped to decide what to teach and how to teach it.

REALITY Studies indicate that the most effective schools are those in which school administrators and teachers work as a team. Further, they actively involve the community in setting goals, implementing

programs, and evaluating results. This means more than just the once-a-month PTA meeting. It means that community members—local business people as well as parents—are actually in the school every day: they help teach; they share with educators their perceptions about what seems wrong and right; teachers and administrators are responsive to them. This cooperation is even now being implemented as policy through contracts among businesses, local governments, and schools in cities such as St. Paul, Houston, and Boston. This trend is likely to continue.

Schools of the future will build upon these relationships. Curriculum committees will be composed of educators, parents, and possibly business representatives. Some technical or business classes may be taught by experts, whose progress and results will be monitored by educators. Classes may meet outside the school building to suit the needs of the businesses involved or to reinforce lessons learned.

MYTH Schools will continue to use volunteers to manage and operate athletic, tutorial, and extracurricular programs.

REALITY Nearly four-fifths (79%) of our public schools use volunteers as teachers and coaches; more than 4.3 million people volunteer part time, according to the National Center for Educational Statistics. But these programs are not easy to run nor are they free. Volunteers often require paid professional direction—training, supervision, encouragement, and recognition—in their unpaid positions. The key to good programs, as shown in a 1981 National Center for Educational Statistics survey, is hiring full-time volunteer coordinators, for school volunteer programs can be the most effective tool for gaining community support. The volunteers' involvement results in their feeling pride in as well as responsibility for their schools; volunteers become active in supporting funding increases from local government and business.

As more women enter the work force and as older adults become involved in their own educational efforts, however, schools will need to provide different incentives to expand their volunteer groups. At present, schools ask for parent volunteers. In the future, schools will have to seek volunteers from the community as a whole, whose members will respond if they can gain valuable job experience they

otherwise might not be able to obtain. Senior citizens are becoming the largest single group of volunteers and will continue to be so in the near future.

MYTH Merit-pay plans will improve the performance of teachers.

REALITY Merit-pay plans could improve teacher performance if there were enough money to reward all those who put forth extra effort and get better results. When only a few good teachers may be rewarded, others may not make the extra effort. Better student performance evaluation techniques are needed to make a merit-pay program effective.

Merit-pay plans might also improve the performance of teachers if these plans were not used as substitutes for general pay increases. Teachers are the lowest-paid professional group whose jobs require at least a bachelor's degree. Merit pay is not a substitute for salary parity. Industry demand in particular will be a major market force behind the increase in teachers' salaries. Businesses have already begun to purchase teacher services from schools and they will continue to compete with schools to hire teachers with high-tech skills.

MYTH Divorced or single working mothers are not as supportive of the schools as stay-at-home married mothers.

REALITY A recent study by Johns Hopkins has shown that divorced and single working mothers spend more minutes helping their children at home than married stay-at-home mothers. On the other hand, nonworking mothers volunteer more time at school than working mothers. Because schools see stay-at-home mothers more often, they have assumed that working mothers are not as supportive.

As more women enter the work force and the number of single, working parents increases, schools cannot continue to judge parents' support solely on the basis of traditional assumptions. Schools must develop a rapport not only with parents who appear at the school door, but with those whose schedules make visits difficult.

MYTH Computers will actually bring families closer together. When parents work at home and students study at home 1 or 2 days a week using the computer links to the school, family harmony will increase.

REALITY In studies of marriages where both spouses worked at home it was found that the divorce rate quadrupled. The resulting friction between husband and wife, parents and children, all trying to work in the same place, perhaps with the same equipment, could